



**SE↑IKO**

Seminar Nasional Informatika dan Komputer

# PROGRAM BOOK

Seminar Nasional  
Informatika dan Komputer

**"Kontribusi Artificial Intelligence di Era  
Transformasi Digital"**

FAKULTAS TEKNIK

**Purwokerto, 24 Juni 2024**

# PROGRAM BOOK

SENIKO

(SEMINAR NASIONAL INFORMATIKA DAN KOMPUTER)

2024

*"KONTRIBUSI ARTIFICIAL INTELLIGENCE DI ERA  
TRANSFORMASI DIGITAL"*

PURWOKERTO, 24 JUNI 2024

JURUSAN INFORMATIKA

FAKULTAS TEKNIK

UNIVERSITAS JENDERAL SOEDIRMAN

**SAMBUTAN REKTOR  
UNIVERSITAS JENDERAL SOEDIRMAN**



Puji syukur kita panjatkan ke hadirat Tuhan Yang Maha Esa atas terselenggaranya acara SENIKO (Seminar Nasional Informatika dan Komputer). Selamat datang saya ucapkan kepada seluruh peserta SENIKO yang telah hadir. Saya selaku rektor Universitas Jenderal Soedirman sangat berbahagia dapat menyambut Anda semua pada acara ini. Apalagi di dalam acara ini ada *launching* program studi baru, yaitu Teknik Komputer.

Pada tahun 2024 ini Universitas Jenderal Soedirman telah membuka 9 program studi baru. Salah satu di antaranya adalah Teknik Komputer, yang merupakan program studi di bawah jurusan Informatika, Fakultas Teknik.

Terima kasih atas kehadiran Anda yang telah meluangkan waktu untuk bergabung di acara seminar ini. Saya berharap Anda dapat menikmati acara ini dan memperoleh manfaat dari materi yang akan disajikan. Saya juga berharap Anda dapat berpartisipasi aktif dalam diskusi dan memberikan kontribusi di bidang keilmuan sesuai dengan tema seminar kali ini, yaitu "*Kontribusi Artificial Intelligence di Era Transformasi Digital*". Semoga acara ini dapat menjadi sarana untuk berbagi pengetahuan, pengalaman, dan ide-ide baru yang dapat membantu kita dalam menghadapi tantangan dan peluang di masa depan.

Saya juga ingin mengucapkan terima kasih kepada semua pihak yang telah bekerja keras dalam menyukseskan acara ini. Selamat berpartisipasi untuk seluruh peserta dan semoga kita dapat memperoleh hasil yang positif dari seluruh rangkaian acara di seminar kali ini. Terima kasih.

Purwokerto, 24 Juni 2024

Rector Universitas Jenderal Soedirman,  
Prof. Dr. Ir. H. Akhmad Sodik, M.Sc.Agr., IPU., ASEAN Eng.

## SAMBUTAN DEKAN FAKULTAS TEKNIK UNIVERSITAS JENDERAL SOEDIRMAN



Puji syukur ke hadirat Tuhan Yang Maha Esa atas rahmat dan karunia-Nya untuk kita semua. Saya merasa bangga dapat menyaksikan jurusan Informatika Universitas Jenderal Soedirman mempersembahkan sebuah seminar bernama SENIKO (Seminar Nasional Informatika dan Komputer). Tema seminar ini adalah "*Kontribusi Artificial Intelligence di Era Transformasi Digital*", sebuah tema yang cocok dengan perkembangan teknologi yang sangat pesat di era kini.

AI atau kecerdasan buatan telah menjadi elemen kunci di berbagai sektor seperti sektor industri, pendidikan, kesehatan, dan berbagai layanan publik. Seperti yang kita ketahui, kecerdasan buatan telah mengubah cara kita hidup kita dalam bekerja dan berinteraksi dengan orang lain di era kini.

Universitas Jenderal Soedirman, khususnya jurusan Informatika di bawah Fakultas Teknik, selalu berupaya mendukung kemajuan IPTEK di Indonesia. Apalagi dengan adanya program studi baru di jurusan Informatika, yaitu program studi Teknik Komputer, semoga dapat semakin mendukung tujuan tersebut.

Saya ingin mengucapkan terima kasih kepada para pembicara yang telah meluangkan waktunya untuk berbagi ilmu dengan kita semua dengan materi yang sangat menginspirasi. Saya juga mengucapkan terima kasih kepada para peserta, panitia, dan semua pihak yang terlibat sehingga acara ini dapat terselenggara dengan sukses. Semoga seluruh rangkaian seminar ini dapat berjalan lancar dan dapat memberikan manfaat besar bagi perkembangan IPTEK di Indonesia.

Purwokerto, 24 Juni 2024

Dekan Fakultas Teknik

Universitas Jenderal Soedirman,

Prof. Dr. Eng. Ir. Agus Maryoto, S.T., M.T.

## SAMBUTAN KETUA SENIKO



Puji syukur kita panjatkan kepada Tuhan Yang Maha Esa atas rahmat-Nya atas terselenggaranya acara SENIKO (Seminar Nasional Informatika dan Komputer). Saya merasa bangga dan terhormat dapat menyampaikan sambutan ini.

Tema seminar ini adalah "Kontribusi *Artificial Intelligence* di Era Transformasi Digital" dimana tema tersebut sangat relevan dengan perkembangan teknologi saat ini. Saat ini dunia sedang menghadapi kemajuan pesat dari tren AI.

Dunia akademik khususnya di rumpun ilmu Informatika sudah seharusnya memiliki kontribusi untuk mendorong pencapaian pemanfaatan AI yang positif. Beberapa cara yang dapat dilakukan adalah dengan mengadakan forum ilmiah seperti kali ini agar dapat memotivasi insan akademik ataupun non akademik untuk dapat menggali kontribusi positif AI di era transformasi digital. Adanya transformasi digital diharapkan dapat membawa perubahan yang lebih baik pada berbagai aspek kehidupan masyarakat melalui penerapan AI pada teknologi digital.

Universitas Jenderal Soedirman, khususnya jurusan Informatika, berkomitmen untuk mendukung perkembangan IPTEK di Indonesia. SENIKO merupakan wujud dari komitmen itu, sebagai wadah bagi peneliti, akademisi, praktisi, dan mahasiswa untuk berbagi pengetahuan dan inovasi terbaru di bidang Informatika.

Terkait itu, di acara SENIKO ini terdapat lebih dari 90 artikel dari para peserta yang telah terpilih melalui proses *double blind review*, sedangkan jumlah pesertanya lebih dari 150 orang dari sekitar 50 asal institusi. Terima kasih kepada para peserta yang telah berpartisipasi, serta kepada pembicara, panitia, sponsor, dan semua pihak yang telah mendukung kesuksesan acara ini. Semoga seminar ini dapat berjalan lancar dan memberikan manfaat besar bagi perkembangan IPTEK di Indonesia.

Purwokerto, 24 Juni 2024

Ketua SENIKO,

Mochammad Agri Triansyah, S.Kom., M.Kom.

## SPONSOR



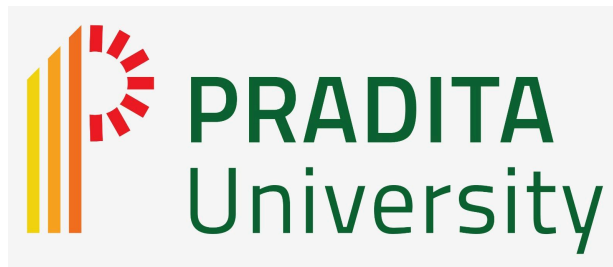
Permodalan Nasional Madani



PT. ARIDAS KARYA SATRIA



## *CO-HOST*



## *MEDIA PARTNER*





# DAFTAR ISI

SAMBUTAN REKTOR UNIVERSITAS JENDERAL SOEDIRMAN	ii
SAMBUTAN DEKAN FAKULTAS TEKNIK UNIVERSITAS JENDERAL SOEDIRMAN	iii
SAMBUTAN KETUA SENIKO	iv
SPONSOR	v
<i>CO-HOST</i>	vi
<i>MEDIA PARTNER</i>	vii
DAFTAR ISI	viii
INFORMASI SEMINAR	1
INFORMASI TEMPAT	2
SUSUNAN PANITIA	3
TOPIK DISKUSI	5
PIDATO UTAMA	9
TAUTAN SESI PARALEL PRESENTASI ARTIKEL SENIKO	10
ATURAN PRESENTASI	11
TAUTAN <i>VIRTUAL BACKGROUND</i> SENIKO	12
URUTAN PRESENTASI PADA SESI PARALEL 1 dan 2	13
URUTAN PRESENTASI PADA SESI PARALEL 3	14
URUTAN PRESENTASI PADA SESI PARALEL 4	15
URUTAN PRESENTASI PADA SESI PARALEL 5	16
URUTAN PRESENTASI PADA SESI PARALEL 6	17
URUTAN PRESENTASI PADA SESI PARALEL 7	18
URUTAN PRESENTASI PADA SESI PARALEL 8	19
DAFTAR ARTIKEL DAN PENULISNYA	20
DAFTAR ABSTRAK	30
PENUTUP	118

## INFORMASI SEMINAR

<b>Penyelenggara</b>	: Jurusan Informatika, Fakultas Teknik Universitas Jenderal Soedirman
<b>Hari/Tanggal</b>	: Senin, 24 Juni 2024
<b>Tempat</b>	: Luring ( <i>Offline/On site</i> ): Java Heritage Hotel Jl. Dr. Angka No.71, Kelurahan Sokanegara Kecamatan Purwokerto Timur, Kabupaten Banyumas Jawa Tengah 53115 Daring ( <i>Online</i> ):
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## INFORMASI TEMPAT

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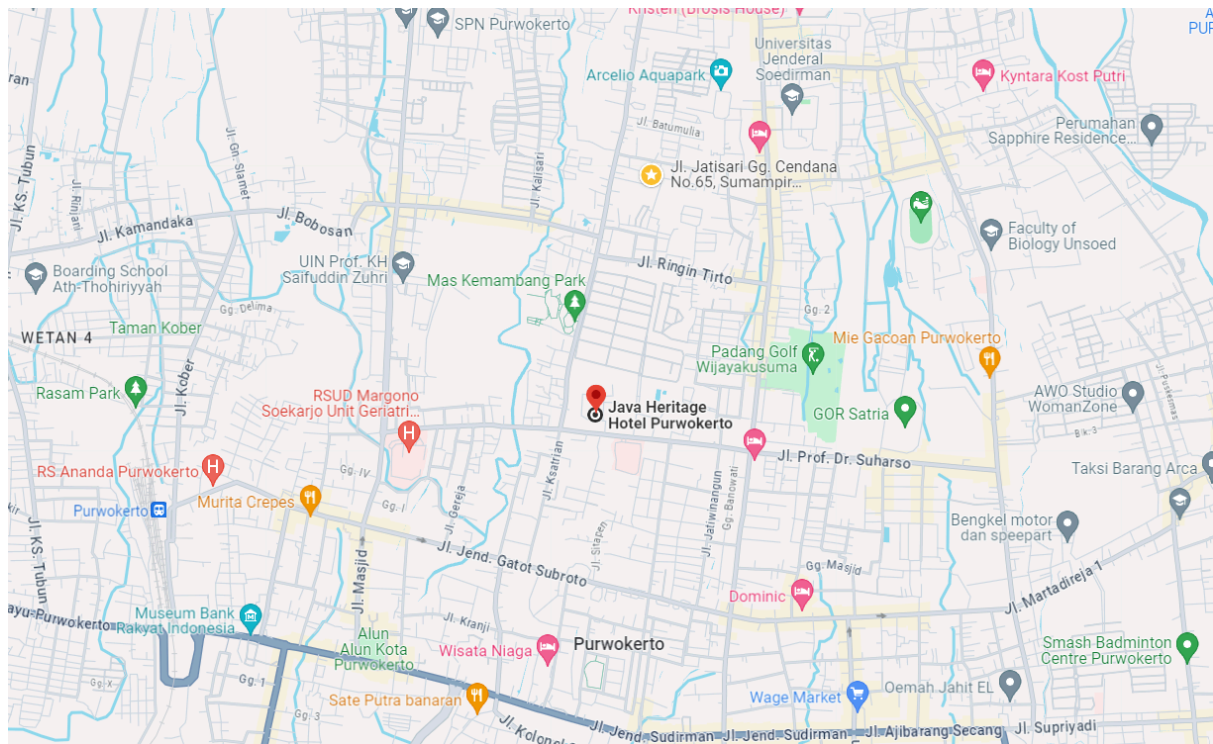
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## **SUSUNAN PANITIA**

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- Ari Fadli, S.T., M.T.
- Nur Alfi Ekowati, S.Kom., M.Sc.
- Mochammad Agri Triansyah, S.Kom., M.Kom.

## TOPIK DISKUSI

1. **Kecerdasan Buatan**
2. *Machine Learning*
3. *Data Mining*
4. *Computer Vision*
5. *Expert System*
6. *Natural Language*
7. *Processing*
8. *Robotics*
9. *Sensory Systems*
10. *Game Development*
11. *Information System*
12. *IoT*
13. *Software Engineering*
14. *Semantic Web*
15. *Ontology*

## SUSUNAN ACARA

24 Juni 2024			
Waktu	Aktivitas	Durasi	Pengisi Acara
07.00 – 08.00 WIB	Registrasi	60 menit	Peserta
08.00 – 08.45 WIB	1. Pembukaan MC 2. Sambutan Ketua Panitia 3. Sambutan Dekan Fakultas Teknik Unsoed 4. Sambutan dan Pembukaan Acara oleh Rektor Unsoed	45 menit	1. MC 2. Ketua Panitia 3. Dekan Fakultas Teknik Unsoed 4. Rektor Unsoed
08.45 – 09.00 WIB	Penandatanganan MoU ( <i>Memorandum of Understanding</i> )	15 menit	Rektor atau Dekan Fakultas Teknik Unsoed bersama para pimpinan mitra
09.00 – 09.30 WIB	<i>Launching</i> program studi Teknik Komputer	30 menit	1. Ketua Program Studi Teknik Komputer 2. Ketua Jurusan Informatika 3. Dekan/Wakil Dekan Fakultas Teknik 4. Rektor Unsoed
09.30 – 09.45 WIB	<i>Coffee break</i>	15 menit	Peserta
09.45 – 10.45 WIB	Materi seminar 1	60 menit	<b>Narasumber:</b> Prof. Dr. Ir. Richardus Eko Indrajit, M.Sc., M.B.A., M.Phil., M.A. (Rektor Pradita University Pakar Teknologi Informasi Alumni Harvard University)

			<b>Moderator:</b> Dr. Ir. Nurul Hidayat, M.Kom. (Dosen Informatika dan Wakil Dekan Fakultas Teknik Unsoed)
10.45 – 11.00 WIB	Pemaparan <i>sponsorship</i>	15 menit	Sponsor
11.00 – 12.00 WIB	Materi seminar 2	60 menit	<b>Narasumber:</b> Prof. Dr. Ir. Hamdani, S.T., M.Cs., IPM. (Guru Besar Universitas Mulawarman, Pengurus APTIKOM Pusat, Pengurus IndoCEISS, dan Asesor LAM INFOKOM)  <b>Moderator:</b> Dr. Ir. Nurul Hidayat, M.Kom. (Dosen Informatika dan Wakil Dekan Fakultas Teknik Unsoed)
12.00 – 12.10 WIB	Penyerahan cendera mata	10 menit	Panitia dan pembicara
12.10 – 13.00 WIB	Istirahat	50 menit	Panitia dan peserta
13.30 – 15.00 WIB	Presentasi artikel ilmiah oleh para pemakalah	90 menit	Peserta
15.00 – 15.15 WIB	<i>Coffee break</i>	15 menit	Peserta



15.15 – 16.45 WIB	Presentasi artikel ilmiah oleh para pemakalah	90 menit	Peserta
16.45 – 17.00 WIB	Penutupan dan lain-lain	15 menit	MC dan panitia

## PIDATO UTAMA

<b>Ruang Utama</b>	<b>24 Juni 2024</b> <b>09.45 – 10.45 WIB</b>
<b>Materi Seminar 1:</b> <i>Demistifying the Myth of Artificial Intelligence</i> Prof. Dr. Ir. Richardus Eko Indrajit, M.Sc., M.B.A., M.Phil., M.A.	
<b>Ruang Utama</b>	<b>24 Juni 2024</b> <b>11.00 – 12.00 WIB</b>
<b>Materi Seminar 2</b> Prof. Dr. Ir. Hamdani, S.T., M.Cs., IPM.	

**TAUTAN SESI PARALEL  
PRESENTASI ARTIKEL SENIKO**

<b>Nama Sesi Paralel</b>	<b>Tautan</b>
<b>Sesi Utama</b>	<b><a href="https://bit.ly/SENIKO2024">https://bit.ly/SENIKO2024</a></b>
<b>Paralel Sesi 1 (Offline)</b>	<b>(Offline)</b>
<b>Paralel Sesi 2 (Offline)</b>	<b>(Offline)</b>
<b>Paralel Sesi 3 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_3">bit.ly/SENIKO2024_3</a></b>
<b>Paralel Sesi 4 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_4">bit.ly/SENIKO2024_4</a></b>
<b>Paralel Sesi 5 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_5">bit.ly/SENIKO2024_5</a></b>
<b>Paralel Sesi 6 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_6">bit.ly/SENIKO2024_6</a></b>
<b>Paralel Sesi 7 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_7">bit.ly/SENIKO2024_7</a></b>
<b>Paralel Sesi 8 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_8">bit.ly/SENIKO2024_8</a></b>
<b>Paralel Sesi 9 (Online)</b>	<b><a href="https://bit.ly/SENIKO2024_9">bit.ly/SENIKO2024_9</a></b>

## ATURAN PRESENTASI

1. Setiap peserta pemakalah telah siap di Zoom maksimal 10 menit sebelum presentasi dimulai.
2. Pastikan peserta sudah memasang *virtual background* di Zoom sebelum presentasi dimulai.
3. Setiap pemakalah perlu menyampaikan presentasinya selama 7 menit per artikel, kemudian akan diikuti sesi tanya jawab atau diskusi bersama dengan 2 pemakalah artikel lainnya selama kurang lebih 10 menit untuk tiap 3 artikel yang telah dipresentasikan secara berurutan.
4. Segala aturan tambahan lainnya (jika ada) akan disampaikan oleh panitia atau moderator sesi paralel saat pelaksanaan acara.

## TAUTAN *VIRTUAL BACKGROUND* SENIKO

*Virtual background* dapat diunduh pada tautan berikut ini:

<https://bit.ly/Seniko2024VB>

**URUTAN PRESENTASI**  
**PADA SESI PARALEL 1 dan 2**

**Moderator : Dr. Mulki Indana Zulfa, S.T., M.T**

No	ID	Judul Artikel	Pemakalah
1	2089	<i>THE EVALUATIONS FOR THE BACKEND OF ONTI MEASURES WITH BLACK BOX METHODE</i>	Nur Alfi Ekowati, Sulistyasni, Ika Indah Lestari
2	2093	<i>ANALYSIS AND IMPLEMENTATION OF THE INTERNET OF THINGS (IoT) IN THE DEVELOPMENT OF MONITORING SOLAR POWER PLANTS (PLTS) 600 WP</i>	Tarmin Abdulghani, ST., MT., CITPM.
3	2151	<i>WATER QUALITY MONITORING DESIGN SYSTEM FOR PDAM KLATEN – CENTRAL JAVA BASED ON BLYNK APPLICATION</i>	Benny Firman, S.T., M. Eng
4	2158	<i>EVALUATION EXECUTION TIME FEATURES OF SIMPATI WEB-BASED MONITORING AND EVALUATION APPLICATION USING AUTOMATION TESTING</i>	Tri Anggoro, M.Kom.
5	2181	<i>DESMOCAM (DETECTION SMOKING CAMERA): INTEGRATION OF IOT AND MACHINE LEARNING FOR ACTIVE SMOKER DELECTION TO SUPPORT SMART CITIES IN INDONESIA</i>	Balqist Kharisma Nayu
6	2135	<i>IMPLEMENTATION OF COBIT 2019 TO MEASURE MATURITY LEVELS IN DIGITAL BANKS</i>	Rahmat Rian Hidayat
7	2303	<i>IMPLEMENTATION OF LOW-CODE PROGRAMMING TECHNOLOGY IN DEVELOPING A PETTY CASH TRANSACTION MANAGEMENT APPLICATION USING OUTSYSTEMS PLATFORM (CASE STUDY: PT BANK CENTRAL ASIA TBK)</i>	Anin Ammbya Soulani
8	2197	<i>DETECTION OF ETHYLENE GLYCOL IN THE PERFUMES USING ELECTRONIC NOSE CORRELATED WITH GAS CHROMATOGRAPHY MASS-SPECTROSCOPY</i>	Fajar Hardoyono
9	2188	<i>ANALYSIS OF FACTORS DETERMINING STUDENT SATISFACTION USING DECISION TREE, RANDOM FOREST, SVM, AND NEURAL NETWORKS: A COMPARATIVE STUDY</i>	Arif Mu'amar Wahid

**URUTAN PRESENTASI**  
**SESI PARALEL 3**

**Moderator : Ir. Bangun Wijayanto, S.T, M.Cs., IPM.**

**Link Zoom : [bit.ly/SENIKO2024\\_3](https://bit.ly/SENIKO2024_3)**

No	ID	Judul Artikel	Pemakalah
1	2020	<i>DESIGN OF PATIENT MEDICAL RECORD FILE TRACER INFORMATION SYSTEM WITH WATERFALL METHOD</i>	Fadilatul Agnia
2	2022	<i>STACKING ENSEMBLE LEARNING AND INSTANCE HARDNESS THRESHOLD FOR BANK TERM DEPOSIT ACCEPTANCE CLASSIFICATION ON IMBALANCED DATASET</i>	Bangun Watono
3	2032	<i>IMPLEMENTATION OF HYPERPARAMETER TUNING IN RANDOM FOREST ALGORITHM FOR LOAN APPROVAL PREDICTION</i>	Dwi Sandhi Bhakti
4	2063	<i>TRAFFIC FLOW AND CONGESTION DETECTION WITH YOLOV8 AND BYTETRACK-BASED MULTI OBJECT TRACKING</i>	Marchel Maulana Fahrezi
5	2056	<i>IMPLEMENTATION OF THE FMADM ALGORITHM AND SAW METHOD IN BOARDING HOUSE SEARCH</i>	Sindy Cristine Baun
6	2072	<i>HYBRID MODEL OF PARTICIPATORY AND DELIBERATIVE E-DEMOCRACY IN INDONESIA'S ELECTIONS</i>	Dytha Ananda Widhiarso
7	2073	<i>SYSTEMATIC LITERATURE REVIEW ON THE APPLICATION OF UI/UX DESIGN METHODS IN SYSTEM DEVELOPMENT</i>	Romi Ramadani
8	2067	<i>DESIGN OF A WORDPRESS BASED E-COMMERCE WEBSITE AND INTEGRATION OF CRYPTOCURRENCY PAYMENT GATEWAY</i>	Restu Anggoro
9	2064	<i>THE INFLUENCE OF FEATURE EXTRACTION ON AUTOMATIC TEXT SUMMARIZATION USING GENETIC ALGORITHM</i>	Fitrah Amalia Rahmadiani
10	2061	<i>PERFORMANCE COMPARISON OF SVM, NAIVE BAYES, AND LOGISTIC REGRESSION CLASSIFICATION ALGORITHMS IN ANALYZING NOICE APP USER REVIEWS</i>	Ahmad Bahar
11	2305	<i>APLIKASI CUSTOMER RELATIONSHIP MANAGEMENT (CRM) BERBASIS WEB MENGGUNAKAN FITUR SIMULASI KELAYAKAN NASABAH PADA KOPERASI NUSANTARA MANDIRI</i>	Evan Benyamin

**URUTAN PRESENTASI**  
**SESI PARALEL 4**

**Moderator : Mohammad Irham Akbar, S.Kom, M.Cs**

**Link Zoom : [bit.ly/SENIKO2024\\_4](https://bit.ly/SENIKO2024_4)**

No	ID	Judul Artikel	Pemakalah
1	1981	<i>DATABASE-BASED GUI SYSTEM TO INCREASE THE EFFECTIVENESS OF STUDENT DATA MANAGEMENT IN THE FKIP UHAMKA DORMITORY</i>	Ismat
2	2029	<i>ANALYSIS AND IMPLEMENTATION OF SENTIMENT SYSTEM ON THE ELECTABILITY OF INDONESIAN PRESIDENTIAL CANDIDATES 2024 USING SUPPORT VECTOR MACHINE METHOD</i>	Jasmine Avrile Kianasari
3	2094	<i>DEVELOPMENT OF HERBIFY APPLICATION WITH AI INTEGRATED UTILIZING YOLO V8 FOR OPTIMIZING HERBAL POTENTIAL IN INDONESIA</i>	Ahmad Fajruddin Syauqi
4	2104	<i>IMPLEMENTATION OF YOU ONLY LOOK ONCE V8 (YOLOV8) ALGORITHM IN POTATO LEAF DISEASE DETECTION SYSTEM</i>	Bagus Kurniawan Ekhsanto
5	2095	<i>ANALYSIS OF CHATGPT ACCEPTANCE FOR EDUCATION USING MODIFIED TECHNOLOGY ACCEPTANCE MODEL</i>	Mahmud Rizal Mustofa
6	2117	<i>EVALUASI USER EXPERINCE APLIKASI MOBILE BANKING MENGGUNAKAN METODE USER EXPERINCE QUESTIONNAIRE (UEQ) DAN HEURISTIC EVALUATION</i>	Elzy Novianti
7	2121	<i>CLASSIFICATION OF HOUSES OF CITIZENS RECEIVING DIRECT CASH ASSISTANCE USING EFFICIENET IN DKI JAKARTA PROVINCE</i>	Dzikri Adam Insani
8	2249	<i>USER ACCEPTANCE FACTORS RELATED TO AUTHENTICATION TECHNOLOGIES USING BIOMETRICS: TAM MODEL</i>	Zihan Kalila Gusnan
9	2286	<i>EVALUATION OF MATURYTY LEVEL AND DESIGN OF INCIDENT MANAGEMENT SOP IN ACADEMIC INFORMATION SYSTEM USING ITIL V4</i>	Dany Febrian



**URUTAN PRESENTASI**  
**SESI PARALEL 5**

**Moderator : Ir. Acep Taryana, S.Si, MT**

**Link Zoom : [bit.ly/SENIKO2024\\_5](https://bit.ly/SENIKO2024_5)**

No	ID	Judul Artikel	Pemakalah
1	2133	IMPLEMENTATION OF DATA ENCRYPTION IN AN IOT-BASED HEART RATE AND OXYGEN SATURATION BLOOD DETECTION TOOL USING THE ELGAMAL METHOD	Haryansyah, S.Kom., M.Kom.
2	2120	EVALUATION OF USER EXPERIENCE (UX) HNI MOBILE USING THE THINK ALOUD METHOD	Muhammad Dio Revansa
3	2125	IMPLEMENTATION OF THE K-MEANS CLUSTERING ALGORITHM IN ANALYZING PUBLIC SATISFACTION REGARDING PUBLIC SERVICES (Studi Case: Balai Pengujian Standar Instrumen Tanaman Industri dan Penyegar)	Atika Juhaedah Alifah
4	2140	ANALYSIS AND REDESIGN OF SI TOYA WENING APPLICATION USING DESIGN THINKING METHOD	Muhammad Ichsan Alfian
5	2154	PAYMENT INFORMATION SYSTEM EDUCATIONAL DEVELOPMENT (SPP) AT WATUBANGGA 1st STATE HIGH SCHOOL WEBSITE BASED	Indri Purnama Sari
6	2163	DESIGN AND CONSTRUCTION OF E-LEARNING MEDIA MOBILE BASED USING ANDROID STUDIO	Harun Aminnudin
7	2162	ANDROID BASED MULTIMEDIA APPLICATION FOR RECOGNIZING LETTERS AND SENTENCES FOR DEAF	Fahrul. H
8	2175	IMPLEMENTATION OF THE WATERFALL METHOD IN THE INFORMATION SYSTEM FOR RECORDING AND MAINTAINING EVIDENCE FOR THE SITUBONDO POLICE	Sofi Sofiyatul Hikmah
9	2209	WEBSITE-BASED RECOMMENDATIONS FOR TOURIST ATTRACTIONS IN BITUNG CITY USING CONTENT-BASED FILTERING ALGORITHMS	Karmel Daud Tambajong
10	2307	DEVELOPMENT OF INTERACTIVE MULTIMEDIA LEARNING MEDIA & GAMIFICATION ON SPACE OBJECTS TEACHING MATERIALS FOR ELEMENTARY SCHOOL STUDENTS	Dr. Rangga Firdaus, S. Kom., M. Kom
11	2215	ENHANCING EFFICIENCY IN DETERMINING QURAN LEARNING GROUPS A WEBSITE BASED K-MEANS ALGORITHM APPROACH AT NURUL JADID ISLAMI	Ikhwan Abdillah

**URUTAN PRESENTASI**  
**SESI PARALEL 6**

**Moderator : Ir. Swahesti Puspita Rahayu, S.Kom., M.T.**

**Link Zoom : [bit.ly/SENIKO2024\\_6](https://bit.ly/SENIKO2024_6)**

No	ID	Judul Artikel	Pemakalah
1	2173	<i>IMPLEMENTATION OF THE K-NEAREST NEIGHBORS METHOD FOR DETERMINING FETAL HEALTH STATUS</i>	Maulidatul Mawaddah
2	2180	<i>WEB-BASED BEAUTY SALON ORDERING INFORMATION SYSTEM AT DREAM SKIN AESTHETIC</i>	Halilatul muallafa
3	2143	<i>UNDERSTANDING THE TRENDS OF DEVELOPER CONTRIBUTIONS IN NUGET, PYPI, AND NPM ECOSYSTEMS</i>	Naufal Dzakia Raiffaza
4	1972	<i>PATTERNS RECOGNITION (MAUMERE SARONG) USING EDGE DETECTION WITH PREWITT, SOBEL, LAPLACIAN OF GAUSSIAN (LOG), AND CANNY METHODS</i>	Gerfasius Take Piran, S.Kom., M.Kom
5	2157	<i>NETWORK'S ACCESS LOG CLASSIFICATION FOR DETECTING SQL INJECTION ATTACKS WITH THE LSTM ALGORITHM</i>	Fajar Dzulnufrie Hafriadi
6	2201	<i>DEVELOPMENT OF A WEB-BASED TONSEA LANGUAGE CORPUS USING THE EVOLUTIONARY PROTOTYPING METHOD</i>	Sherly Maria Conggresco
7	2277	<i>ANDROID-BASED GARBAGE MANAGEMENT APPLICATION USING K-MEANS ALGORITHM ON RT 03/02 KEL. KARAWACI BARU</i>	Harlis Setiyowati
8	2317	<i>COMBINATION OF WP AND TOPSIS METHODS IN A DECISION SUPPORT SYSTEM FOR WATERMELON SEED RECOMMENDATION</i>	Novianti Puspitasari

**URUTAN PRESENTASI**  
**SESI PARALEL 7**

**Moderator : Mochammad Agri Triansyah, S.Kom, M.Kom**

**Link Zoom : [bit.ly/SENIKO2024\\_7](https://bit.ly/SENIKO2024_7)**

No	ID	Judul Artikel	Pemakalah
1	2199	<i>DATA MINING ESTIMATE TOURISM INCOME IN TOMOHON CITY USING MULTIPLE LINEAR REGRESSION ALGORITHMS</i>	Beauty Leony karamoy
2	2198	<i>ANALYSIS OF WEBQUAL 4.0 AND COGNITIVE WALKTHROUGH METHODS ON CTI GOVIDEO SPARK HIRE ONLINE INTERVIEW APPLICATION</i>	Ni Putu Eka Apriyanthi
3	2137	<i>DESIGNING 64-BIT BLOCK CIPHER CRYPTOGRAPHY BASED ON THE PATTERN OF ONE OF KARO'S TRADITIONAL CLOTHS</i>	Dandy Duggari Manik
4	2184	<i>ANALYSIS OF CONTINUANCE USE INTENTION OF TIKTOK AS EDUCATIONAL INFORMATION WITH EXPECTATION CONFIRMATION MODEL (ECM) AND INFORMATION SYSTEM SUCCES MODEL (ISSM)</i>	Nanda Nazira
5	2187	<i>CLASSIFICATION OF DENTAL CARIES DISEASE IN TOOTH IMAGE USING A COMPARISON OF EFFICIENTNET-B0, MOBILENETV2, RESNET-50, INCEPTIONV3 ARCHITECTURES</i>	Wahyuningsih
6	2217	<i>SVM OPTIMIZATION WITH INFORMATION GAIN FEATURE SELECTION TO INCREASE THE ACCURACY OF SENTIMENT ANALYSIS OF INCREASING THE COST OF THE HAJJ</i>	Manarul Hidayat
7	2176	<i>TECHNOLOGY TREND OF DIGITAL IDENTITY: A BIBLIOMETRIC APPROACH</i>	Tika riskawati, S.Kom.
8	2218	<i>APPLICATION OF MULTI-TASK CASCADED CONVOLUTIONAL NEURAL NETWORK ALGORITHM IN SCHOOL SUPERVISOR ATTENDANCE SYSTEMS IN THE FIELD OF COMPUTER VISION</i>	Sondakh Agnes Intan
9	2132	<i>OPTIMIZING NATURAL DISASTER LOCATIONS USING TEXT FILTERING WITH WEB-BASED JARO WINKLER ALGORITHM</i>	Dwiki Jatikusumo, S.Kom, M.Kom
10	2130	<i>ARCHITECTURAL DESIGN OF THE SCHOOL ACADEMIC SYSTEM (E_MENGAJAR) USING THE OPEN GROUP ARCHITECTURE FRAMEWORK (TOGAF) AT SMPN 1 PAGELARAN PRINGSEWU DISTRICT</i>	Hengky Yulian

**URUTAN PRESENTASI**  
**SESI PARALEL 8**

**Moderator : Ir. Ipung Permadi, S.Si., M.Cs.**

**Link Zoom : [bit.ly/SENIKO2024\\_8](https://bit.ly/SENIKO2024_8)**

No	ID	Judul Artikel	Pemakalah
1	2261	<i>IT SERVICE MANAGEMENT SYSTEM AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE BASED ON WEBSITE</i>	Mesiasi Anjelika Supit
2	2265	<i>STATISTICAL DATA SERVICE SYSTEM (SIPEDAS) IN BPS NORTH SULAWESI PROVINCE WEBSITE-BASED</i>	Kevin McLaren Pandoh
3	2245	<i>APPLICATION OF NEURAL MACHINE TRANSLATION IN THE TOMBULU REGIONAL LANGUAGE TRANSLATION MODEL - INDONESIA</i>	Mitzuko Rubina Donery Kaparang
4	2247	<i>DESIGN AND DEVELOPMENT OF 2-DIMENSIONAL PLATFORMER GAME USING THE GAME DEVELOPMENT LIFE CYCLE METHOD</i>	Daud Gilbert Sikome
5	2274	<i>ANDROID-BASED GARBAGE MANAGEMENT APPLICATION USING K-MEANS ALGORITHM ON RT 03/02 KEL. KARAWACI BARU</i>	Sarah Camilla 2265Artanti
6	2250	<i>ANDROID BASED DIGITAL NAMECARD (DINA) APPLICATION USING CNN ALGORITHM AND OCR TECHNOLOGY'</i>	Edi Junaedi, ST., MMSI
7	2269	<i>CREATING A WEBSITE-BASED ONLINE DATA FORUM APPLICATION, AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE</i>	Reski Wahyuni
8	2012	<i>STEMMING PADA BAHASA MADURA MENGGUNAKAN ALGORITMA NAZIEF DAN ADRIANI</i>	Moh Ashari
9	2322	<i>DEVELOPMENT OF A STOCK PURCHASE RECOMMENDATION SYSTEM APPLICATION</i>	Greghar Juan Tjether Maruanaya

## DAFTAR ARTIKEL DAN PENULISNYA

ID	JUDUL ARTIKEL
[1972]	<i>PATTERNS RECOGNITION (MAUMERE SARONG) USING EDGE DETECTION WITH PREWITT, SOBEL, LAPLACIAN OF GAUSSIAN (LOG), AND CANNY METHODS</i> Gerfasius Take Piran, Hilarius Alfian, Maria Yunita
[1976]	<i>ELECTRONIC MEDICAL RECORD INFORMATION SYSTEM DESIGN TO SUPPORT THE REPORTING OF COMPLETENESS OF BPJS PATIENT MEDICAL RECORDS WITH EXTREME PROGRAMMING METHOD</i> Rini Kustiani, Yuda Syahidin, Yuyun Yunengsih
[1981]	<i>DATABASE-BASED GUI SYSTEM TO INCREASE THE EFFECTIVENESS OF STUDENT DATA MANAGEMENT IN THE FKIP UHAMKA DORMITORY</i> ISMAT, Akhmad Rizal Dzikrillah
[1983]	<i>EXPERIMENTAL COMPARISON OF MACHINE LEARNING ALGORITHM PERFORMANCE FOR OPTIMIZING ELECTIVE SUBJECT SELECTION IN PHASE F OF THE MERDEKA CURRICULUM</i> Dedy Mulyadi
[1992]	<i>DECISION SUPPORT SYSTEM FOR SELECTING THE BEST MASTER PULSE DEALER TO DETERMINE MONTHLY BONUSES USING THE SIMPLE ADDITIVE WEIGHTING METHOD</i> Bagus Prastowo Yuwono
[1993]	<i>IMPLEMENTATION OF THE K-MEANS CLUSTERING METHOD FOR GROUPING VALUE OF STUDENTS AT HOME TAHFIDZ NURUL HIDAYAH ASSHOFA</i> Nur Halimah
[2000]	<i>ROUTING OPTIMIZATION ON SOFTWARE DEFINED NETWORK ARCHITECTURE USING BREADTH FIRST SEARCH ALGORITHM</i> David Armanda, Fransiska Sisilia Mukti, Danang Arbian Sulistyio
[2012]	<i>STEMMING IN MADURESE LANGUAGE USING NAZIEF AND ADRIANI ALGORITHM</i> Moh Ashari, Danang Arbian Sulistyio, Fadhli Almu'iini Ahda

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[2020]	<i>DESIGN OF PATIENT MEDICAL RECORD FILE TRACER INFORMATION SYSTEM WITH WATERFALL METHOD</i> Fadilatul Agnia, Yuda Syahidin, Shinta Elvira
[2022]	<i>STACKING ENSEMBLE LEARNING AND INSTANCE HARDNESS THRESHOLD FOR BANK TERM DEPOSIT ACCEPTANCE CLASSIFICATION ON IMBALANCED DATASET</i> Bangun Watono, Ema Utami, Dhani Ariatmanto
[2029]	<i>ANALYSIS AND IMPLEMENTATION OF SENTIMENT SYSTEM ON THE ELECTABILITY OF INDONESIAN PRESIDENTIAL CANDIDATES 2024 USING SUPPORT VECTOR MACHINE METHOD</i> Jasmine Avril Kaniasari Harahap, Wahyu Syaifullah JS, Mohammad Idhom
[2032]	<i>IMPLEMENTATION OF HYPERPARAMETER TUNING IN RANDOM FOREST ALGORITHM FOR LOAN APPROVAL PREDICTION</i> Dwi Sandhi Bhakti, Agung Prasetyo, Primandani Arsi
[2056]	<i>IMPLEMENTATION OF THE FMADM ALGORITHM AND SAW METHOD IN BOARDING HOUSE SEARCH</i> Sindy Cristine Baun , Hindriyanto D. Purnomo
[2061]	<i>PERFORMANCE COMPARISON OF SVM, NAIVE BAYES, AND LOGISTIC REGRESSION CLASSIFICATION ALGORITHMS IN ANALYZING NOICE APP USER REVIEWS</i> Ahmad Bahar, Tri Astuti, Primandani Arsi
[2063]	<i>TRAFFIC FLOW AND CONGESTION DETECTION WITH YOLOV8 AND BYTETRACK-BASED MULTI OBJECT TRACKING</i> Marchel Maulana, Eka Angga Laksana
[2064]	<i>THE INFLUENCE OF FEATURE EXTRACTION ON AUTOMATIC TEXT SUMMARIZATION USING GENETIC ALGORITHM</i> Fitrah Amalia Rahmadiani, Nirwana Hendrastuty
[2067]	<i>DESIGN OF A WORDPRESS BASED E-COMMERCE WEBSITE AND INTEGRATION OF CRYPTOCURRENCY PAYMENT GATEWAY</i> Restu Anggoro, Erliyan Redy Susanto
[2072]	<i>HYBRID MODEL OF PARTICIPATORY AND DELIBERATIVE E-DEMOCRACY IN INDONESIA'S ELECTIONS</i> Dytha Ananda Widhiarso, Ali Ibrahim, Ermatita

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[2073]	<p><i>SYSTEMATIC LITERATURE REVIEW ON THE APPLICATION OF UI/UX DESIGN METHODS IN SYSTEM DEVELOPMENT</i></p> <p>Romi Ramadani , Deni Mahdiana</p>
[2093]	<p><i>ANALYSIS AND IMPLEMENTATION OF THE INTERNET OF THINGS (IoT) IN THE DEVELOPMENT OF MONITORING SOLAR POWER PLANTS (PLTS) 600 WP</i></p> <p>Tarmin Abdulghani, Siti Nazilah, M. Kany Legiawan, Fietri Setiawati Sulaeman , Moch Fahmi Setiadi</p>
[2094]	<p><i>DEVELOPMENT OF HERBIFY APPLICATION WITH AI INTEGRATED UTILIZING YOLO V8 FOR OPTIMIZING HERBAL POTENTIAL IN INDONESIA</i></p> <p>Ahmad Fajruddin Syauqi</p>
[2095]	<p><i>ANALYSIS OF CHATGPT ACCEPTANCE FOR EDUCATION USING MODIFIED TECHNOLOGY ACCEPTANCE MODEL</i></p> <p>Mahmud Rizal Mustofa, Maria Ulfah Siregar</p>
[2104]	<p><i>IMPLEMENTATION OF YOU ONLY LOOK ONCE V8 ALGORITHM IN POTATO LEAF DISEASE DETECTION SYSTEM</i></p> <p>Bagus Kurniawan Ekhsanto, Bagus Adhi Kusuma, Adam Prayogo Kuncoro</p>
[2117]	<p><i>EVALUATION OF USER EXPERIENCE OF MOBILE BANKING APPLICATIONS USING USER EXPERIENCE METHOD QUESTIONNAIRE (UEQ) AND HEURISTIC EVALUATION (HE)</i></p> <p>Elzy Novianti, Tengku Khairil Ahsyar, Syaifullah, Mona Fronita</p>
[2120]	<p><i>EVALUATION OF USER EXPERIENCE (UX) HNI MOBILE USING THE THINK ALOUD METHOD</i></p> <p>Muhammad Dio Revansa, Angraini, Tengku Khairil Ahsyar, Syaifullah</p>
[2121]	<p><i>CLASSIFICATION OF HOUSES OF CITIZENS RECEIVING DIRECT CASH ASSISTANCE USING EFFICIENET IN DKI JAKARTA PROVINCE</i></p> <p>Dzikri Adam</p>
[2125]	<p><i>IMPLEMENTATION OF THE K-MEANS CLUSTERING ALGORITHM IN ANALYZING PUBLIC SATISFACTION REGARDING PUBLIC SERVICES</i></p> <p><i>(Studi Case: Balai Pengujian Standar Instrumen Tanaman Industri dan Penyegar)</i></p> <p>Atika Juhaedah Alifah, Sudin Saepudin, Carti Irawan</p>

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- [2130] *ARCHITECTURAL DESIGN OF THE SCHOOL ACADEMIC SYSTEM (E\_MENGAJAR) USING THE OPEN GROUP ARCHITECTURE FRAMEWORK (TOGAF) AT SMPN 1 PAGELARAN PRINGSEWU DISTRICT*  
Handoyo Widi Nugroho, Hengky Yulian
- [2132] *OPTIMIZING NATURAL DISASTER LOCATIONS USING TEXT FILTERING WITH WEB-BASED JARO WINKLER ALGORITHM*  
Dwiki Jatikusumo, Rahmat Rian Hidayat
- [2133] *IMPLEMENTATION OF DATA ENCRYPTION IN AN IOT-BASED HEART RATE AND OXYGEN SATURATION BLOOD DETECTION TOOL USING THE ELGAMAL METHOD*  
Haryansyah
- [2135] *IMPLEMENTATION OF COBIT 2019 TO MEASURE IT MATURITY LEVELS IN DIGITAL BANKS*  
Rahmat Rian Hidayat
- [2137] *DESIGNING 64-BIT BLOCK CIPHER CRYPTOGRAPHY BASED ON THE PATTERN OF ONE OF KARO'S TRADITIONAL CLOTHS*  
Dandy Duggari Manik, Ramos Somya
- [2140] *ANALYSIS AND REDESIGN OF SI TOYA WENING APPLICATION USING DESIGN THINKING METHOD*  
Muhammad Ichsan Alfian, Muhamad Irsan, Muhammad Faris Fathoni
- [2143] *UNDERSTANDING THE TRENDS OF DEVELOPER CONTRIBUTIONS IN NUGET, PYPI, AND NPM ECOSYSTEMS*  
Naufal Dzakia Raiffaza, Yusuf Sulistyo Nugroho
- [2157] *NETWORK'S ACCESS LOG CLASSIFICATION FOR DETECTING SQL INJECTION ATTACKS WITH THE LSTM ALGORITHM*  
Fajar Dzalnufrie Hafriadi, Rizka Ardiansyah
- [2158] *EVALUATION EXECUTION TIME FEATURES OF SIMPATI WEB-BASED MONITORING AND EVALUATION APPLICATION USING AUTOMATION TESTING*  
Nur Arifin, Ninik Agustin, Tri Anggoro
- [2162] *ANDROID BASED MULTIMEDIA APPLICATION FOR RECOGNIZING LETTERS AND SENTENCES FOR DEAF*  
Fahrul H, Nirsal



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- [2163] *DESIGN AND CONSTRUCTION OF E-LEARNING MEDIA MOBILE BASED USING ANDROID STUDIO*  
Harun, Nirsal
- [2176] *TECHNOLOGY TREND OF DIGITAL IDENTITY: A BIBLIOMETRIC APPROACH*  
Tika Riskawati
- [2184] *ANALYSIS OF CONTINUANCE USE INTENTION OF TIKTOK AS EDUCATIONAL INFORMATION WITH EXPECTATION CONFIRMATION MODEL (ECM) AND INFORMATION SYSTEM SUCCES MODEL (ISSM)*  
Nanda Nazira
- [2187] *CLASSIFICATION OF DENTAL CARIES DISEASE IN TOOTH IMAGES USING A COMPARISON OF EFFICIENTNET-B0, MOBILENETV2, RESNET-50, INCEPTIONV3 ARCHITECTURES*  
Wahyuningsih
- [2188] *ANALYSIS OF FACTORS DETERMINING STUDENT SATISFACTION USING DECISION TREE, RANDOM FOREST, SVM, AND NEURAL NETWORKS: A COMPARATIVE STUDY*  
Andi Dwi Riyanto, Arif Mu'amar Wahid, Aniec Anafisah Pratiwi
- [2197] *DETECTION OF ETHYLENE GLYCOL IN THE PERFUMES USING ELECTRONIC NOSE CORRELATED WITH GAS CHROMATOGRAPHY MASS-SPECTROSCOPY*  
Fajar Hardoyono, Kikin Windhani
- [2198] *ANALYSIS OF WEBQUAL 4.0 AND COGNITIVE WALKTHROUGH METHODS ON CTI GOVIDEO SPARK HIRE ONLINE INTERVIEW APPLICATION*  
Ni Putu Eka Apriyanthi
- [2201] *DEVELOPMENT OF A WEB-BASED TONSEA LANGUAGE CORPUS USING THE EVOLUTIONARY PROTOTYPING METHOD*  
Sherly M. Conggreso, Vivi P. Rantung, Quido C. Kainde.
- [2209] *WEBSITE-BASED RECOMMENDATIONS FOR TOURIST ATTRACTIONS IN BITUNG CITY USING CONTENT-BASED FILTERING ALGORITHMS*  
Karmel Tambajong Tambajong-Sualang

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- [2210] *DEVELOPMENT OF A WEB-BASED BATAK SIMALUNGUN REGIONAL LANGUAGE CORPUS USING THE RAPID APPLICATION DEVELOPMENT METHOD*  
Agus E. Nanda, Vivi P. Rantung, Kristofel Sant
- [2215] *ENHANCING EFFICIENCY IN DETERMINING QURAN LEARNING GROUPS: A WEBSITE-BASED K-MEANS ALGORITHM APPROACH AT NURUL JADID ISLAMIC BOARDING SCHOOL*  
Ikhwan Abdillah, Andi Wijaya, Kamil Malik
- [2217] *SVM OPTIMIZATION WITH INFORMATION GAIN FEATURE SELECTION TO INCREASE THE ACCURACY OF SENTIMENT ANALYSIS OF INCREASING THE COST OF THE HAJJ*  
Manarul Hidayat, Arief Wibowo
- [2218] *APPLICATION OF MULTI-TASK CASCADED CONVOLUTIONAL NEURAL NETWORK ALGORITHM IN SCHOOL SUPERVISOR ATTENDANCE SYSTEMS IN THE FIELD OF COMPUTER VISION*  
Sondakh Agnes Intan<sup>1</sup>, Gladly C. Rorimpandey, Quido C. Kainde
- [2221] *IMPLEMENTATION OF THE FORWARD CHAINING METHOD FOR DETECTING SCHOOL READINESS IN CHILDREN*  
Felitia Theona Geofani Mantik<sup>1</sup>, Gladly C. Rorimpandey, Alfiansyah Hasibuan
- [2230] *DEVELOPMENT OF A WEB-BASED TOULOUR REGIONAL LANGUAGE CORPUS USING THE SYSTEM DEVELOPMENT LIFE CYCLE METHOD (SDLC)*  
KEZIA LIPAN<sup>1</sup>, Vivi P. Rantung<sup>2</sup>, Gladly C. Rorimpandey
- [2249] *USER ACCEPTANCE FACTORS RELATED TO AUTHENTICATION TECHNOLOGIES USING BIOMETRICS: TAM MODEL*  
Zihan Kalila Gusnan<sup>1</sup>, Rio Guntur Utomo
- [2250] *ANDROID BASED DIGITAL NAMECARD (DINA) APPLICATION USING CNN ALGORITHM AND OCR TECHNOLOGY*  
Edi Junaedi, Syabina Nur Pajriyanti, Muhammad Subali, Adrian Maulama Ramadhan
- [2261] *IT SERVICE MANAGEMENT SYSTEM AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE BASED ON WEBSITE*  
Mesiasi Anjelika Supit, Vivi Peggie Rantung

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- [2265] *STATISTICAL DATA SERVICE SYSTEM (SIPEDAS) IN BPS NORTH SULAWESI PROVINCE WEBSITE-BASED*  
Kevin McLaren Pandoh, Vivi Peggie Rantung
- [2274] *ANDROID-BASED GARBAGE MANAGEMENT APPLICATION USING K-MEANS ALGORITHM ON RT 03/02 KEL. KARAWACI BARU*  
M. Nur Rois Abid, Sarah Camilla Artanti, Nita Adiyati, Edi Junaedi
- [2277] *ANDROID-BASED GARBAGE MANAGEMENT APPLICATION USING K-MEANS ALGORITHM ON RT 03/02 KEL. KARAWACI BARU*  
Hendra Mayatopani, Harlis Setiyowati, Lilik Hariyanto, Muhammad Alfathan Harriz
- [2286] *EVALUATION OF MATURYTY LEVEL AND DESIGN OF INCIDENT MANAGEMENT SOP IN ACADEMIC INFORMATION SYSTEM USING ITIL V4*  
Dany Febrian, Febi Nur Salisah, Megawati, M.Afdal
- [2294] *FORENSIC ANALYSIS OF PHISHING ATTACKS: INVESTIGATIVE APPROACH*  
Quido Kainde
- [2304] *IDENTITY THEFT SOFTWARE : HIDDEN THREATS IN THE DIGITAL AGE*  
Quido Kainde
- [2307] *DEVELOPMENT OF INTERACTIVE MULTIMEDIA LEARNING MEDIA & GAMIFICATION ON SPACE OBJECTS TEACHING MATERIALS FOR ELEMENTARY SCHOOL STUDENTS*  
Rangga Firdaus
- [2308] *BEHAVIORAL ANALYSIS OF CYBERCRIME: PAVING THE WAY FOR EFFECTIVE POLICING STRATEGIES*  
Diana Putong, Moh Fahriansyah Mamonto, Nathasya Dodi, Milan Mamangkey
- [2317] *COMBINATION OF WP AND TOPSIS METHODS IN A DECISION SUPPORT SYSTEM FOR WATERMELON SEED RECOMMENDATION*  
Andi Tejawati, Novianti Puspitasari, Hillary Bella Pasorong, Amin Padmo Azam Masa
- [2322] *DEVELOPMENT OF A STOCK PURCHASE RECOMMENDATION SYSTEM APPLICATION*  
Greghar Juan Tjether Maruanaya, Gandung Triyono, Rita Fransina Maruanaya

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- [2034] *ANALYSIS OF THE LAPAK HIJAU BUSINESS MODEL IN THE SALE OF FURNITURE GOODS TROUGH THE E-COMMERCE PLATFORM*  
Alma
- [2089] *THE EVALUATIONS FOR THE BACKEND OF ONTI MEASURES WITH BLACK BOX METHODE*  
Nur Alfi Ekowati, Sulistiyasni, Ika Indah Lestari
- [2144] *LOBSTER AGE DETECTION USING DIGITAL VIDEO-BASED YOLO V8 ALGORITHM*  
Bayu Nusman, Aviv Yuniar Rahman, Rangga Pahlevi Putera
- [2150] *ANALYSIS OF SIMFAKUM ACCEPTANCE USING THE TAM AND WEBQUAL METHOD*  
Muhammad Fahril, Megawati, Mona Fronita, Medyantiwi Rahmawita
- [2151] *WATER QUALITY MONITORING DESIGN SYSTEM FOR PDAM KLATEN – CENTRAL JAVA BASED ON BLYNK APPLICATION*  
Muhammad Andang Novianta, Beny Firman, Purnawan
- [2154] *PAYMENT INFORMATION SYSTEM EDUCATIONAL DEVELOPMENT (SPP) AT WATUBANGGA 1st STATE HIGH SCHOOL WEBSITE BASED*  
Indri Purnama Sari
- [2175] *IMPLEMENTATION OF THE WATERFALL METHOD IN THE INFORMATION SYSTEM FOR RECORDING AND MAINTAINING EVIDENCE FOR THE SITUBONDO POLICE*  
Sofi SofiyatulHhikmah
- [2180] *WEB-BASED BEAUTY SALON ORDERING INFORMATION SYSTEM AT DREAM SKIN AESTHETIC*  
Halilatul Muallafa, Irma Yunita, Zaehol Fatah
- [2181] *DESMOCAM (DETECTION SMOKING CAMERA): INTEGRATION OF IOT AND MACHINE LEARNING FOR ACTIVE SMOKER DELECTION TO SUPPORT SMART CITIES IN INDONESIA*  
Balqist Kharisma Nayu, Susi Setianingsih
- [2199] *DATA MINING ESTIMATE TOURISM INCOME IN TOMOHON CITY USING MULTIPLE LINEAR REGRESSION ALGORITHMS*  
Beauty Karamoy

- 
- [2242] *INTRODUCTION OF NATIONAL IDENTIFICATION NUMBER AND NAME ON ID CARD USING OCR (OPTICAL CHARACTER RECOGNITION) METHODE*  
Holila, Adi Rizky Pratama, Santi Arum Puspita Lestari, Jamaludin Indra
- [2245] *APPLICATION OF NEURAL MACHINE TRANSLATION IN THE TOMBULU REGIONAL LANGUAGE TRANSLATION MODEL - INDONESIA*  
Mitzuko Kaparan, Vivi Peggie Rantung, Gladly Rorimpandey
- [2246] *CREATING A WEBSITE-BASED ONLINE DATA FORUM APPLICATION, AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE*  
vivipeggierantung laning reski\_wahyuni
- [2247] *DESIGN AND DEVELOPMENT OF 2-DIMENSIONAL PLATFORMER GAME USING THE GAME DEVELOPMENT LIFE CYCLE METHOD*  
Daud Sikome, Vivi Peggie Rantung, Soudy Kumajas
- [2263] *DESIGN AND BUILDING OF AN INFORMATION SYSTEM BASED ON CUSTOMER RELATIONSHIPMANAGEMENT (CRM) AT PAGLAK PETUNG CAFE AND ART IN BANYUWANGI DISTRICT*  
Luluk Nur Indahsari
- [2269] *CREATING A WEBSITE-BASED ONLINE DATA FORUM APPLICATION, AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE*  
Reski Wahyuni
- [2272] *WEBSITE BASED CASHIER APPLICATION INFORMATION SYSTEMNORTH SULAWESI PROVINCE CENTRAL STATISTICS AGENCY*  
Dhea Riani Meyty Sendana
- [2292] *IMPLEMENTASI METODE THRESHOLDING OTSU PADA ALGORITMA CONVOLUTIONAL NEURAL NETWORK DALAM KLASIFIKASI BUNGA AGLAONEMA, SYNGONIUM DAN CALATHEA MERAK*  
Eka yulia Putri
- [2324] *BUSINESS AND APPLICATION LAYER VIEW: INTEGRATING WAREHOUSE MANAGEMENT SYSTEM WITH ERP FOR OPTIMIZING RETAIL INDUSTRY EFFICIENCY*  
Ng, Hengky, Erick Dazki

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- [2303] ***IMPLEMENTATION OF LOW-CODE PROGRAMMING TECHNOLOGY IN DEVELOPING A PETTY CASH TRANSACTION MANAGEMENT APPLICATION USING OUTSYSTEMS PLATFORM (CASE STUDY: PT BANK CENTRAL ASIA TBK)***  
Anin Ammbya Soulani, Nofiyati, Nur Alfi Ekowati
- [2305] ***WEB BASED CUSTOMER RELATIONSHIP MANAGEMENT (CRM) APPLICATION USING CUSTOMER ELIGIBILITY SIMULATION ON KOPERASI NUSANTARA MANDIRI***  
Evan Benyamin Hotasi Natanael, Nur Chasanah, Nur Alfi Ekowati
- [2173] ***IMPLEMENTATION OF THE K-NEAREST NEIGHBORS METHOD FOR DETERMINING FETAL HEALTH STATUS***  
Maulidatul Mawaddah, Ahmad Homaidi, Lukman Fakhri Lidimillah

# **DAFTAR ABSTRAK**

**PATTERNS RECOGNITION (MAUMERE SARONG) USING EDGE  
DETECTION WITH PREWITT, SOBEL, LAPLACIAN OF GAUSSIAN (LOG),  
AND CANNY METHODS**

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***Abstract***

*Background: Maumere Ikat Weaving is a cloth made from a weaving process that requires a lot of energy and time. Maumere Ikat weaving is not only limited to artistic creations; its production also considers symbols of social, religious, cultural, and economic status. The location of an image is easy if the image is clear and sharp. Still, the exact location of the edges makes it difficult to determine if the image contains interference such as noise. Objective: Recognize a Lipa pattern (Maumere Sarong) using Prewitt, Sobel, Laplacian of Gaussian (LoG), and Canny edge detection. Methods: Prewitt, Sobel, Laplacian of Gaussian (LoG), and Canny edge detection. Results: The Lipa (Maumere Sarong) pattern recognition application using Canny edge detection can increase accuracy in recognizing a Lipa (Maumere Sarong) pattern so that it can provide knowledge for tourists and the wider community to recognize and obtain information on the Lipa (Maumere Sarong) more easily.*

**Keyword:** Ikat Weaving, Edge Detection, Imagery, Lipa Patterns



# **ELECTRONIC MEDICAL RECORD INFORMATION SYSTEM DESIGN TO SUPPORT THE REPORTING OF COMPLETENESS OF BPJS PATIENT MEDICAL RECORDS WITH EXTREME PROGRAMMING METHOD**

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## ***Abstract***

*This research aims to design an electronic medical record information system to support the reporting of medical record completeness. The research method used is qualitative and the data obtained from observations, interviews, literature studies, and software development with Extreme Programming method. This research was conducted considering that there are still many problems regarding the completeness of medical records, especially for BPJS patients. As there are inaccuracies in the report on the results of the analysis of the completeness of medical records, as well as records of incompleteness of medical records that are still done conventionally so that they are prone to being lost and unreadable. This research produces a system that can help officers and doctors to access data on the results of analyzing BPJS patient medical records, including information about incompleteness. This can prevent data inaccuracies and ensure officers and doctors know the latest information about the completeness of medical records as a requirement for BPJS claims. This system is expected to help improve the performance of officers in processing analyzed data and producing reports that are more accurate and efficient than the system used previously.*

**Keywords:** *Analysis of Medical Records, BPJS, Electronic Medical Record, Information System.*

## **DATABASE-BASED GUI SYSTEM TO INCREASE THE EFFECTIVENESS OF STUDENT DATA MANAGEMENT IN THE FKIP UHAMKA DORMITORY**

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### ***Abstract***

*Data management in the digital era is crucial in various institutions. One of these institutions is the dormitory or student residence, where it's important to track the progress achieved by the residents. However, data management at the FKIP UHAMKA Dormitory still faces several challenges, particularly regarding the loss of previous evaluation data, which is essential for the management. Data loss is a significant issue in the data management process for the relevant institution. Hence, there is a need for innovation in designing a database system that is user-friendly for data management in the digital era. This research aims to develop a GUI-based database system to efficiently manage student data at the FKIP UHAMKA Dormitory. The research adopts the waterfall development method, which involves stages such as requirements analysis, design, coding, and testing. Data is obtained through observation, interviews, and literature studies. The results of the research indicate that the GUI application based on the Dormitory FKIP UHAMKA Database has a good level of usability, with a System Usability Scale (SUS) score of 73.654. This suggests that users find the application easy to use and efficient in meeting their needs related to dormitory management. In addition to the SUS evaluation, this research stands out for developing a more comprehensive GUI system with significant additional features.*

**Keywords:** Database, GUI, Python, SUS, Waterfall

**EXPERIMENTAL COMPARISON OF MACHINE LEARNING ALGORITHM  
PERFORMANCE FOR OPTIMIZING ELECTIVE SUBJECT SELECTION IN PHASE F OF  
THE MERDEKA CURRICULUM**

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***Abstract***

*In phase f of the Merdeka Curriculum, electives are an important element at the senior high school level. Students are faced with the challenge of choosing four out of twelve elective subjects that are relevant to their talents, interests, further study plans and career goals over a two-year study period. Applying machine learning with the right algorithm is a solution for the effectiveness and efficiency of elective selection. The dataset used comes from the 10th grade report card data, the results of the interest, aptitude, further study, and career choice tests, and the manual selection of electives chosen by students in the previous year. The use of a small data set requires a cross-validation method to improve the generalizability of the model and to optimize the data set, thereby increasing the validity of the results. The test will be conducted using an application that tests five machine learning algorithm models suitable for small datasets, namely Naive Bayes, Decision Tree, Random Forest, Support Vector Machine, and k-Nearest Neighbors. The test focuses on comparing the performance of the five algorithms based on the best accuracy, recall, and confusion matrix and the results obtained Support Vector Machine (SVM) algorithm has the best performance results by achieving the highest accuracy of 57.3770%, the highest recall of 0.574, and the highest true positive (TP) of 0.574. The Support Vector Machine (SVM) algorithm will be a recommendation for further research, namely the development of machine learning for the selection of f-stage elective subjects at Atisa Dipamkara senior high school, to provide relevant guidance to students in making decisions regarding the selection of elective subjects more accurately and according to their respective characteristics.*

**Keywords:** *cross validation, decision tree, KNN, machine learning, merdeka curriculum phase f, naive bayes, random forest, small dataset, SVM*

# **DECISION SUPPORT SYSTEM FOR SELECTING THE BEST MASTER PULSE DEALER TO DETERMINE MONTHLY BONUSES USING THE SIMPLE ADDITIVE WEIGHTING METHOD**

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## ***Abstract***

*The pulse industry is one of the most dynamic and competitive business sectors, selecting the right master dealer is critical to ensuring optimal business performance. However, a manual selection process can be cumbersome. In this context, user of a decision support system (SPK) that uses simple additive weighting (SAW) are essential. This research aims to design and implement the SPK o.'[uj This research aims to design and implement a system that allows pulse business owners to select the best master dealer more efficiently and objectively. The SAW method is used to calculate the relative weight of each criterion used in the selection of master dealers, such as total transactions, total deposits, number of agents and product marketing. The use of this method makes it possible to assign a relative value to each criterion, according to the preferences and interests of the business owner. By using this SPK, they can determine the master dealer that best suits their business needs and maximize the monthly bonus earned. In addition, the integration of technology in the selection process can also improve operational efficiency and reduce human errors that may occur in manual processes. And in the ranking stage, the final result of the master dealer has been selected on behalf of Ilmi with the highest score of 1.0 and Gagah with the lowest score of 0.26.*

**Keywords:** Monthly Bonus, Results, Master Pulse Dealer, Simple Additive Weighting, Decision Support System

**IMPLEMENTATION OF THE K-MEANS CLUSTERING METHOD FOR GROUPING VALUE  
OF STUDENTS AT HOME TAHFIDZ NURUL HIDAYAH ASSHOFA**

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***Abstract***

*In an effort to improve the quality of tahfidz learning, a way is needed so that students can achieve the target of memorizing the Al-Quran on time. So from this problem we need a way to make it easier to determine groups based on students' values. This research uses the CRISP-DM (Cross-Industry Standard Process Model for Data Mining) method with the K-Means clustering algorithm to produce clustering of students based on Tajwid, Makhroj, Adab and Memorization Speed values. The modeling results are based on the results of the student data cluster using the student value dataset, so that cluster 0 has 21 students and cluster 1 has 3 students. Apart from that, the test results using the Within Sum Square (WSS) also show that a good number of clusters to use is 2 clusters, so in this study 2 clusters were used. Furthermore, the results of creating a dataset with cluster labels obtained a Very Good group with a total of 21 students and a Good group with a total of 3 students.*

**Keywords:** CRISP-DM, K-Means Clustering.

## **ROUTING OPTIMIZATION ON SOFTWARE DEFINED NETWORK ARCHITECTURE USING BREADTH FIRST SEARCH ALGORITHM**

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### **Abstract**

*Software Defined Network (SDN) is a network modelling that separates the control plane and data plane. SDN is a new form of paradigm used for large-scale networks, one of which is for routing. Most types of routing used today use single-path routing. Single-path only uses one path as data transmission. This will result in reduced performance on the network which is often referred to as network congestion. In this test, the routing algorithm used is Breadth First Search (BFS) by modifying the path so that congestion on the network can be minimised. The BFS algorithm is implemented using Mininet emulator, Ryu Controller, and fat-tree topology. In the test, 20 scenarios were used with a bandwidth of 50 - 1000 Mbps within 15 seconds. Tests were conducted to measure the performance of the BFS algorithm, namely the path and QOS (Quality Of Service) parameters which include testing delay, packet loss, jitter, and throughput. The data obtained in testing using the conventional BFS algorithm is compared with the modified BFS algorithm data in the same test method. In path testing, the modified BFS algorithm is superior and in parameter testing, it is produced with a degraded percentage value in delay (65%), packet loss (99%), jitter (84%), and throughput has increased by (41%). So the modified BFS algorithm is superior due to the utilisation of path modification for routing optimisation which is more effective in handling network congestion.*

**Keywords:** Conventional BFS, BFS modification, QoS, routing, SDN

## STEMMING IN MADURESE LANGUAGE USING NAZIEF AND ADRIANI ALGORITHM

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### *Abstract*

*Madurese is one of the regional languages in Indonesia, which dominates East Java and Madura Island in particular. However, the use of Madurese is declining compared to other regional languages. This is partly due to a sense of prestige and difficulty in learning it. As a result, the future of Madurese as one of the regional languages in Indonesia is increasingly threatened by the decline in its use. In addition, academic literature and scientific publications in Madurese are difficult to find in public and academic libraries, so previous research on Madurese stemming is still very little and needs to be developed further. Therefore, this research aims to find the base word of Madurese language using Nazief & Adriani algorithm based on Madurese language morphology. The Nazief & Adriani method in previous studies has good performance. Stemming can also be developed into a Madurese language translator application into other languages. This research uses 650 words in the form of datasets, consisting of 500 prefix words and 150 suffix words. The resulting accuracy for the whole is 96.61% with 628 correct words, the prefix has 95.6% accuracy, and the suffix has 100% accuracy. Overstemming was found in 22 prefix words and no words experienced Understemming.*

**Keywords:** Bahasa Madura, Morfologi, Nazief & Adriani, NLP, Stemming.

## **DESIGN OF PATIENT MEDICAL RECORD FILE TRACER INFORMATION SYSTEM WITH WATERFALL METHOD**

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### **Abstract**

*Tracer is essential since it serves as a barrier and substitute for medical record files when they come from the storage rack. Tracer Helps locate medical record files if they are not on the storage shelf and shows where the storage shelf is when the file is saved again. The problem that arises from Hospital X in Bandung area is that it has not implemented the use of Tracer during the procedure of retrieving medical record files and the procedure of searching for files when files are needed only relying on expedition books. The purpose of this study is to prevent and reduce misfiles and dropouts of file for medical record and simplify the procedure of tracking file for medical record. Descriptive qualitative research methods are applied to the design of its system. Data is gathered through interviews and observation. Waterfall method for system development. Microsoft Visual Studio 2010 and Microsoft Access as the coding process and database and produces medical record file tracer card output. The software functions flawlessly, and every menu can be accessed.*

**Keywords:** Information System , Medical Record File Tracer, Waterfall



# STACKING ENSEMBLE LEARNING AND INSTANCE HARDNESS THRESHOLD FOR BANK TERM DEPOSIT ACCEPTANCE CLASSIFICATION ON IMBALANCED DATASET

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## ***Abstract***

*Bank term deposits are a popular banking product with relatively high interest rates. Predicting potential customers is crucial for banks to maximize revenue from this product. Therefore, bank term deposits acceptance classification is an important challenge in the banking industry to optimize marketing strategies. Previous studies have been conducted using machine learning classification techniques with the imbalanced Bank Marketing Dataset from the UCI Repository. However, the accuracy results obtained still need to be improved. Using the same dataset, this study proposes an Instance Hardness Threshold (IHT) undersampling technique to handle imbalanced datasets and Stacking Ensemble Learning (SEL) for classification. In this SEL, Decision Tree, Random Forest, and XGBoost are selected as base classifiers and Logistic Regression as meta classifier. The model trained on SEL with the dataset undersampled using IHT shows a high accuracy rate of 98.80% and an AUC-ROC of 0.9821. This performance is significantly better than the model trained with the dataset without undersampling, which achieved an accuracy of 90.30% and an AUC-ROC of 0.6898. The findings of this research demonstrate that implementing of the suggested IHT undersampling technique combined with SEL has been evaluated to effectively enhance the performance of term deposit classification on the dataset.*

**Keywords:** Bank Term Deposit, Classification, Instance Hardness Threshold, Machine Learning, Stacking Ensemble Learning, Undersampling

# ANALYSIS AND IMPLEMENTATION OF SENTIMENT SYSTEM ON THE ELECTABILITY OF INDONESIAN PRESIDENTIAL CANDIDATES 2024 USING SUPPORT VECTOR MACHINE METHOD

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## **Abstract**

*Indonesia is a country that implements democracy in choosing presidential candidates through the election process. People have their own views on the presidential candidates they support, and in this digital era, social media is the main platform for people to express their opinions. Public opinion can be positive or negative, public opinion, hate speech, and various other comments that can cause hostility, insults, debates, and disputes. In this study, data modeling using the Support Vector Machine (SVM) method will be evaluated using a confusion matrix. The data used for Anies data is 1607 tweets, Prabowo data is 1761 tweets, and Ganjar data is 1607 tweets with the keywords “anies baswedan”, “prabowo subianto”, and “ganjar pranowo” with the data collection period from November - December 2023. The results of this study show that the sentiment classification model has good performance. For Anies Baswedan data, the SVM model achieved accuracy of 86.64%, precision of 86.69%, recall of 86.64%, and f1-score of 86.62%. For Prabowo Subianto data, the model achieved an accuracy of 90.65%, precision of 90.81%, recall of 90.65%, and f1-score of 90.61%. Meanwhile, for Ganjar Pranowo data, the model achieved an accuracy of 93.78%, precision of 93.67%, recall of 93.78%, and f1-score of 93.72%. These results show that the system is able to classify people's sentiment.*

**Keywords:** Sentiment Analysis, Support Vector Machine, Presidential Candidates, Election

## **IMPLEMENTATION OF HYPERPARAMETER TUNING IN RANDOM FOREST ALGORITHM FOR LOAN APPROVAL PREDICTION**

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### ***Abstract***

*The risk of non performing loan is a significant issue in the financial industry, including banks and cooperatives. Loan default risks can occur due to various reasons, and one of them is the negligence of staff or subjective decision-making in loan approval. The proposed solution is to enhance an objective and accurate loan approval decision-making system through the application of machine learning technology, aiming to reduce the risk of loan default. The Random Forest algorithm has proven to be the best in predicting loan approval compared to other supervised learning models. Optimization was performed on the Random Forest algorithm through hyperparameter tuning and data balancing using SMOTE. The best accuracy obtained from several experiments was 86.2%. By implementing optimizations on the Random Forest algorithm, it is expected that the model can make loan approval predictions more objectively and accurately, serving as a reference for future loan approval system development.*

**Keywords:** *non performing loan, loan approval, machine learning, random forest, hyperparameter tuning*

## IMPLEMENTATION OF THE FMADM ALGORITHM AND SAW METHOD IN BOARDING HOUSE SEARCH

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### *Abstract*

*Current developments have made many developments, one of which is boarding houses. There are many immigrants from outside the region who want to study at Nusa Cendana University, Kupang City but have difficulty in finding a boarding house because of many considerations such as what facilities are provided by the boarding house owner. The lack of information on boarding house occupancy makes it difficult for prospective residents who are looking for boarding houses to obtain information about boarding houses with the criteria of each boarding house, to overcome this problem the Fuzzy Multi Attribute Decision Making (FMADM) Algorithm and Simple Additive Weighting (SAW) Method are needed with the aim of making it easier for female students to find boarding houses that suit their wishes and the best around Nusa Cendana University, Kupang, NTT. After analysis, the FMADM algorithm turned out to be able to help determine the weight of the value of each criterion in finding the best boarding house and also the SAW method can be implemented very well so that it can make it easier to add up the weight value of each criterion by doing alternative ranking. The results of the research that have been studied show that using the FMADM algorithm and the SAW method can produce the best alternative as the best solution from other alternatives, with Kost Putri Bilm@t being the best alternative out of 100 other alternatives studied with a ranking value of 4.106667. With the best alternative obtained, it shows that by using the FMADM algorithm and the SAW method, the number of samples used is large, the level of validity also often increases.*

**Keywords:** Alternatives, Criteria, FMADM, SAW, Weights.

## PERFORMANCE COMPARISON OF SVM, NAIVE BAYES, AND LOGISTIC REGRESSION CLASSIFICATION ALGORITHMS IN ANALYZING NOICE APP USER REVIEWS

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### ***Abstract***

*In the rapidly growing digital era, user reviews on distribution platforms such as the Google Play Store are a key indicator in assessing the popularity, quality, and user satisfaction of applications. This study aims to compare the performance of SVM, Naive Bayes, and Logistic Regression classification algorithms in analyzing user reviews of the Noice app, an audio content platform. The research involves steps such as data collection, data pre-processing, word embedding, modeling, model evaluation, and sentiment analysis. Testing was conducted using 1877 data. The data from the reviews were divided into scenarios, with training and testing data divided in ratios of 90:10, 80:20, and 70:30. The results showed that the SVM algorithm achieved the highest accuracy rate (80%) in the 90:10 data split scenario. However, Naive Bayes also showed competitive results with 78% accuracy in the same scenario. Meanwhile, Logistic Regression achieved 78% accuracy when the data was split in an 80:20 ratio. Evaluation was done using metrics such as accuracy, precision, recall, and F1-score. Sentiment analysis showed a positive trend with 1194 positive data compared to 683 negative data. From the comparison of data sharing scenarios and algorithms, SVM at 90:10 data sharing gave the best results.*

**Keywords:** Logistic Regression, Naive Bayes, Noice, SVM

# TRAFFIC FLOW AND CONGESTION DETECTION WITH YOLOV8 AND BYTETRACK-BASED MULTI OBJECT TRACKING

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## **Abstract**

*The rapid urbanization witnessed in cities like Bandung, Indonesia, has emerged as a pressing issue, precipitating severe traffic congestion that poses challenges to economic growth and diminishes overall quality of life. This study endeavors to confront these multifaceted challenges through the development of a sophisticated real-time traffic surveillance and control system. The proposed system utilizes the current CCTV infrastructure in the city and incorporates advanced technologies like YOLOv8 for accurate vehicle detection and ByteTrack for dynamic real-time vehicle tracking. This system utilizes a comprehensive strategy, including multi-object tracking techniques to improve the precision of congestion detection. The system was thoroughly assessed in several places in Bandung, and it showed remarkable performance metrics. Specifically, YOLOv8 achieved an impressive 80% accuracy rate in vehicle detection, showcasing its efficacy in discerning vehicles within complex urban environments. Simultaneously, ByteTrack exhibited an average error rate of 17% in vehicle counting, further Strengthening the system's capabilities in accurately quantifying vehicular traffic. Furthermore, the combination of YOLOv8 and ByteTrack in a multi-object tracking paradigm yielded an 80% accuracy rate in congestion detection, emphasizing the system's robustness in real-time traffic management scenarios. These findings underscore the immense potential of the integrated YOLOv8 and ByteTrack system in traffic management strategies and alleviating congestion in smart cities like Bandung. This research has produced precise outcomes in identifying and quantifying the traffic congestion in various scenarios.*

**Keywords:** YOLOv8, ByteTrack, Congestion Estimation, Vehicle Detection, Traffic Counter

## THE INFLUENCE OF FEATURE EXTRACTION ON AUTOMATIC TEXT SUMMARIZATION USING GENETIC ALGORITHM

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### ***Abstract***

*Text summarization using extraction methods is a technique that summarizes by retaining a subset of sentences to create a summary. There are two types of documents commonly used for summarization: single document and multi-document. Multi-document refers to documents originating from one or more sources that contain several main ideas. The data used in this research is obtained from the E-lapor DIY website, consisting of 1000 data entries. E-Lapor DIY is a website provided by the DIY government to accommodate all public aspirations and complaints, such as damaged roads, broken traffic lights, insufficient street lighting, litter in public places, and more. The accumulation of data and the delayed response time has become an issue for the government in addressing these complaints. This research aims to consider the impact of using feature extraction for text summarization using genetic algorithms. The feature extraction compared in this research is the influence of sentence position in feature extraction. The results obtained show that Precision testing using F1 is 0.64, and without using F1, it is 0.66. Recall testing using F1 is 0.65, and without using F1, it is 0.68. F-Measure testing using F1 is 0.65, and without using F1, it is 0.68. This testing using the algorithm can be an interesting alternative for more time-efficient text summarization.*

**Keywords:** E-Lapor DIY, Genetic algoritn, Text summarization

## DESIGN OF A WORDPRESS BASED E-COMMERCE WEBSITE AND INTEGRATION OF CRYPTOCURRENCY PAYMENT GATEWAY

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### **Abstract**

*The Internet has become one of the main media, especially e-commerce transactions, which are increasingly popular and play an important role in the growth of online businesses. The RestLyfe store uses the Itemku platform, which uses a Business to Customer (B2C) and Customer to Customer (C2C) model, to sell digital products such as digital vouchers and game keys. However, some of the issues faced when using the platform include high costs, limited market reach, and payment methods that can only be used by certain customers. Building an e-commerce website and adding a cryptocurrency payment gateway will hopefully solve these problems. To achieve this goal, an e-commerce website based on the WordPress content management system (CMS) with the WooCommerce plugin will be built. This plugin will incorporate a cryptocurrency payment gateway and facilitate transaction design. To collect related data, observation and literature review were conducted. The waterfall model System Life Cycle Development (SDLC) method will be used to build the e-commerce website. The results and conclusions of this study show that the website built can solve the problem with implementation results that meet the needs of the initial analysis, and the results of black box testing conducted on the website show good results. In addition, this study demonstrates the use of modern sales strategies for cryptocurrencies and the optimization of the latest technologies. Thus, the e-commerce site offers more opportunities to reach the target market and meet the needs of an increasingly digitized market.*

**Keywords:** Cryptocurrency, E-Commerce, Payment Gateway, Waterfall, WordPress



## HYBRID MODEL OF PARTICIPATORY AND DELIBERATIVE E-DEMOCRACY IN INDONESIA'S ELECTIONS

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### **Abstract**

*E-democracy is a branch e-government that uses information technology to support the process of implementing democracy. E-Democracy itself has several models that can be applied. The election process in Indonesia itself has 2 methods, namely Noken and individual, therefore, in this research the model focused on is the hybrid of participatory and deliberative model. This research aims to see the level of public readiness in using the e-democracy model for the implementation of General Elections. The research was carried out using the literature study method with a qualitative approach and accompanied by quantitative data collection using a questionnaire. The questionnaire was used to see the level of readiness to use the e-democracy model for elections. The questionnaire uses a mixture of TAM (Technology Acceptance Model) and DOI (Divergent of Innovation) methods. The results of this research show that the range of dimension index values is above 72%, with the highest value being 82% in the Calculation Results Dimension and 80% in the Perceived Usefulness Dimension. This shows that the public is ready to use e-democracy in the election process, and increases the possibility of using e-democracy in elections.*

**Keywords:** Digital Democracy, E-Democracy, E-Election, E-Government

## SYSTEMATIC LITERATURE REVIEW ON THE APPLICATION OF UI/UX DESIGN METHODS IN SYSTEM DEVELOPMENT

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### ***Abstract***

*In the current modern digital era, system development is undoubtedly rapid and massive, especially across various sectors such as healthcare, business, and public services. In system development, many aspects are considered, one of which is the appearance of the user interface. Interface design becomes an intriguing aspect and has an influence on system or application development. System development surely involves user interface and user experience aspects as part of the human-computer interaction (HCI) discipline. This research aims to identify research opportunities in UI/UX aspects in system development, with data obtained from relevant journals spanning from 2019 to 2024 as a representation of the latest study on UI/UX design research. This study utilizes the Systematic Literature Review (SLR) method. The results of this research provide a systematic literature review of existing studies on UI/UX design. This research can benefit the HCI community by applying methods in UI/UX design in system development to shape the direction of future research.*

**Keywords:** User Interface, User Experience, System Development, Systematic Literature Review

## **ANALYSIS AND IMPLEMENTATION OF THE INTERNET OF THINGS (IoT) IN THE DEVELOPMENT OF MONITORING SOLAR POWER PLANTS (PLTS) 600 WP**

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### ***Abstract***

*Solar power plants are becoming an increasingly popular solution for providing clean and sustainable energy. However, careful monitoring is required to maximize their performance, and it is necessary to monitor the functioning of solar power plants devices. This study proposes developing an Internet of Things (IoT)-based monitoring system for solar power plants using the PPDIOO (Prepare, Plan, Design, Implement, Operate, Optimize) method. The Prepare stage involves identifying monitoring needs, while the Plan stage includes infrastructure planning and sensor selection. The Design stage focuses on the design of a monitoring system that suits the needs of PLTS. The implementation stage involves the installation and configuration of hardware and software. Afterward, the Operate stage ensures that the system is running properly, while the Optimize stage aims to improve the system's performance continuously. Through this approach, we strive to present a systematic and structured framework for developing solar farms with IoT monitoring systems.*

**Keywords:** Internet of Things, PPDIOO Method, Monitoring, Solar Power Plant 600WP, PLTS

## DEVELOPMENT OF HERBIFY APPLICATION WITH AI INTEGRATED UTILIZING YOLO V8 FOR OPTIMIZING HERBAL POTENTIAL IN INDONESIA

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### **Abstract**

*Indonesia is known as the home to 80% of the world's medicinal plant species, with an estimated 25,000-30,000 potential plants. However, this is in stark contrast to the current situation of limited access to herbal information, leading to restricted consumption and distribution of herbal products. The numerous digital platforms providing herbal data still fail to address this issue, as the information provided does not cater to the users' needs. Therefore, to address the current challenges in the Indonesian herbal industry, researchers developed an AI-integrated application called Herbify. The application was developed using the Agile Software Development Life Cycle method, chosen to meet user needs with a user-centered design approach. From this research, a mobile application with two main features, namely 'Herbalpedia' and 'Scanherbal,' was developed. Measurements through three methods: mAP matrix, usability tests, and user experience questionnaires (UEQ), yielded positive results. The measurement results show that the trained model achieved a 94.6% mAP with an inference time of 0.07965 seconds. Furthermore, the usability test results of the application show a 0% mission unfinished rate, with an average completion time of 10 seconds. The UEQ results indicate that the application has high usability, trustworthiness, and information quality. Based on these results, it can be concluded that Herbify has great potential to effectively optimize herbal potentials in Indonesia.*

**Keywords:** computer vision, herbal, mobile application, object detection, YOLOv8

## ANALYSIS OF CHATGPT ACCEPTANCE FOR EDUCATION USING MODIFIED TECHNOLOGY ACCEPTANCE MODEL

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### ***Abstract***

*The presence of ChatGPT provides various benefits from all sectors including education. However, despite the various benefits obtained, many researchers argue that ChatGPT also has many significant drawbacks. This research aims to analyze the effect of perceived threat, perceived ease of use, perceived usefulness, attitude toward using and behavioral intention to use the system of ChatGPT in education. The TAM modification in this research is the addition of a perceived threat variable which refers to the problem of the research object. The population in this research is active students of Universitas Islam Negeri Sunan Kalijaga Yogyakarta. The sampling technique is carried out using probability sampling or simple random sampling. While the determination the number of samples in this study used a sample table so that 377 respondents were students from various faculties. The data used in this study were obtained by distributing questionnaires and analyzed using SEM-PLS with the help of SmartPLS 3 software. The result of this research show that perceived threat and perceived ease of use affect perceived usefulness, perceived ease of use and perceived usefulness affect attitude toward using and attitude toward using affects behavioral intention to use of ChatGPT in education.*

**Keywords:** acceptance, artificial intelligence, ChatGPT, student, TAM

## IMPLEMENTATION OF YOU ONLY LOOK ONCE V8 ALGORITHM IN POTATO LEAF DISEASE DETECTION SYSTEM

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### **Abstract**

*Agriculture is an important foundation of the national economy, as effective development in this sector will support overall economic stability. Potato itself is one of the world's staple foods after rice, wheat and corn. This crop belongs to the category of horticulture which is widely planted and developed by people to meet their needs. On the farm of Bibit sida kangen Kalibening, Banjarnegara which is one of the farms that grow potatoes has constraints related to potato diseases which result in decreased productivity of crops. Therefore, the main purpose of this system is to provide fast and accurate disease detection capability on the farm of Bibit sida kangen Kalibening, Banjarnegara, so that it can help farmers in reducing losses caused by disease attacks on plants. By utilizing YOU ONLY LOOK ONCE V8 (YOLOv8) technology, this system can recognize and classify potato leaf disease types, including early\_blight, late\_blight, and healthy plants, with a high level of accuracy. Through evaluation using precision and recall matrices, the results show a significant success rate, with precision accuracy for early\_blight of 87%, healthy plants of 81%, and late\_blight of 97%, respectively. Meanwhile, the recall results for the three categories also reached 87%, 81%, and 97% respectively. With an overall accuracy of 88%, these findings confirm that the developed detection system is successful in identifying potato leaf diseases with high accuracy. This indicates the great potential of this system in assisting farmers in managing the condition of their potato crops, which in turn can improve farmers' productivity and welfare.*

**Keywords:** potato leaf diseases, YOLOv8, detection system, agriculture.

**EVALUATION OF USER EXPERIENCE OF MOBILE BANKING APPLICATIONS  
USING USER EXPERIENCE METHOD QUESTIONNAIRE (UEQ) AND HEURISTIC  
EVALUATION (HE)**

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***Abstract***

*One of the largest banks in Indonesia managed by the government is Bank Rakyat Indonesia. BRI is one of the banking institutions that implements a mobile banking system. Issues and disruptions in usability of the application, as indicated by survey results from users, have been identified. This research aims to evaluate the capability of the BRIimo application to provide a positive user experience. In this research testing, two methods are applied: User Experience Questionnaire and Heuristic Evaluation. The results of the benchmark UEQ questionnaire testing show scores on the attractiveness scale at 1.61, efficiency at 1.76, and stimulation at 1.52, categorized as good, while scores from the perspicuity scale at 1.72, dependability at 1.48, and novelty at 0.75 are considered above average. Issues identified by experts with the BRIimo application have the potential to hinder users. Based on the severity level testing results of 10 aspects of the method, Aesthetic and Minimalist Design received a rating of 2 (two), with a score of 1.66, indicating a need for improvement with low priority.*

**Keywords:** *evaluation, heuristic evaluation, user experience, user experience questionnaire.*

## EVALUATION OF USER EXPERIENCE (UX) HNI MOBILE USING THE THINK ALOUD METHOD

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### *Abstract*

*User experience (UX) evaluation is important to determine the quality of a product or service. This research evaluates the UX of the HNI Mobile application using the think aloud method which asks users to express their thoughts while using the system. Involving 5 respondents who performed 10 task scenarios. The respondents' verbalization data, transcribed, and analyzed with NVIVO 12. The results obtained 5 main codes/themes of problems, namely profile editing, language features, member notifications, feature layout, and feature upgrades, which were visualized in a mind map. A retrospective probing technique was used to understand user difficulties. Although the main features functioned well, some respondents experienced difficulties in using the supporting features such as edit profile, change language, and access notifications. These findings provide input to improve the user experience of the HNI Mobile app in the future.*

**Keywords:** User Experience, Think Aloud, Evaluation, Mobile Application



# CLASSIFICATION OF HOUSES OF CITIZENS RECEIVING DIRECT CASH ASSISTANCE USING EFFICIENTNET IN DKI JAKARTA PROVINCE

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## *Abstract*

*This research explores the implementation of EfficientNet architecture in image classification to classify eligible recipients of direct cash assistance among households in the Jakarta Province. With the increasing government efforts to provide aid to its citizens, a system capable of recognizing and classifying populations eligible for assistance is crucial. The background of this study stems from the prevalent issue of misallocated aid, often resulting in undeserving individuals receiving assistance, leading to detrimental consequences. The primary focus lies in utilizing deep learning, particularly EfficientNet, to address these challenges. The research aims to develop an algorithm capable of accurately classifying and analyzing the types and eligibility of residential buildings within the general population. Challenges related to data collection and processing are addressed to ensure the training of high-quality, representative image datasets. Additionally, the impact of BERT technology on understanding political perspectives in Indonesian news media coverage is investigated. The objectives of the study include developing an EfficientNet algorithm for housing classification, analyzing the training model's outcomes, ensuring accurate classification of provided images, evaluating algorithm performance, and comparing it with alternative algorithms. The research contributes to societal understanding of media bias dangers, particularly in shaping narrative polarization. Moreover, it provides insights into bias representation through data processing using the EfficientNet model. This study's significance lies in its potential to enhance aid distribution efficiency and foster a deeper comprehension of media biases, thereby promoting fairer and more effective governance practices.*

**Keywords:** *EfficientNet, image classification, government aid, media bias, Jakarta Province, deep learning*

**IMPLEMENTATION OF THE K-MEANS CLUSTERING ALGORITHM IN ANALYZING  
PUBLIC SATISFACTION REGARDING PUBLIC SERVICES  
(Studi Case: Balai Pengujian Standar Instrumen Tanaman Industri dan Penyegar)**

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***Abstract***

*With the development of today's modern era, publik service is an important and very necessary thing because it is one of the benchmarks for seeing publik trust and satisfaction with the services provided by an agency. One of the agencies that carries out publi services is the Balai Pengujian Standar Instrumen Tanaman Industri dan Penyegar (BPSI TRI), a government agency under the Ministry of Agriculture. There are a lot of people who will receive services in 2023. Therefore, publik service officers find it difficult to determine publik satisfaction in order to optimize the services provided. To determine community satisfaction, data mining calculations were carried out using the K-Means clustering algorithm method with Community Satisfaction Index (IKM) data in 2023 using 3 (three) categories including unsatisfactory (C1), satisfactory (C2) and very satisfactory) and 2 attributes, namely the behavior of service officers (U7) as well as handling complaints, suggestions and input (U8) then carried out calculations using Microsoft Excel and got the results that C1 (unsatisfactory) 14 respondents, C2 (satisfactory) 39 respondents and C3 (very satisfactory) 98 respondents. Meanwhile, from the results of calculations using python testing, the results showed that C1 (unsatisfactory) was 9 respondents, C2 (satisfactory) was 39 respondents and C3 (very satisfactory) was 103 respondents.*

**Keywords:** K-Means Clustering, Microsoft Excel, Publik Service, Python

**ARCHITECTURAL DESIGN OF THE SCHOOL ACADEMIC SYSTEM  
(E\_MENGAJAR) USING THE OPEN GROUP ARCHITECTURE FRAMEWORK  
(TOGAF) AT SMPN 1 PAGELARAN PRINGSEWU DISTRICT**

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**Abstract**

*This research aims to design the architecture of a school academic system called E-Teaching at SMPN 1 Pagelaran, Pringsewu Regency, using the Open Group Architecture Framework (TOGAF) framework. This approach was chosen to ensure that the resulting system has a solid structure, is reliable, and is well integrated with the school's business processes. The research method used includes the main stages of TOGAF, namely Preliminary Phase, Architecture Vision, Business Architecture, Information Systems Architecture, Technology Architecture, and Opportunities and Solutions. The results of this research are in the form of an architectural model that includes main components such as student data management, learning administration, academic evaluation, and integration with the school management information system. The implementation of E-Teaching is expected to increase operational efficiency, simplify administrative processes, and support the overall learning process at SMPN 1 Pagelaran. The findings from this research provide a significant contribution to the development of academic information systems in secondary education environments, and show that the application of TOGAF can provide effective results in system architecture design.*

**Keywords:** Academic System Architecture, TOGAF, E-Teaching, SMPN 1 Performance, School Information System.

## OPTIMIZING NATURAL DISASTER LOCATIONS USING TEXT FILTERING WITH WEB-BASED JARO WINKLER ALGORITHM

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### *Abstract*

*At the end of 2023, several natural disasters were felt, especially in the capital city, namely floods, and the earthquake did occur outside DKI Jakarta but the earthquake was felt. From this incident, it will be made to monitor and optimize the location of earthquakes and floods that occur based on the web. According to the government website, the earthquake also occurred, but there was no flooding. Based on the occurrence of several natural disasters, it is hoped that this research can provide information related to the location of floods, earthquakes, forest fires, and landslides in the region, especially in Indonesia. With the news website source, it is the source of data that will be processed. Furthermore, the percentage level of accuracy obtained by combining from text filtering and Jaro Winkler algorithm.*

**Keywords:** *natural disasters, news, jaro winkler, text filtering.*

## **IMPLEMENTATION OF DATA ENCRYPTION IN AN IOT-BASED HEART RATE AND OXYGEN SATURATION BLOOD DETECTION TOOL USING THE ELGAMAL METHOD**

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### ***Abstract***

*One of the problems with Internet of Things (IoT) devices today is data security. Especially regarding IoT devices that function to read personal or confidential data such as health-related data. This research focuses on discussing data security techniques through the process of encrypting sensor data that reads heart rate and blood oxygen saturation from an IoT device. This data is quite personal and confidential data because it concerns a person's medical history. The encryption method that will be used is the Elgamal method. The Elgamal method is an asymmetric encryption method, meaning the key used for encryption is different from the key used for decryption. This elgamal method uses a public key for encryption and a private key for decryption. The research results show that implementing data encryption using the Elgamal method to secure data on IoT devices was successful. Data security can prevent misuse of data by unauthorized parties.*

**Keywords:** *Heartbeat, Elgamal, Encryption, Internet of Things, Patient*

## IMPLEMENTATION OF COBIT 2019 TO MEASURE IT MATURITY LEVELS IN DIGITAL BANKS

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### ***Abstract***

*As a bank supervised by authorities such as the Financial Services Authority (OJK), however, Bank ATR must improve its digital maturity in accordance with the criteria of the OJK Digital Banking Transformation Blueprint. The blueprint has not yet established a method to measure the digital maturity. As a result, the banking industry is having difficulty meeting these requirements. This study aims to measure the level of capability and provide recommendations for improvement using the COBIT 2019 framework. This study uses a qualitative method approach with the COBIT 2019 framework and data collection techniques through interviews. The results of the study show that the level of IT maturity at Bank ATR is 2.76 (Managed). This shows that the Bank's IT management produces a level of process capability that has achieved its goals by carrying out activities that are carried out regularly, while EDM objective management gets the highest maturity with 4.0, and APO objective management gets the lowest maturity with 2.0.*

**Keywords:** Banks, COBIT 2019, Digital, IT Governance, Maturity Level

## **DESIGNING 64-BIT BLOCK CIPHER CRYPTOGRAPHY BASED ON THE PATTERN OF ONE OF KARO'S TRADITIONAL CLOTHS**

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### ***Abstract***

*The ease of access to information technology in the modern era can be felt in various aspects of human life needs, one of which is exchanging information or exchanging data is an activity that has been carried out very often every day. With this convenience, the security and confidentiality of the data is also very important to consider because the information or data exchanged can contain important or confidential matters. In the exchange of data or information, of course, a security system is needed that ensures the data remains safe. One of the techniques to secure this data is to use cryptographic techniques. There have been many cryptographic techniques used or implemented to secure information, but many cryptographic techniques have been solved so that the ability to secure data is doubtful. One way to overcome this is to create a new cryptography or make changes to existing cryptography. Through this research, a cryptography will be created that uses the pattern of Karo traditional cloth and uses a 64-bit Block Cipher to produce a better encryption process.*

**Keywords:** *Cryptography, Block Cipher, Encryption, Karo*

## ANALYSIS AND REDESIGN OF SI TOYA WENING APPLICATION USING DESIGN THINKING METHOD

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### **Abstract**

*Si Toya Wening application is an application designed to facilitate Surakarta PDAM customers in making water bill payments, making complaints, and other features. When research was conducted to 155 users, it showed that there were several indications of problems that usability in this application was not going well, such as a less intuitive interface, mismatch of items on the bottom navigation bar, and information blocked by other elements. In order to enhance the usability of this application, redesigning the interface is essential. As a measure of success, usability testing and system usability scale were used to compare the initial appearance and the appearance after being redesigned. The result of this research is a redesigned prototype with the design thinking method which is then tested using SUS to a sample of 83 respondents. SUS parameters are Acceptability ranges, adjective ratings, and grade scale. The final test results will be assessed in comparison to the initial test results. The test results show a significant improvement in application usability. The increase in the SUS score from 62.35 in the first test to 80.69 in the final test shows an improvement in usability. The acceptability range shifted from "MARGINAL LOW" to "ACCEPTABLE," the adjective ratings improved from "OK" to "EXCELLENT," and the grade scale rose from category "D" to "B." This enhancement indicates that the application's usability has significantly improved.*

**Keywords:** Design Thinking, Interface Redesign, System Usability Scale, Usability Testing.



# UNDERSTANDING THE TRENDS OF DEVELOPER CONTRIBUTIONS IN NUGET, PYPI, AND NPM ECOSYSTEMS

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## Abstract

*Open-source software (OSS) projects have taken the software development industry rapidly by encouraging cooperation, creativity, and knowledge exchange. However, despite the widespread adoption and success of OSS, there is limited understanding of how contributions are distributed across different types of activities, such as code, documentation, and issue triage, and how these contributions vary over time within different OSS ecosystems. This gap in knowledge can impact effective project management and community engagement strategies. To address this problem, we aim to look into the patterns of developer contributions within the three main OSS ecosystems hosted on GitHub, namely NuGet, PyPI, and NPM. We examine the distribution of type-based contribution and the trends of developer activities within these ecosystems. We classify contributions into code, documentation, and issue triage using a mixed-methods approach that combines content analysis and time-series analysis, and we analyze the timeline variations in contribution trends. Our results show differences in pull request activity and developer contribution patterns between ecosystems. The 'npm-expansion' repository leads in open pull requests, while the 'warehouse' repository in PyPI dominates closed pull requests. The NPM ecosystem shows the highest number of activities when it comes to open pull requests. Notable peaks can be seen in trends in code development and maintenance activities, indicating the changing priorities of various projects. The findings shed light on the changes of OSS contributions and highlight the value of varied roles and ongoing community involvement. The comprehension of contribution patterns in open-source software projects is improved by this study, which also provides guidance for project management, resource allocation, and community support strategies. The knowledge acquired can direct the creation of instruments and systems that support more cooperative and productive open-source software ecosystems.*

**Keywords:** contributions, developers, NPM, NuGet, PyPI

# NETWORK'S ACCESS LOG CLASSIFICATION FOR DETECTING SQL INJECTION ATTACKS WITH THE LSTM ALGORITHM

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## ***Abstract***

*SQL Injection attacks are one of the popular web attacks. This attack is a network security problem focused on the application layer which is one of the causes of a large number of user data leaks. Currently available SQL detection techniques mostly rely on manually created features. Generally, the detection results of SQL Injection attacks depend on the accuracy of feature extraction, so they cannot overcome increasingly complex SQL Injection attacks on various systems. Responding to these problems, this research proposes a SQL Injection attack detection method using the long short term memory (LSTM) algorithm. The LSTM algorithm can learn data characteristics effectively and has strong advantages in sorting data so that it can handle massive, high-dimensional data. The research results show that the accuracy of the model approach created is able to recognize objects with a high accuracy value of 98% in identifying SQL Injection attacks.*

**Keywords:** attack detection, LSTM, machine learning, SQL injection, web attacks

## EVALUATION EXECUTION TIME FEATURES OF SIMPATI WEB-BASED MONITORING AND EVALUATION APPLICATION USING AUTOMATION TESTING

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### **Abstract**

*One of the data collection methods employed in monitoring and evaluation is a survey. The advantages of information technology-based surveys include a reduced risk of data loss and the ability to access the survey system from any location. Consequently, it is imperative to devise a web-based monitoring and evaluation system. In this study, the monitoring and evaluation system was developed using an Agile methodology and implementing automation testing. The Agile development method was utilized to create this application through the stages of design, development, testing, deployment, and feedback. The system was developed using the PHP programming language and the MySQL database. Automation testing was conducted using Katalon Studio. The design and implementation of the web-based SIMPATI application resulted in a system capable of monitoring and evaluating higher education with main features such as multi-user support, online surveys, a real-time database, and data visualization. Automation testing using Katalon Studio demonstrated that all features in the system run well and are stable. However, there is a discrepancy in the execution time for each test case. This discrepancy is attributed to the intricacy of the test cases and external factors such as system load, server performance, and network conditions. The fastest execution time for the login feature is 11 seconds, while the longest execution time for the add new user feature is 4 minutes and 29 seconds. In conclusion, automation testing in web-based system development employing agile methods can assist in the rapid and repeatable evaluation of system performance.*

**Keywords:** Automation Testing, Execution Time Features, Katalon Studio, Monitoring and Evaluation Systems

## ANDROID BASED MULTIMEDIA APPLICATION FOR RECOGNIZING LETTERS AND SENTENCES FOR DEAF

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### **Abstract**

*This research aims to create an Android-based guide to reading letters and sentences for deaf children at UPT Special School (SLB) Negeri 1 Palopo. This research process aims to help deaf students read letters and sentences, so with this letter and sentence reading guide application, it can make it easier for deaf students to learn anywhere and anytime. The type of research used in this research is Research and Development (R&D), using the ADDIE model. This system design uses MIT App Inventor Software. This Android-based letter and sentence recognition application for deaf children has been tested by media experts using black box testing. The results of research validation from two validators obtained an average result of 3.85 with a very feasible category. The conclusion of this research shows that Android-based learning media has been proven to be very feasible. The results of the research were implemented in the form of an Android application as a learning medium for recognizing letters and sentences for deaf children as a teaching medium that can be used at UPT Special School (SLB) Negeri 1 Palopo.*

**Keywords:** *guide to reading letters and sentences, deaf children, teaching media.*

## DESIGN AND CONSTRUCTION OF E-LEARNING MEDIA MOBILE BASED USING ANDROID STUDIO

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### ***Abstract***

*In the ever-growing digital era, technological transformation has had a significant impact on various sectors, including education. This phenomenon creates a new paradigm in the teaching and learning process, which is specifically known as educational technology or e-learning. Therefore, this research aims to design an e-learning application. This application's main aim is for schools to keep up with technological developments that are growing rapidly in the world of education and also make it easier for teachers and students to provide information and increase learning hours that teachers and students can access anytime and anywhere. The type of research used is the Research and Development (R&D) method. The application development model used in this research involves four stages, namely observation, interviews and literature study. The application used in the creation system is Android Studio. The programming languages used in designing this e-learning are HTML/CSS, PHP, Java Script and Kotlin. The result of this research is an application that is used by teachers and students at SDN 7 Ponjalae in the teaching and learning process using an electronic learning system to make it easier to access learning anywhere and anytime. This e-learning application has been tested using a black box by obtaining a media expert validation test result of 3.90, which is included in the Very Good category.*

**Keywords:** Design, E-learning, Android studio, html/css, php, java script, SDN 7 Ponjalae, Blackbox.

## TECHNOLOGY TREND OF DIGITAL IDENTITY: A BIBLIOMETRIC APPROACH

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### ***Abstract***

*The future of digital ecosystem requires various supporting technologies, one of which is digital identity. A necessary validation tool not only for individuals but also for organizational institutions which later will be used in digital economic activities. Indonesia as a country with large citizen urgently needs digital identity to protect the people and to upheld national security systems. However, we need to figure out the overall development of digital identity before adopting the technology. This article conducts a bibliometric analysis to investigate the future that digital identity holds. The investigations revealed that digital identity will eventually evolve to four technologies such as decentralized identity, verifiable credentials, self-sovereign identity, and metaverse. The findings will be a catalyst for the information technology and telecommunications industry to adopt digital identity technology.*

**Keywords:** *bibliometric analysis, digital identity, metaverse, self-sovereign identity.*

# ANALYSIS OF CONTINUANCE USE INTENTION OF TIKTOK AS EDUCATIONAL INFORMATION WITH EXPECTATION CONFIRMATION MODEL (ECM) AND INFORMATION SYSTEM SUCCES MODEL (ISSM)

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## ***Abstract***

*Social media is one of the main technologies currently used by billions of people around the world, especially TikTok. TikTok contains popular content such as comedy, dancing, and educational information which is starting to increase. TikTok presents the #SerunyaBelajar program with 1.3 million posts. So TikTok needs to focus on user satisfaction and retention by continuing to innovate. The purpose of this study is to measure satisfaction and intention to continue using TikTok as educational information. This study uses 2 models, namely the Expectation Confirmation Model and the Information Sytem Succes Model with 96 respondents and processed using SEM-PLS. This study found that confirmation affects perceived usefulness. Thus, many users feel that TikTok provides useful features. In addition, satisfaction and continuance intention are influenced by perceived usefulness related to TikTok. And satisfaction influences TikTok users' continuance intention to access educational content..*

**Keywords:** *Continuance Use Intention, ECM, ISSM, TikTok*

# CLASSIFICATION OF DENTAL CARIES DISEASE IN TOOTH IMAGES USING A COMPARISON OF EFFICIENTNET-B0, MOBILENETV2, RESNET-50, INCEPTIONV3 ARCHITECTURES

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## Abstract

*Dental caries is a global metabolic disorder, influenced by complex interactions between the body and microbes, it's caused by prolonged exposure to a low pH environment, leading to demineralized carious lesions. If untreated, it can cause pain and eating difficulties, requiring emergency care and significantly impacting overall quality of life. Diagnosis process can be conducted through physical assessment and analyzing laboratory testing. Image-based artificial intelligence systems, particularly the EfficientNet-B0 model, is suggested as a resolution for classifying dental caries using tooth images. The study's goal is to assess EfficientNet-B0's performance in comparison to other CNN architectures and play a role in advancing medical image classification technology. The original dataset comprising 1554 images was initially collected. After augmentation, the dataset expanded to 6348 images. The data was then divided into three subsets of training, validation, and testing datasets with a distribution ratio of 70:15:15, respectively. From all the evaluated models, the EfficientNet-B0 demonstrated a quite commendable accuracy of 0.98% with overfitting tolerance of less than 2%. Having the same accuracy as the MobileNetV2 (0.98%). Despite its inability to exceed the accuracy achieved by ResNet-50 (0.99%), EfficientNet-B0 accomplished its accuracy level with roughly a quarter of the parameters than ResNet-50 and higher than InceptionV3 (0.97%), highlighting its efficiency in parameter utilization and computational resource management. These findings hold promise for enhancing models and guiding clinical decision-making.*

**Keywords:** Caries, Convolutional Neural Network , Diagnosis, EfficientNet-B0, Image Classification.



# ANALYSIS OF FACTORS DETERMINING STUDENT SATISFACTION USING DECISION TREE, RANDOM FOREST, SVM, AND NEURAL NETWORKS: A COMPARATIVE STUDY

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## ***Abstract***

*Student satisfaction is crucial in higher education, impacting student loyalty, retention rates, and institutional reputation. This study addresses the gap in applying advanced machine learning techniques to predict and understand key determinants of student satisfaction. The primary objective is to analyze and predict the factors determining student satisfaction using four machine learning models: Decision Tree, Random Forest, SVM, and Neural Networks. The dataset comprises 2527 entries with seven relevant features. Data preprocessing involved normalization and exploratory data analysis (EDA) to ensure accurate analysis. The Neural Network model achieved the highest accuracy with an MSE of 0.001399, RMSE of 0.037397, MAE of 0.030773, and  $R^2$  of 0.998154, followed closely by the SVM model. These results suggest that advanced machine learning models, particularly Neural Networks and SVM, are effective in predicting student satisfaction and identifying key areas for improvement. This study contributes to understanding the determinants of student satisfaction using machine learning models, providing practical implications for educational administrators to develop targeted strategies to enhance student satisfaction by focusing on critical factors such as academic support and financial aid. The findings highlight the importance of using advanced predictive techniques to gain deeper insights into student satisfaction, thereby enabling institutions to implement more effective interventions. Future research should explore additional variables and more sophisticated model architectures to further improve predictive accuracy and expand the applicability of these models in educational settings.*

**Keywords:** student satisfaction, machine learning, decision tree, random forest, SVM, neural networks

## DETECTION OF ETHYLENE GLYCOL IN THE PERFUMES USING ELECTRONIC NOSE CORRELATED WITH GAS CHROMATOGRAPHY MASS-SPECTROSCOPY

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### *Abstract*

*This paper investigated the development of an electronic nose (e-nose) based on a metal oxide semiconductor (MOS) gas sensor to detect ethyl glycol in perfumes. E-nose in this study was developed using MOS gas sensors from Figaro and Raspberry series, including TGS 822, TGS 826, TGS 2600, TGS 2620, MQ2, MQ3, MQ4, and MQ5. For the experiment, we collected commercial perfumes from the supermarket around Purwokerto, Central Java. All samples of perfumes were analysed using gas chromatography-mass spectroscopy (GC-MS) to detect the concentration of ethylene glycol in the samples. The concentration of ethylene glycol in the samples identified none (0%), low (0-20%), moderate (20%-50%) and high (more than 50%). Then, all perfume samples were measured using an e-nose to obtain the responses. Analysis of sensor response shows that e-nose was highly performed to discriminate the samples based on ethylene glycol concentration in the perfumes. Chemometric analyses based on principal component analysis (PCA) indicated that perfume samples were separated into three groups. Classification of samples using backpropagation neural networks (BPNN) grouped 150 perfumes in four different classes in which the accuracy of classification reached 97.65% for the training dataset and 93.36% for the testing dataset, respectively.*

**Keywords:** *electronic nose, gas sensor, principal component analysis, backpropagation neural networks, gas chromatography-mass spectroscopy, perfume.*

## ANALYSIS OF WEBQUAL 4.0 AND COGNITIVE WALKTHROUGH METHODS ON CTI GOVIDEO SPARK HIRE ONLINE INTERVIEW APPLICATION

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### **Abstract**

*This study aims to analyze the user experience quality of the CTI GoVideo Spark Hire online interview application, focusing on Safaga Indonesia institution. The research methodology employs Webqual 4.0 analysis and Cognitive Walkthrough as frameworks for evaluating application quality. Respondents were selected using Simple Random Sampling, and data were analyzed using reliability and internal consistency tests. The findings from the Webqual 4.0 analysis indicate that the majority of respondents rated the application positively, with 73% considering its quality to be good and 27% rating it as excellent. Internal consistency tests revealed overall high reliability, although the interaction variable showed relatively low values. Analysis using the Cognitive Walkthrough method revealed that 8 respondents were able to complete approximately 92.8% of the total 7 given task scenarios, with an average completion time of around 446 seconds or 7 minutes 26 seconds for all tasks. This evaluation holds significant relevance to Safaga Indonesia's need to enhance recruitment process efficiency.*

**Keywords:** CTI GoVideo Spark Hire, User Experience, Webqual 4.0, Cognitive Walkthrough, Usability Testing.

## DEVELOPMENT OF A WEB-BASED TONSEA LANGUAGE CORPUS USING THE EVOLUTIONARY PROTOTYPING METHOD

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### **Abstract**

*Without realising it, when humans increasingly follow technological advances and are only concerned with the demands of the times where technology can coexist with humans, humans sometimes forget to preserve their culture, one of which is local language. One of them is Tonsea language. Tonsea language is a regional language originating from North Sulawesi. The purpose of this study is to research material for Tonsea language corpus linguistics in the preparation of dictionaries and add Tonsea language resources to preserve the Tonsea language by developing a website to analyse the Tonsea language corpus. Corpus analysis can also be used to research or study variations in the use of the Tonsea language because the corpus can help linguists and lexicographers in the preparation of dictionaries in working on dictionary microstructures which include lemmas/sublemmas, word classes, definitions and writing. As a result, there are six key concepts of corpus analysis techniques, namely tokens, word frequency, concordance, collocation, ngrams, and word lists. In the Token feature, the Token can be used by pekamus to create a dictionary and linguists can also analyse the Tonsea language on Ankorsea and for the Concordance, Collocation and Ngram features users can search for keywords to find out the meaning of the use of a language. This research uses the Evolutionary Prototyping method.*

**Keywords:** Tonsea Language, Corpus.

## **WEBSITE-BASED RECOMMENDATIONS FOR TOURIST ATTRACTIONS IN BITUNG CITY USING CONTENT-BASED FILTERING ALGORITHMS**

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### ***Abstract***

*This study aims to develop a website-based recommendation system for tourist attractions in Bitung City, leveraging content-based filtering algorithms. The primary goal of this research is to provide personalized recommendations to tourists, enhancing their travel experience by suggesting attractions that align with their preferences and interests. The methodology involves the implementation of a content-based filtering algorithm, which analyzes the attributes and features of various tourist spots to generate relevant recommendations. The system evaluates factors such as location, type of attraction, available facilities, and user reviews. The results indicate that the content-based filtering approach effectively identifies and suggests tourist attractions that match the users' interests, thereby improving the overall satisfaction of tourists visiting Bitung City. This recommendation system offers a practical solution for tourists seeking tailored travel experiences and contributes to the promotion of local tourism.*

**Keywords:** Bitung City, Content-Based Filtering, Personalized Recommendations, Recommendation System, Tourist Attractions, Website-Based Application

## DEVELOPMENT OF A WEB-BASED BATAK SIMALUNGUN REGIONAL LANGUAGE CORPUS USING THE RAPID APPLICATION DEVELOPMENT METHOD

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### ***Abstract***

*The development of information technology has had a big influence on regional languages. Corpus data stored digitally will be very important in the future. One of the benefits of using corpus data in language analysis is that it can facilitate the process of identifying the most commonly used words or phrases in a language. Currently there are no data analysis results from the Simalungun Batak language corpus that can be utilized by the observers and there is a lack of research on the Simalungun Batak language corpus. This research aims to preserve and increase the resources of the Simalungun Batak language which is implemented in developing a web-based corpus of the Simalungun Batak regional language using the rapid application development method and can later be used by the Pekamus to compile a Simalungun Batak language dictionary. The final result is a website that can analyze the Simalungun regional language and with this website, the observers will easily analyze words from the Batak Simalungun regional language.*

**Keywords:** *Corpus, Rapid Application Development, Simalungun Regional Language, Website.*

# ENHANCING EFFICIENCY IN DETERMINING QURAN LEARNING GROUPS: A WEBSITE-BASED K-MEANS ALGORITHM APPROACH AT NURUL JADID ISLAMIC BOARDING SCHOOL

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## ***Abstract***

*This research aims to develop a web-based application system using the K-Means algorithm to group students in Quran coaching at the Nurul Jadid Islamic Boarding School in Paiton, Probolinggo. The need for this system is based on the importance of efficiency and accuracy in determining student coaching groups based on their abilities in reading the Quran, including Tajweed, fluency, and memorization scores. This research method involves data analysis from 412 students. The data is processed using the K-Means algorithm to group students into three skill categories: "Good", "Sufficient", and "Poor". The grouping results provide objective and accurate guidance in determining suitable coaching groups for each student. The research results show that the K-Means algorithm is effective in grouping students, thereby improving the efficiency and accuracy of the coaching process. The implementation of web-based technology facilitates access and use of the system by administrators and coaching participants, ensuring that the grouping and coaching processes become faster, more accurate, and more objective. In conclusion, this research successfully develops a more responsive and efficient Quran coaching system, which not only solves specific problems at the Nurul Jadid Islamic Boarding School but also makes a significant contribution to the development of similar systems in other Islamic educational institutions.*

**Keywords :** K-Means, Student Clustering, Quran Coaching, Data Mining, Website Technology.

# **SVM OPTIMIZATION WITH INFORMATION GAIN FEATURE SELECTION TO INCREASE THE ACCURACY OF SENTIMENT ANALYSIS OF INCREASING THE COST OF THE HAJJ**

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## ***Abstract***

*Everyone's freedom to express their opinions is now poured into a platform known as social media. This platform allows people in the digital world to communicate with each other using the internet. YouTube is one of the most popular social media platforms worldwide. In 2023, the Government, in this case the Ministry of Religious Affairs of the Republic of Indonesia and Commission VIII of the House of Representatives have approved the Hajj Travel Cost 1444 H/2023 AD with a range of Rp90,050,637.26 per regular pilgrim. In contrast to the government of the Kingdom of Saudi Arabia, which implemented a policy of reducing the cost of the Hajj package by 30% from 2022. This has caused pros and cons to the hajj cost increase. Public opinion on social media is the focus of this research to conduct sentiment analysis. Sentiment analysis has been developed through various methods, but there are still many challenges to produce accurate sentiment analysis. The challenges include accuracy, binary classification, data sparsity, and polarity shift. One of the challenges in improving accuracy is the focus of this research. In this study, the Support Vector Machine method is applied and Information Gain feature selection is added. The accuracy results obtained in this study are the Support Vector Machine method (87%) and Support Vector Machine combine with information gain feature selection (89%). It can be concluded, the support vector machine method combined with information gain feature selection proves an increase in accuracy by 2%.*

**Keywords:** Hajj Cost Increase, Information Gain, Sentiment Analysis, Support Vector Machine, Youtube.



# **APPLICATION OF MULTI-TASK CASCADED CONVOLUTIONAL NEURAL NETWORK ALGORITHM IN SCHOOL SUPERVISOR ATTENDANCE SYSTEMS IN THE FIELD OF COMPUTER VISION**

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## ***Abstract***

*The attendance system used by the Education Department can be said to be still manual. Where they use the Timestamp application to take photos. Where the application only takes faces without detecting the face. Therefore, researchers created a face detection presence system by applying the Multi-Task Cascaded Convolutional Neural Network algorithm using the face-api.min.js library for the face detection process. The aim of this research is to make it easier for school supervisors to manage attendance, so they can provide accurate information. Then, based on the research results, a face detection and location detection system for school supervisors was successfully developed using the Multi-Task Cascaded Convolutional Neural Network (MTCNN) algorithm. From the results of tests carried out using a dataset of 140 images from 28 people with different photos taken (face view, top view, bottom view, left side view, right side view). Test results on the facial presence detection system using the MTCNN (Multi-Task Cascaded Convolutional Neural Network) algorithm succeeded in detecting faces by 100%.*

**Keywords:** *face detection, face recognition, library, MTCNN, presence system.*

## IMPLEMENTATION OF THE FORWARD CHAINING METHOD FOR DETECTING SCHOOL READINESS IN CHILDREN

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### *Abstract*

*Primary school education is the education of children aged 7 to 13 years as education at the basic level which is developed in accordance with educational units, regional potential and socio-culture. This basic education is mandatory for a child to follow because this is the first step in a person's education. Preparation for children entering elementary school is something that is very important considering that this is the child's first step in entering the world of education. School readiness for children is no less important because in fact school readiness for the anal is very important for children because many children are found to be still not ready. attended school when but was already in elementary school. To overcome this problem, this research provides a solution by building an Expert System for Detecting School Readiness in Children using the Forward Chaining Method, namely a search that begins with collecting information starting from collecting premises (if) followed by conclusions or derivative information (then). From the test results, it is known that using functional testing and usability testing, implementing the forward chaining method, 24 symptoms of school readiness are identified based on knowledge obtained directly from psychology. The results obtained in testing using usability testing are based on the results obtained in the final score and then the average value is calculated. The final conclusion of the results determined through the SUS Score assessment is 84%. This shows that this system is easy to use and useful in assessing children's school readiness*

**Keywords:** Artificial Intelligence, Education, Expert Systems, Forward Chaining, School Readiness in Children.

## DEVELOPMENT OF A WEB-BASED TOULOUR REGIONAL LANGUAGE CORPUS USING THE SYSTEM DEVELOPMENT LIFE CYCLE METHOD (SDLC)

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### **Abstract**

*The use of the Toulour regional language has now experienced a shift from initially being a mother tongue, Toulour is starting to shift into a second language due to its use being rare and among young people who mostly use Manadonese Malay because their parents no longer use Toulour in the home environment. This could cause the Toulour language to become extinct over time and therefore there is a need for a Language Resource or SDB in the future the Corpus is one example of a language resource that can also later be used as data by other researchers for linguistic research such as compiling dictionaries, therefore this research aims to develop a web-based Toulour regional language corpus using the System Development Life Cycle method. Data collection was carried out by interviewing native Toulour speakers and also from social media. The result obtained is that a website called Actou which is an abbreviation for Toulour Language Corpus Analysis can now be accessed by the public and they can download all the words from the text that have been analyzed into a corpus.*

**Keywords:** Corpus, System Development Life Cycle, Toulour Regional Language, Website.

## USER ACCEPTANCE FACTORS RELATED TO AUTHENTICATION TECHNOLOGIES USING BIOMETRICS: TAM MODEL

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### ***Abstract***

*This study explores the relationship between factors that influence user acceptance of biometric authentication technology using the Technology Acceptance Model (TAM). This research examines how perceived usefulness, ease of use, trust & security, privacy, and attitude towards use the technology influence users' behavioral intention to use the technology and, ultimately, actual system use. TAM was used to predict the potential influence of different factors as well as the role of emerging factors in biometric authentication adoption. The results showed that using biometric authentication technology is strongly influenced by user intention. This study included the development of a new hypothesis that examines the correlation between individuals' perception of privacy and intention to use the technology, which was supported by data obtained from respondents. In addition, this study found that users' intention to use the technology is influenced more by attitudes, privacy, trust, and security factors than by the perceived usefulness and convenience of the technology. Overall, the results indicate that in biometric authentication, new factors such as privacy, trust & security play a more dominant role in shaping intention to use, even though these factors only have good descriptive ratings.*

**Keywords:** User Acceptance, Authentication Technology, Biometrics, Technology Acceptance Model

## ANDROID BASED DIGITAL NAMECARD (DINA) APPLICATION USING CNN ALGORITHM AND OCR TECHNOLOGY

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### **Abstract**

*The rapid development of technology makes digital business cards increasingly the first choice as a formal introduction tool that is more environmentally friendly, reducing dependence on the use of paper and ink. In addition to serving as a formal means of introduction, digital business cards are also an effective medium for conveying crucial information about an individual or company. The implementation phase of this application involves the utilization of Optical Character Recognition (OCR) and CNN Algorithm as the main features, with image pre-processing as a key step to improve reading accuracy, including noise reduction, data normalization, and compression. The optical scanning and location segmentation process is the main foundation in processing data from Business Card images. The next step includes feature representation and extraction using the OCR Tensor Flow technique to process the data efficiently. The integration of the OCR model into the API allows Kotlin-based mobile applications [10] to communicate directly with the OCR model, [3] providing real-time character recognition. The result of this research is a mitigation model to solve the problem of paper and ink waste through the DiNa application that combines environmentally friendly aspects with advanced technology, creating a modern solution to meet the needs of effective formal introductions. As such, this Digital Business Card application is not only an environmentally friendly alternative, but also realizes efficiency in retrieving identification information directly through a mobile platform, reflecting a response to the need for efficient formal introductions, and is also a step towards a more sustainable and environmentally friendly future.*

**Keywords:** Digital Business Card, Android, Green Computing, OCR, CNN.

## **IT SERVICE MANAGEMENT SYSTEM AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE BASED ON WEBSITE**

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### ***Abstract***

*Information technology is required to enhance efficiency and effectiveness in various operational and service aspects. The research goal is to facilitate employees in submitting IT device maintenance requests and to facilitate IT service administrators at the North Sulawesi Provincial Statistics Office. The Extreme Programming method will be used, which involves several stages, including planning, system design, coding, and testing. This IT Service Management System is expected to simplify the monitoring and management of IT-related issues for BPS North Sulawesi Province employees and potentially resolve problems related to the manual reporting of goods.*

**Keywords:** BPS, Extreme Programming, IT service, monitoring, service management system

## **STATISTICAL DATA SERVICE SYSTEM (SIPEDAS) IN BPS NORTH SULAWESI PROVINCE WEBSITE-BASED**

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### ***Abstract***

*The Central Bureau of Statistics (BPS) is important in providing high-quality statistical data to various parties. The demand for accurate and timely data is increasing in this digital era. This research aims to develop a Website-Based Statistical Data Service System (SIPEDAS) application using the Rapid Application Development (RAD) method to speed up design and ensure the system meets user needs. The RAD method consists of four stages in application development: requirements planning, system design, development process, and implementation. Data collection was conducted through interviews with mentors and sourcing data from the BPS WebAPI. Following these stages can produce an application that meets user expectations. After testing, it can be concluded that this application makes it easier for users to search for information, news, infographics, and publications needed without having to visit the North Sulawesi BPS Office directly.*

**Keywords:** BPS, data service, information system, RAD, statistics

## ANDROID-BASED GARBAGE MANAGEMENT APPLICATION USING K-MEANS ALGORITHM ON RT 03/02 KEL. KARAWACI BARU

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### ***Abstract***

*Technological advances have brought significant changes in human life, one of which is the facilitation of access to information. Despite this, garbage management remains an important issue that requires serious attention. Without practical management efforts, the negative environmental impact will continue to increase. Therefore, the study aims to develop an Android-based waste management application using the Waterfall methodology approach and the K-means algorithm method to allow users to group the type of garbage according to its characteristics so that the waste management process can be done more systematically and efficiently. From the application design and testing results, it was concluded that this waste management application can serve as an effective tool in helping people manage their garbage more efficiently. With this digital platform, it is expected that public awareness of the importance of garbage management can be increased and contribute to the maintenance of hygiene and the health of the environment. Thus, the Android-based waste management application has great potential to be a relevant solution in dealing with the problem of waste management. With this digital approach, it is expected that people can be more effective in regulating and utilizing garbage and actively participate in efforts to maintain environmental sustainability for generations to come.*

**Keywords:** Technology, Management, Garbage, Society



## ANDROID-BASED GARBAGE MANAGEMENT APPLICATION USING K-MEANS ALGORITHM ON RT 03/02 KEL. KARAWACI BARU

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### **Abstract**

*This research aims to compare the performance of two machine learning algorithms, Naive Bayes and K-Nearest Neighbors (K-NN), in predicting the freshness of milkfish (Chanos chanos) at fish auctions. Predicting fish freshness is an important aspect to ensure product quality and customer satisfaction. The Naive Bayes algorithm, which is based on Bayes' Theorem with the assumption of independence between features, as well as the K-NN algorithm, which uses an instance-based approach to classify data based on proximity to k nearest neighbors, were implemented and tested. Evaluation is carried out using accuracy and Kappa metrics. The results show that Naive Bayes achieved an accuracy of 73.44% with a Kappa value of 0.594, indicating good performance in predicting the freshness of milkfish. In contrast, K-NN shows an accuracy of 68.75% and a Kappa value of 0.461, which means its performance is lower compared to Naive Bayes. Further analysis revealed that Naive Bayes is more computationally efficient and faster at making predictions, making it better suited for real-time applications at fish auctions. However, Naive Bayes has limitations in assuming feature independence which may not always be true in real-world situations. On the other hand, K-NN although more flexible and capable of capturing complex patterns in data, tends to be slow and requires optimization of parameters such as k values to improve its performance. In conclusion, Naive Bayes is recommended for predicting the freshness of milkfish at fish auctions because of its higher accuracy and reliability. Further research is needed to optimize these two algorithms through parameter adjustments and the use of ensemble methods to improve overall prediction performance.*

**Keywords:** Fish Auctions, Fishery Product Quality, K-NN, Milkfish, Naive Bayes.

## EVALUATION OF MATURITY LEVEL AND DESIGN OF INCIDENT MANAGEMENT SOP IN ACADEMIC INFORMATION SYSTEM USING ITIL V4

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### **Abstract**

*STIKES is one of the universities that organizes study programs that focus on Health Professional Education, one of which is STIKES Tengku Maharatu Pekanbaru. STIKES Tengku Maharatu should be able to utilize technology to support the performance and processes carried out in the educational environment. The Academic Information System (SIADAK) is a system at STIKES Tengku Maharatu which is used by all lecturers and students. This system can be accessed online, however, the process that occurs when the system is used does not necessarily run well, there are still several things that must be considered, starting from maintenance and management of problems that occur. Therefore, maturity level measurements are carried out as well as designing standard operational procedures for incident management. This research uses the Information Technology Infrastructure Library Framework 4 and uses incident management practice as a guide for measuring maturity levels and designing SOPs for handling problems. Based on the results of data collection and processing based on practice incident management, it was found that the maturity level was at level 2 (Repeatable) and the SOP for handling problems was designed. Based on the results of the maturity level and the design of SOPs for handling problems with the academic information system, they can be used as a reference to further improve the quality of services and the quality of the Academic Information System.*

**Keywords:** Academic Information Systems; Maturity level; standard operating procedures; incident management; ITIL V4;

## ***FORENSIC ANALYSIS OF PHISHING ATTACKS: INVESTIGATIVE APPROACH***

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### ***Abstract***

*Phishing attacks continue to pose a significant threat to cybersecurity, with perpetrators becoming increasingly sophisticated in crafting convincing fraudulent methods. This article examines the forensic analysis process used to effectively investigate phishing attacks. Through a review of existing literature, the author understands the workings of phishing and analyzes real cases that have occurred, followed by data collection using secondary sources. Using theories and insights gained from literature studies, the author analyzes and identifies important aspects of the conducted research data. A case study research method is employed to analyze the data, determining the steps for prevention and investigation of phishing attacks. In this analysis, thematic and textual methods are applied to gather crucial components of a phishing attack. The analysis results indicate that forensic approaches and a deep understanding of phishing mechanisms can help protect data and significantly reduce the impact of phishing attacks. This article concludes by providing practical recommendations to enhance readiness in facing future phishing attacks.*

**Keywords:** *Forensic Analysis, Forensic Investigation, Phishing Attack*

**IDENTITY THEFT SOFTWARE:  
HIDDEN THREATS IN THE DIGITAL AGE**

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***Abstract***

*The advancement of technology provides space for users to carry out activities by relying on digital devices. With the freedom to use the internet, it can indeed have positive or negative impacts, and it is not impossible that misuse of the internet will occur, leading to criminal acts. Crimes in the internet world are referred to as Cybercrime. Cybercrime is a form of internet crime committed by an individual or a group with the intent to steal personal data, defraud someone, and other types of internet crimes. Perpetrators of cybercrime, or what can be called hackers, are increasingly developing internet crimes to reap profits by scamming.*

**Keywords:** *Cybercrime, Digital Devices, Technology Advancement*

# **DEVELOPMENT OF INTERACTIVE MULTIMEDIA LEARNING MEDIA & GAMIFICATION ON SPACE OBJECTS TEACHING MATERIALS FOR ELEMENTARY SCHOOL STUDENTS**

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## ***Abstract***

*Teaching material in learning outer space objects (PBLA) is an interesting and important topic for elementary school students to master. However, traditional methods in PBLA learning are often ineffective in increasing students' awareness and interest. Interactive multimedia learning uses a variety of technologies such as video, images, and animation, as well as gamification elements such as points, levels, and rewards. Therefore, this research focuses on developing interactive multimedia learning and gamification to increase elementary school students' awareness and interest in PBLA. This research is research into the development of learning media using the 4D Method (Define, Design, Develop and Disseminate) type Research and Development (R&D) and conducting field tests in class VI UPTD SDN 40 Negeri Katon. The research results showed that the validity of interactive PowerPoint learning media based on a scientific approach in learning material at UPTD SDN 40 Negeri Katon elementary school was based on the results of an assessment from media experts of 94.45% and an assessment of material experts of 97.45% in the very appropriate/very valid category. The practicality of learning media is stated to be practical based on the suitability of the material provided. This is proven by the teacher response results being 98% and the student response results being 100%. This research produces gamification learning media using interactive PowerPoint based on a scientific approach that is valid and practical to use. It is hoped that the results of this research can contribute to the development of more effective and interactive curriculum and learning methods to increase students' awareness and interest in PBLA material.*

**Keywords:** Gamification, Space, 4D Method, Multimedia Technology, Interactive Learning

## BEHAVIORAL ANALYSIS OF CYBERCRIME: PAVING THE WAY FOR EFFECTIVE POLICING STRATEGIES

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### **Abstract**

*This article explores the dynamic landscape of cybercrime enforcement, ranging from definition to investigative frameworks. The study classifies and provides a contextual taxonomy, typology, and attributes of cybercrime through a holistic approach. This research dissects the stages of cybercriminal activities and emphasizes the crucial role of digital artifacts in investigations. The study also examines the impact of cybercrime on victims and the various investigative approaches faced by law enforcement. The article highlights the collaboration between the public and private sectors in combating cybercrime and proposes a comprehensive framework for cybercrime investigations. Based on rigorous research methodology, this article offers essential insights for law enforcement to address the complexity of cybercrime and effectively safeguard the digital realm.*

**Keywords:** *cybercrime, digital artifact, digital investigation, modus operandi*

## COMBINATION OF WP AND TOPSIS METHODS IN A DECISION SUPPORT SYSTEM FOR WATERMELON SEED RECOMMENDATION

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### **Abstract**

*Watermelon plants are horticultural plants that can be cultivated by the wider community with adequate profits. In Indonesia, watermelon production is still unable to meet the huge market demand and has not been able to be met by local watermelon-producing areas. One of the reasons why watermelon production is insufficient is because the fruit is easily damaged due to inappropriate watermelon seeds. Appropriate watermelon seeds can be selected using a Decision Support System. This study uses two combination methods, namely Weighted Product (WP) and Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), to be applied in the Decision Support System for watermelon plant seed recommendations. The WP method is used to determine the weight of the criteria, while TOPSIS is used to determine the order of watermelon seed recommendations. The data used in this study were 20 alternative watermelon seeds with five criteria: recommendations for plains, yield potential, fruit weight, harvest age, and disease resistance. The results of the implementation with both methods produced watermelon seed recommendations with a ranking of 1, namely F1 Series (3n) watermelon seeds with a preference value of 0.85442.*

**Keywords:** Decision support system, watermelon seed, WP, TOPSIS

## DEVELOPMENT OF A STOCK PURCHASE RECOMMENDATION SYSTEM APPLICATION

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### Abstract

*Investments in stocks have become a significant source of passive income because they generate income indirectly through minimal or even no ongoing activity. However, the process of selecting stocks for investment involves careful analysis and consideration so as not to disappoint. There are 866 shares listed on the Indonesia Stock Exchange, and these shares are divided into several indices that aim to provide an overview of the performance of shares in certain groups. One stock index that stands out is the IDXBUMN20, which measures the performance of 20 stocks from State-Owned Enterprises (BUMN), Regional-Owned Enterprises (BUMD), and their affiliates. Along with the large number of shares in the IDX BUMN20 group, traders need recommendations in choosing stocks that show positive trends and have the potential to be investment references. In this context, forecasting analysis becomes a potential solution to provide stock references with a positive trend. The aims of this research are (1) Designing and developing a forecasting system using the Simple Moving Average method to provide alternative stocks that have a positive trend in the IDX BUMN20 index group, (2) Designing and developing a stock recommendation system from alternative stocks that have positive trends using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. The research methodology in this study is a combination of historical and quantitative methods. The historical method uses historical stock price data to model the Simple Moving Average method to obtain forecast values. The quantitative method uses the TOPSIS (Technique for Others Reference by Similarity to Ideal Solution) method to model the stock selection process that will be implemented by the system. Secondary data collection was used to collect data for this study, with data obtained from BCA Sekuritas' online trading application. The following data has been collected: 1) Historical price data. The historical stock price data is the stock price data that has already passed. The price data taken are the last price data of each day for a period of 1 year. 2) Average frequency. Frequency is the number of purchase and sale transactions of a stock within a certain period of time. The average frequency is used during the 1-year period for stock selection. This research also conducted a Technology Acceptance Model (TAM) test, which showed that the developed system was acceptable and in accordance with the test. Therefore, the conclusion of this research is that the the Simple Moving Average forecasting system design can provide alternative stocks that have a positive trend in the IDX BUMN20 index group, and the TOPSIS recommendation system design can provide young and fast information to investors who choose stocks in the IDX BUMN20 index group for investment. This recommendation model will consider the criteria for average frequency, Price Earnings Ratio (PER), Price Book Value (PBV), Return on Assets (ROA), and Return on Equity (ROE). The results of the research show that the system is able to provide stock recommendations based on the positive trend of stock price movements. Stocks such as SMGR (for indicator 30), TLKM (for indicators 40, 50 and 60) are recommended as stocks with positive trends. The conclusion of this research is that the most recommended stock for the future is TLKM (PT Telkom Indonesia (Persero) Tbk).*

**Keywords:** Investment, Stocks, Recommendations, Simple Moving Average, TOPSIS



## **ANALYSIS OF THE LAPAK HIJAU BUSINESS MODEL IN THE SALE OF FURNITURE GOODS THROUGH THE E-COMMERCE PLATFORM**

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### ***Abstract***

*This research aims to analyze Lapak Hijau's business model in selling used hotel and furniture goods through an e-commerce platform. Lapak Hijau is a company engaged in buying used goods from various sources, including hotels, restaurants, and factories, and reselling them at a higher price. The focus of this research is on business model changes that enable Lapak Hijau to integrate the sale of second-hand goods with furniture goods through an e-commerce platform. This research combines business model analysis methods with a literature review on e-commerce and stock management to identify how Lapak Hijau can optimize its operations, improve customer accessibility, and maximize profits. In addition, this research also includes an analysis of the impact of this business model change on customers, sellers, and various aspects of Lapak Hijau's business. The results of this study are expected to provide in-depth insights into how Lapak Hijau's business model adapts to the development of e-commerce technology, as well as provide recommendations to improve the success and growth of this business in a digital environment. The conclusions of this research will provide a broader view of the role of e-commerce in the business of selling second-hand goods and furniture, and its implications in the wider industry.*

**Keywords:** Business Analysis, Business Model, E-Commerce, Furniture, Used Goods Sales.

## THE EVALUATIONS FOR THE BACKEND OF ONTI MEASURES WITH BLACK BOX METHOD

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### *Abstract*

*Ontology-based inconsistency measure gives inconsistency of the whole base of the OWL ontology. It means the produced inconsistency value is used to evaluate its whole base. Based on this characteristic, there were 10 inconsistency measures created in the previous research. The measures were collected into one package of measures in an application program, namely Onti Measures. Onti Measures improved the framework or prototype program in another previous research. The application will not be useful if the measures do not work well. This problem leads to conduct evaluations. In this research, evaluations for the backend part of Onti Measures with the use of three kinds of OWL reasoners are done to know the performance of the application system with the comparison of each reasoner usage. The evaluations for the whole part of the application are not the scope of this research since they are only done for the backend part. Particularly, they are done with the black box method. They are evaluated with several OWL files as test cases and as the inputs of the backend program. The evaluations show that the same inconsistent OWL file that is computed with a different type of inconsistency measure with any chosen OWL reasoner may result in a different inconsistency value. They also show that Pellet is better than the two other OWL reasoners, i.e., HermiT and Jfact. Other results are provided.*

**Keywords:** *backend, inconsistency measures, Onti Measures, OWL ontologies, OWL reasoner.*

## LOBSTER AGE DETECTION USING DIGITAL VIDEO-BASED YOLO V8 ALGORITHM

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### **Abstract**

*Lobster is an aquatic animal that has high economic value in the fishing industry. Demand for lobster in both domestic and export markets continues to increase thanks to its delicious meat and a variety of desirable dishes. Indonesia, especially Java Island, contributes significantly to the national lobster production. However, the current manual determination of lobster age has limitations such as complexity, time required, and subjectivity in assessment. To overcome this problem, this research proposes the detection of lobster age using the YOLO (You Only Look Once) method, specifically the YOLOv8 version. This algorithm is known to be able to perform image and video recognition quickly and produce high accuracy. YOLOv8 can be run using a GPU, enabling parallel operations that significantly increase the speed of object detection compared to using a CPU alone. The data processing in this study involves several stages, starting from pre-processing in the form of image extraction and bounding from lobster videos. Next, the YOLOv8 algorithm was used to train the model with customized grid and bounding box parameters. The trained model is then validated and tested using lobster image and video data. The results of the test show that the developed YOLOv8 model has a precision of 0.997, recall of 0.998, mAP50 of 0.995, and mAP50-95 of 0.971. This shows that the model is able to detect and determine the age of the lobster with very high accuracy, providing a more efficient and objective solution than the manual method.*

**Keywords:** Age Detection, Lobster, mAP50, YOLOv8

## ANALYSIS OF SIMFAKUM ACCEPTANCE USING THE TAM AND WEBQUAL METHOD

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### *Abstract*

*The Faculty of Law, Riau Islamic University implements an Information System that can support and assist students in making correspondence for student needs and is named the Management Information System of the Faculty of Law or abbreviated and known as SIMFAKUM. From the results of observations and interviews with several students and SIMFAKUM Admins, it is known that there are complaints or problems experienced by users during the implementation of SIMFAKUM. Based on previous research, TAM and Webqual can be used together to measure information system acceptance. For sampling, Simple Random Sampling was used for students of the Faculty of Law, Riau Islamic University as SIMFAKUM users with a total of 95 respondents. Data processing techniques using Structural Equation Model (SEM) and Partial Least Squares (PLS) with Smart-PLS 3.0 software. There are 6 hypotheses in this study and 5 hypotheses are accepted while 1 hypothesis is rejected, therefore SIMFAKUM needs to improve and improve features to support student needs in correspondence.*

**Keywords:** Acceptance, SIMFAKUM, TAM, Webqual

## WATER QUALITY MONITORING DESIGN SYSTEM FOR PDAM KLATEN – CENTRAL JAVA BASED ON BLYNK APPLICATION

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### *Abstract*

*Water quality is a term that refers to the condition of water which includes characteristics of biology, chemistry, and physic that are discerned from some parameters regarding a standard for a particular use. Nowadays, water quality testing methods are still done manually by sample tests in the laboratory which calls for more time and there is a possibility to get different results from what is supposed to be. Based on the background above, this writer is interested in research to design a monitoring system of water quality using Internet of Things (IoT) technology. The water quality monitoring system in this paper used a Mega 2560 Pro microcontroller, SIM800L GSM module, and Blynk platforms. Water quality parameters monitored are temperature, pH, TDS, ORP, and DO. The results of this water quality monitoring system are displayed in the Blynk application on smartphones. The water quality parameter measurement sensor has successfully worked with an average percentage of reading error of 2.62% for the temperature sensor, 2.71% for the pH sensor, 7.39% for the DO sensor, and 3.4% for the TDS sensor. For the reading of the ORP sensor, the offset value is -9 mV.*

**Keywords:** *Blynk, Internet of Things, Mega 2560 Pro, Water quality*

**PAYMENT INFORMATION SYSTEM EDUCATIONAL DEVELOPMENT (SPP) AT  
WATUBANGGA 1st STATE HIGH SCHOOL WEBSITE BASED**

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***Abstract***

*Currently, most schools still use conventional payment systems, one of which is SMA Negeri 1 Watubangga. SMA Negeri 1 Watubangga is a senior secondary education unit located in Komp. Head of Watubangga District, District. Watubangga, Kab. Kolaka, Southeast Sulawesi. In general, the problem currently occurring is that there is no information system that assists schools in processing financial data for tuition fee payments. Data recording, such as student payment data, is still done conventionally using ledger archives, the number of which will continue to increase over time. Because we still use ledgers, the process of recording and searching for data is less than optimal.*

***Keywords:*** *Payment , SPP, Waterfall, Web*

## **IMPLEMENTATION OF THE WATERFALL METHOD IN THE INFORMATION SYSTEM FOR RECORDING AND MAINTAINING EVIDENCE FOR THE SITUBONDO POLICE**

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### ***Abstract***

*Technological development in the current era of globalization have experienced a significant increase, especially in the use of computer technology for government information systems play an important role in organizations by providing solutions for processing daily transactions, supporting business operations, managing organizational administration, and providing reports required by external parties in the police context, technology plays an important role in providing information about evidence, which is a key element in criminal investigations. However, collecting and storing evidence remains a challenge, especially in manual processes that are prone to errors and data loss. This study highlights the need to implement more sophisticated information systems, such as the waterfall method, to increase the efficiency and accuracy of police evidence management. A system that operates in real-time, provides precise control, and has the ability to make the right decisions is expected to improve the performance of investigations and courtrooms in the field.*

**Keywords:** *efficiency, evidence collection, evidence storage, informasi systems, police evidence collection.*

## WEB-BASED BEAUTY SALON ORDERING INFORMATION SYSTEM AT DREAM SKIN AESTHETIC

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### **Abstract**

*Dream Skin Aesthetic is a business that operates in the field of beauty services, especially facial treatments such as laser, basic facial, facial detox, spot peeling, acne peeling, etc. These service activities are carried out offline, which often causes long queues and inconvenience for customers such as services and maintenance services in general. In offline services, a weakness has been found which has been a problem for the owner all this time, namely the customer queues piling up when they want to carry out maintenance because they wait too long because these customers come directly to the place and don't do it. Order in advance via telephone or WhatsApp. To overcome this problem, an online ordering and service management system was developed using the waterfall software development method. This system is designed to make it easier for users to access information, place orders and transact online. Apart from that, this system also helps the Dream Skin Aesthetic salon in managing customer data and order data more effectively and efficiently. This research resulted in a good system, as evidenced by reduced queues, increased customer satisfaction based on surveys, and increased salon operational efficiency as seen from more organized management data.*

**Keywords:** *Dream Skin Aesthetic, beauty services, online ordering system, waterfall method, customer data management.*



# **DESMOCAM (DETECTION SMOKING CAMERA): INTEGRATION OF IOT AND MACHINE LEARNING FOR ACTIVE SMOKER DETECTION TO SUPPORT SMART CITIES IN INDONESIA**

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## ***Abstract***

*Cigarettes are an addictive substance that kills around 8 million people every year, as of 2022 there will be around 8,67 million deaths in the world caused by cigarettes and other tobacco products with resulting economic losses of around 2 trillion USD. Efforts to reduce losses due to smoking in Indonesia have been implemented through various regulations and rules that have been established, such as Law Number 36 of 2009 Article 115 concerning non-smoking areas. The target for non-smoking areas (NSA) regulations in Indonesia will reach 100% by 2023. However, currently, only 86% of regions have NSA regulations and must continue to monitor and evaluate through regulations set by the government. One solution to emphasize non-smoking areas with the latest technology connections to support Smart City is a smoke detection system using IoT. DesMoCam (Detection Smoking Camera) applies the latest machine learning model, InceptionResNet2, which has high accuracy and has the ability to detect smokers precisely in a Non-Smoking Area (NSA). DesMoCam uses a Raspberry Pi with ESP32-CAM to capture situations in a smoking-free room and warnings through the speaker. The InceptionResnet2 model used for image identification and classification, achieved an accuracy of 92.75%. It is hoped that the collaboration between the latest technology and basic public health problems can provide a solution and can be a long-term solution to contribute to the achievement of SDG numbers 3, 9, and 11.*

**Keywords:** IoT, Machine Learning, Smoke Detection

## DATA MINING ESTIMATE TOURISM INCOME IN TOMOHON CITY USING MULTIPLE LINEAR REGRESSION ALGORITHMS

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### *Abstract*

*Tourism is a sector that plays a crucial role in efforts to increase income. The city of Tomohon boasts exceptional natural resources and significant tourism potential. This study aims to predict the tourism revenue in Tomohon city using multiple linear regression algorithms. A quantitative research method was employed for this study. It was conducted at tourist destinations in Tomohon with a total of 15 research samples. The results indicate that places like Mahawu Prayer Hill and Linow Lake show relatively high initial revenues. However, locations such as Pelangi Tourist Park have lower initial revenues. Additionally, some places like the Vihara have shown a significant increase in revenue compared to the previous period. The multiple linear regression equation is  $Y = -55.95 + 2.50X_1 + 2.26X_2$ .*

**Keywords:** *Data Mining, Revenue Estimation, Tourism Destinations, Multiple Linear Regression Algorithm*

## INTRODUCTION OF NATIONAL IDENTIFICATION NUMBER AND NAME ON ID CARD USING OCR (OPTICAL CHARACTER RECOGNITION) METHOD

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### **Abstract**

*This study examines the use of Optical Character Recognition (OCR) methods for the automatic recognition and extraction of text from images of Identity Cards (KTP). The aim is to provide an effective solution to the problems of document forgery and duplication, particularly in the use of KTP as an identity verification tool. Utilizing the Tesseract library, this research involves preprocessing steps such as conversion to grayscale, perspective transformation, and noise reduction to enhance OCR accuracy. Testing was conducted with 50 different KTP images using Python programming, achieving an Optical Character Recognition accuracy rate of 91%. Additionally, tests conducted with a dataset of 50 KTP images containing NIK and name variables showed that all images were successfully detected with an accuracy rate of 90%. This study confirms that the OCR method is effective in reading text from KTP images in real-time, thus it can be implemented for automatic identity verification.*

**Keywords:** Identity Card, National Identification Number, Optical Character Recognition

# **APPLICATION OF NEURAL MACHINE TRANSLATION IN THE TOMBULU REGIONAL LANGUAGE TRANSLATION MODEL - INDONESIA**

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## ***Abstract***

*Nowadays, translation is one of the alternatives for language translation, especially for people who want to learn a language. There have been many developments in translation models, but no one has developed a Tombulu language translation model. Creating a translation model with Neural Machine Translation (NMT) is the first step in developing a Tombulu language translation machine. The purpose of this research is to build a model and get the translation results from the Neural Machine Translation model on Tombulu local language translation. The research method starts with data collection, data preprocessing, modeling and training, evaluation. evaluation result value BLEU Score. The result of the evaluation process is 10.51% in the first data and 15.76% with the second data*

**Keywords:** BLEU Score, translation model, neural machine translation.

## CREATING A WEBSITE-BASED ONLINE DATA FORUM APPLICATION, AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE

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### ***Abstract***

*In this context, planning and building a daily work management application system becomes an urgent need. A good daily work management application system can help North Sulawesi BPS organize tasks, measure performance, facilitate team collaboration, and monitor progress towards the goals to be achieved.*

*In facing the dynamics of a fast-paced work environment and to achieve work goals on time, BPS North Sulawesi needs to utilize information technology and a sophisticated work management system to overcome this challenge. A well- integrated work management system can help optimize human resource allocation, reduce the risk of errors, and enable agencies to adapt to global changes more quickly.*

*Therefore, this research aims to design and build an innovative and effective work management system that can help the Provincial Central Statistics Agency. Sulut in overcoming system will bring positive changes in task management, increase productivity, and improve the quality of work, which in turn will support long-term growth and success at the North Sulawesi Provincial Central Statistics Agency.*

**Keywords:** *Badan Pusat Statistik, fordone, internship, system, website*

## DESIGN AND DEVELOPMENT OF 2-DIMENSIONAL PLATFORMER GAME USING THE GAME DEVELOPMENT LIFE CYCLE METHODE

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### **Abstract**

*This research focuses on designing and developing a 2-dimensional platformer game using the Game Development Lifecycle (GDLC) method. The purpose of this research is to produce a game that is not only interesting and interactive, but also educational, with the main focus on educating about the stories in the Bible. The game development process follows the GDLC stages which include initiation, pre-production, production, testing, beta, realease. The results of this study show that the developed game, titled "Bible Quest", successfully fulfills expectations as an effective educational media. Usability testing showed that the majority of respondents gave positive feedback on their playing and learning experience. The game succeeded in increasing users' interest and understanding of Christianity, especially regarding the stories recorded in the Bible. The blackbox tests conducted confirmed that all features in the "Bible Quest" game functioned properly. Based on the results of this study, it can be concluded that the use of the GDLC method in the development of a 2-dimensional platformer game proved to be successful and effective. The resulting game not only achieves the objectives of interactivity and education, but also provides high user appeal*

**Keywords:** Bible, Blackbox, Educational, Game, GDLC, Platformer

**DESIGN AND BUILDING OF AN INFORMATION SYSTEM BASED ON CUSTOMER  
RELATIONSHIP MANAGEMENT (CRM) AT PAGLAK PETUNG CAFÉ AND ART IN  
BANYUWANGI DISTRICT**

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***Abstract***

*The development of information and communication technology (ICT) has changed the business world. Today, the success of a cafe is not only measured by its profits, but also by its ability to build long-term customer relationships. Customer relationship management (CRM) is a strategy for building and maintaining good relationships with customers and reducing sales compared to competitors. Paglak Petun Cafe and Art in Banyuwangi, which combines art and local cuisine, is facing customer management challenges as the number of customers increases. Traditional methods such as posting on social media and ordering by telephone are considered less effective. The aim of this research is to develop a CRM system to manage customer data efficiently. This CRM system integrates data management, service personalization, interaction tracking, and marketing data analysis. The development method uses a waterfall model that includes requirements definition, design, implementation, verification and maintenance. The result is a CRM system that increases customer loyalty, operational efficiency and service quality through key features.*

**Keywords:** *ICT, CRM, Paglak Petung Cafe and Art, customer loyalty, operational efficiency, waterfall method.*

## CREATING A WEBSITE-BASED ONLINE DATA FORUM APPLICATION, AT THE CENTRAL STATISTICAL AGENCY OF NORTH SULAWESI PROVINCE

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### ***Abstract***

*In this context, planning and building a daily work management application system becomes an urgent need. A good daily work management application system can help North Sulawesi BPS organize tasks, measure performance, facilitate team collaboration, and monitor progress towards the goals to be achieved. In facing the dynamics of a fast-paced work environment and to achieve work goals on time, BPS North Sulawesi needs to utilize information technology and a sophisticated work management system to overcome this challenge. A well- integrated work management system can help optimize human resource allocation, reduce the risk of errors, and enable agencies to adapt to global changes more quickly. Therefore, this research aims to design and build an innovative and effective work management system that can help the Provincial Central Statistics Agency. Sulut in overcoming system will bring positive changes in task management, increase productivity, and improve the quality of work, which in turn will support long-term growth and success at the North Sulawesi Provincial Central Statistics Agency.*

**Keywords:** Badan Pusat Statistik, fordone, internship, system, website



**WEBSITE BASED CASHIER APPLICATION INFORMATION SYSTEM NORTH  
SULAWESI PROVINCE CENTRAL STATISTICS AGENCY**

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***Abstract***

*The research was carried out to find out which cashier services for the Central Statistics Agency of North Sulawesi Province are still carried out manually when inputting data, causing queues for incoming and outgoing goods to pile up. Apart from that, the manual system has many weaknesses, including errors in recording and searching. data is difficult because every time you look for stock data you have to look in the ledger. There is no specific information that informs about the number of goods in stock so it is not uncommon for the stock to run out. Due to this weakness, a web-based cashier application is needed which can make it easier for cashiers to manage data. The method used is waterfall, in making applications starting from the analysis, design, coding, testing, evaluation and maintenance stages.*

**Keywords:** *Cashier application, transaction management, information system, web technology, usability, website*

**IMPLEMENTATION OF THE OTSU THRESHOLDING METHOD ON THE  
CONVOLUTIONAL NEURAL NETWORK ALGORITHM IN THE  
CLASSIFICATION OF AGLAONEMA FLOWERS, SYNGONIUM  
AND PEACOCK CALATHEA**

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***Abstract***

*Indonesia exhibits the highest levels of biodiversity, habitats and ecosystems in Southeast Asia. In everyday life, recognizing all types of flowers requires a significant investment of time. This involves understanding the unique characteristics of each type of flower as well as the ability to identify the names of the flowers. The development of computer technology and digital imaging has opened up new opportunities to develop methods for automatically classifying and predicting flower types. This research uses the Otsu thresholding method on flower image data which will be used as a classification dataset in the Convolutional Neural Network model. In this research, the model obtained a model evaluation accuracy of 93% with 60 testing data used. This research proves that by applying Otsu Thresholding before using CNN, classification accuracy can be significantly improved. Effective segmentation methods, such as Otsu Thresholding, make important contributions to improving the performance of image classification algorithms.*

**Keywords:** *Aglaonema, Syngonium, Calathea Merak, Convolutional Neural Network, Otsu Thresholding*

**BUSINESS AND APPLICATION LAYER VIEW: INTEGRATING WAREHOUSE  
MANAGEMENT SYSTEM WITH ERP FOR OPTIMIZING RETAIL INDUSTRY  
EFFICIENCY**

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***Abstract***

*In the era of globalization and increasingly fierce competition, operational efficiency has become a top priority for the retail industry to meet the growing demands of customers. This journal discusses the importance of WMS (Warehouse Management System) in the retail industry, particularly the benefits of its integration with ERP (Enterprise Resource Planning) systems. The integration process between WMS and ERP will be explained from the perspectives of Business Architecture, Application Architecture, Data Architecture, and Technology Architecture. The main benefits of integrating WMS with ERP include enhanced operational efficiency, reduced inventory costs, faster order fulfillment, and increased customer satisfaction. Thus, this integration enables the retail industry to achieve higher levels of accuracy and responsiveness in supply chain management, helping them stay competitive in an ever-changing market*

**Keywords:** Enterprise Architecture, ERP, Integration, Warehouse Management System.

# **IMPLEMENTATION OF LOW-CODE PROGRAMMING TECHNOLOGY IN DEVELOPING A PETTY CASH TRANSACTION MANAGEMENT APPLICATION USING OUTSYSTEMS PLATFORM (CASE STUDY: PT BANK CENTRAL ASIA TBK)**

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## ***Abstract***

*Conventional application development often faces challenges like extensive code writing, long development times, high costs, and difficulties in maintenance and customization. Low-code programming offers an innovative solution by minimizing manual coding and enabling application creation through visual interfaces and drag-and-drop logic. This research explains the application of low-code programming technology in developing a petty cash transaction recording application at PT Bank Central Asia Tbk, specifically in the Corporate Communication & Social Responsibility Division. The low-code approach allows for faster, more efficient, and easier-to-maintain application development. The research uses the agile method, covering plan, design, develop, test, deploy, review, and launch stages. This case study, using the OutSystems platform, shows significant benefits such as increased development time efficiency, ease of maintenance, and flexibility in meeting dynamic business needs. The developed application can be integrated into the company's existing IT environment, improving the accuracy of petty cash transaction recording and reporting, and providing easy user access. In conclusion, low-code programming technology proves to be an effective solution for developing complex business applications efficiently in terms of time and cost.*

**Keywords:** Application, Low-Code Programming, OutSystems, Petty Cash, PT Bank Central Asia Tbk.

**WEB BASED CUSTOMER RELATIONSHIP MANAGEMENT (CRM) APPLICATION  
USING CUSTOMER ELIGIBILITY SIMULATION  
ON KOPERASI NUSANTARA MANDIRI**

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***Abstract***

*This research is conducted at Koperasi Pinjaman Nusantara Mandiri, Majalaya District, Bandung Regency. This cooperative aims to improve the quality and services and to implement strategic and effective approaches to reach customers. One of the efforts to achieve this goal is by implementing a customer-oriented system that not only accommodates loan and installment transactions but also includes a function for the cooperative and customers to assess eligibility and manage risks in lending or borrowing. Broadly speaking, a decision support application with a Customer Relationship Management (CRM) approach can solve these problems. Previously, the cooperative had not implemented valid and descriptive rules regarding the criteria used to evaluate customers. To address this issue, the application of a decision support method called the Exponential Comparison Method (MPE) is necessary. The final result of this method is an assessment in the form of a numerical score. This evaluation of customers and potential customers will be used for various purposes, such as determining loan eligibility and prioritizing customers based on the scores each member has.*

**Keywords:** CRM, Information System, Recommendation System

## IMPLEMENTATION OF THE K-NEAREST NEIGHBORS METHOD FOR DETERMINING FETAL HEALTH STATUS

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### Abstract

*Determining the health status of the fetus is a crucial aspect of pregnancy monitoring to reduce the risk of complications and increase the safety of the mother and baby. The K-Nearest Neighbors (KNN) method has been implemented as a classification technique in determining fetal health status based on cardiotocography (CTG) data. This study describes the use of the KNN algorithm to analyze various CTG parameters, including fetal heart rate and uterine contraction frequency, to classify fetal health status into three categories: normal, suspect, and pathologic. The implementation process involves collecting normalized data, selecting relevant features, and using the KNN algorithm with varying K values to determine the most optimal value. The research results show that the KNN method with the right K value can achieve high accuracy in classifying fetal health status, with accuracy reaching up to 89%. These findings indicate that KNN is an effective and reliable method in supporting medical personnel to make decisions based on CTG, which can ultimately improve the quality of maternal and infant health care. In addition, the implementation of this method is relatively simple and can be integrated into existing health systems without requiring large computing resources. Further research is recommended to compare the performance of KNN with other machine learning methods such as Support Vector Machine(SVM) and Random Forest to identify the best method in this context. The use of larger and more diverse data is also expected to increase the accuracy and generalization of the model in various clinical conditions*

**Keywords :** Data mining, K-Nearest Neighbors, classification, fetal health status, Cardiotocography.

## PENUTUP

Dengan berakhirnya SENIKO (Seminar Nasional Informatika dan Komputer, kita menutup sebuah babak penting dalam perjalanan eksplorasi dan pemahaman kita tentang kontribusi *artificial intelligence* di era transformasi digital. Tema yang diangkat tahun ini sangat relevan dan krusial, mengingat AI telah menjadi pendorong utama inovasi di berbagai sektor seperti industri, pendidikan, kesehatan, dan layanan publik.

Kami sangat bangga dengan partisipasi aktif dan antusiasme yang ditunjukkan oleh seluruh peserta. Presentasi dan diskusi yang telah berlangsung selama seminar ini telah memperkaya pengetahuan kita dan membuka wawasan baru yang akan sangat bermanfaat dalam pengembangan teknologi di masa depan.

Ucapan terima kasih yang sebesar-besarnya kami sampaikan kepada para pembicara yang telah berbagi pengetahuan dan pengalaman mereka, serta kepada semua peserta yang telah berkontribusi dalam diskusi yang konstruktif. Tidak lupa, penghargaan yang tulus kami berikan kepada seluruh panitia dan pihak yang terlibat dalam penyelenggaraan SENIKO ini. Dedikasi dan kerja keras kalian adalah kunci sukses acara ini.

Kami berharap bahwa semua pengetahuan dan wawasan yang telah diperoleh selama seminar ini dapat diaplikasikan dan dikembangkan lebih lanjut dalam konteks masing-masing. Semoga kita semua dapat terus berinovasi dan berkolaborasi demi kemajuan teknologi AI di Indonesia, sehingga kita dapat menciptakan dampak positif yang nyata bagi masyarakat dan bangsa.

Akhir kata, kami berharap dapat bertemu kembali pada acara SENIKO berikutnya. Teruslah semangat dalam mengejar ilmu dan berinovasi.

Salam hormat,

[Panitia SENIKO 2024]