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ICCSAI 2021

2021 1st INTERNATIONAL
CONFERENCE
COMPUTER SCIENCE AND
ARTIFICIAL INTELLIGENCE

28 OCTOBER 2021

Program Book

BINUS UNIVERSITY

Jl. K. H. Syahdan No. 9, Kemanggisan, Palmerah
Jakarta 11480 Indonesia

2021 1st International Conference
on Computer Science and Artificial Intelligence

ICCSAI 2021

INTERNATIONAL CONFERENCE ON COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE

Program Book

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IEEE INDONESIA SECTION

IEEE Computational Intelligence Society
INDONESIA CHAPTER

2021 1st International Conference on Computer Science and Artificial Intelligence (ICCSAI)

Conference Record Number: 53272

Greetings!

Honorable Participants/Researchers/Delegates/Professors

Distinguish Guests

Ladies and gentlemen,

The research and development of computer science, artificial intelligence, and information systems grows rapidly nowadays. Engineers, researchers, and scientists need a media to share their knowledge, idea, and research to expand the collaboration and networking. 2021 1st International Conference on Computer Science and Artificial Intelligence (ICCSAI) is an international forum for engineer, researchers, and scientist to present their knowledge of technological advance and research in the field of Computer Science, Artificial Intelligence, and Information Systems.

We have great participants and achievement in our first event of 2021 1st ICCSAI, with a total of about 200 papers submitted, and the acceptance rate was 40%, i.e. there were a total of 81 papers accepted. We would like to thank to all participants, keynote speakers, committees, and reviewers for contributing to the conference program and proceeding. We would like to express our appreciation to the reviewers and suggestions. We also would like to thank to IEEE, IEEE Indonesia Section and IEEE CIS Indonesia Chapter for supporting our conference.

Best regards,

Prof. Dr. Ir. Widodo Budiharto, S.Si., M.Kom., IPM., SMIEEE

General chair of 2021 1st ICCSAI

Rector Bina Nusantara University

WELCOMING REMARKS

Distinguished keynote speakers
Fellow professors and presenters,
Ladies and gentlemen

It is a great honor for me to welcome you to the 1st International Conference on Computer Science and Artificial Intelligence (ICCSAI) .

This conference is part of continuing efforts in producing, deliberating, and disseminating knowledge as well as creating research partnerships between faculty members, distinguished scholars, entrepreneurs, industry leaders and experts from many universities, research think-tanks, and companies in the world. Therefore, an international conference that focuses on creating the future by improvement and advancement of information systems and aims to encourage fostering digital transformation of society is essential to make university stay relevant to the needs of the modern societies and betterment of living standard of the people. Ladies and gentlemen, I would like to express my highest appreciation to Higher Education Service on Region III, along with several universities as co-hosts, such as

- o Universitas Tarumanagara
- o Universitas Gunadarma
- o Universitas Pancasila
- o Universitas Mercubuana
- o Universitas Esa Unggul
- o STMIK Jakarta STI&K
- o Universitas Budi Luhur

and all invited keynote speakers, invited plenary session speakers and all presenters and participants who will make this conference meaningful. I strongly advice to make use of this conference wisely, not limited to discussing about research but also actively trying to build connections for a new joint research, publication, faculty exchanges and so on. Finally, I also thank all the chairpersons and committee members of the conference. I wish all of you great conference and make new acquaintances during the conferences virtually.

Thank you very much.
Jakarta, 24 October 2021

Prof. Dr. Ir. Harjanto Prabowo, MM
Head of Computer Science Consortium

Head Representative of LLDIKTI III Jakarta

WELCOMING REMARKS

Praise and gratitude to the Almighty God for the grace and guidance. Let me express, on behalf of the Agency for Higher Education Service on Region III, my warm welcome. You have kindly come all the way to this great event, "The 1st International Conference on Computer Science and Artificial Intelligence (ICCSAI 2021)"

The Honorable:

Advisory Commitee

- o Prof. Dr. Ir. Harjanto Prabowo, MM, Bina Nusantara University, Indonesia
- o Prof. Tirta N. Mursitama, S.Sos., M.M., PhD, Bina Nusantara University, Indonesia

General Chair

- o Prof. Dr. Ir. Widodo Budiharto, S.Si., M. Kom., IPM, Bina Nusantara University, Indonesia

Vice Chair

- o Yaya Sudarya Triana, M.Kom., Ph.D (Mercu Buana University)

Herewith I express my appreciation. It is my honor to give an opening remark in order to scale up and advance the publications in Computer Science, Information Systems, Computer Engineering and Information Technology.

Distinguished guests, colleagues, ladies and gentlemen,

A Technologist and Head of a leading artificial intelligence software company, Thomas M. Siebel stated that there are 4 technological forces that could change our lifestyle, behaviour, and activities in 21st century such as; cloud computing, big data, artificial intelligence, and the internet of things. All of them have changed the way of thinking, activities, business and organization models, and government designs in the new form of digital landscape and generate what was previously impossible becomes reality.

We have been experiencing the 'tsunami' of digital transformation from the advertising industry, media, and e-commerce that boost the spectrum of investment and digital transformation globally.

Digital transformation is also taking part in various sectors, especially in facing the era of 5.0 society. There are numerous changes and challenges that we have to deal with to prepare superior human resources. This era also allows the people to anticipate an industrial revolution 4.0's wave that full of disruption.

The rapid growing of technology and digital transformation are closely related to the fields of Computer Science, Information Systems, Computer Engineering, and Information Technology. This progress has a tremendous impact on the progress of human civilization. The jobs that were previously done by humans are presently replaced by automatic machines. The discovery of various new formulations of computer capacity has also provided substantial convenience and comfortness for human life.

Ladies and Gentlemen,

This event is a form of synergy of government, local and international Universities to improve the quality of publications, both quantity and quality, as well as creating a culture of scientific paper writings which will ultimately lead to the massive dissemination of knowledge, both through seminars and publications.

On behalf of Agency for Higher Education Service on Region III, I would like to thank to Bina Nusantara University as a host, along with several universities as co-hosts, such as:

- Universitas Tarumanagara
- Universitas Gunadarma
- Universitas Pancasila
- Universitas Mercubuana
- Universitas Esa Unggul
- STMIK Jakarta STI&K
- Universitas Budi Luhur

In closing, this consortium provides a valuable opportunity for lecturers, research scientists, and industry specialists to share experiences. I am so grateful to the many experts who attend to share their knowledge in this consortium. I am sure you will have fruitful and rewarding exchanges ahead. I wish you every success with this event.

Thank you.

Wassalamu 'alaikum Wr. Wb.

Prof. Dr. Agus Setyo Budi, M.Sc

Head Representative of LLDIKTI III Jakarta

CONFERENCE COMMITTEE

Advisory Committee

- o Prof. Dr. Ir. Harjanto Prabowo, MM, Bina Nusantara University, Indonesia
- o Prof. Tirta N. Mursitama, S.Sos., M.M., PhD, Bina Nusantara University, Indonesia
- o Dr. -Ing. Wahyudi Hasbi, S.Si, M.Kom, IEEE Indonesia Section
- o Prof. Teddy Mantoro , Ph.D., SMEEE, Chairman IEEE CIS Indonesia Chapter

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Publication Section

- o Dr. Ir. Alexander Agung S. Gunawan, M.Sc., IPM, Bina Nusantara University, Indonesia
- o Dr. Evaritus Didik Madyatmadja, ST., M.Kom, M.T, Bina Nusantara University, Indonesia
- o Noerlina, S.Kom., M.MSI, Bina Nusantara University, Indonesia

Track Directors and teams

- o Dr. Ir. Edy Irwansyah, IPM, Bina Nusantara University, Indonesia
- o Lina, S.T., M. Kom., Ph.D, Universitas Tarumanagara, Indonesia
- o Dr. Ionia Veritawati, Universitas Pancasila, Indonesia
- o Prof. Dr. Eri Prasetyo Wibowo, Universitas Gunadarma, Indonesia
- o Dr. Dewi A. R, S.Kom., M.Sc, Universitas Gunadarma, Indonesia
- o Habibullah Akbar, S.Si, M.Sc, Ph.D, Universitas Esa Unggul, Indonesia

Event Section

- o Dr. Puji Rahayu, Universitas Mercubuana, Jakarta

Registration Section

- o Dr. Sunny Arief Sudiro, S.Kom., MM., STMIK Jakarta STI&K, Indonesia
- o Desti Fitriati, S.Kom., M.Kom., Universitas Pancasila, Indonesia

Graphic Designer

- o Dr. Bambang, SSi., M.Kom, Bina Nusantara University, Indonesia

Keynote Speaker 1

Adaptive central pattern generators to control human/robot interactions

Patrick Hénaff, LORIA UMR 7503, Université de Lorraine – CNRS, Nancy, FRANCE

patrick.henaff@loria.fr

Abstract

The presentation will concern the use of bio-inspired robot controllers based on the functioning of specific biological sensorimotor loops that control biological systems. These loops are based on specific neural network structures, called central pattern generators (CPG) that are implied in the genesis and learning of adaptive rhythmic movements. Therefore, it is interesting to better understanding and modeling these structures to have humanoid robots able to learn rhythmic movements for locomotion or for interacting with humans. After a brief introduction on biological central pattern generators and the rhythmic movements, we will introduce the concept of synchronization a principle that underlies the rhythmic interaction between humans and the dynamic oscillators. Different models of central pattern generators based on dynamic oscillators will be introduced. The second part of the presentation will present several experiments of vision-based Human-Robot motor coordination using adaptive central pattern generators. Other experiments of robot teleoperation for industrial rhythmic tasks will be introduced. Several videos of simulations and experiments will illustrate the presentation. A conclusion and perspectives will conclude the talk.

Keywords: Humanoid robotics, Neural control, Central Pattern Generator (CPG), sensorimotor coordination, Human/robot interactions, locomotion

Dr. Patrick Henaff is a full-time professor within the School of Engineers "Mines Nancy" at the University of Lorraine, in France. He is the head of the research department, Complex Systems, Artificial Intelligence and Robotics, at LORIA, an applied Computer Science laboratory. His research interests lie in the bio-inspired control of humanoids robots. Dr. Henaff earned his Master's in electronics at the University of Rennes, France, and completed his PhD in Robotics at the University Paris VI. He joined "Mines Nancy" and University of Lorraine in 2013. His passion lies in studying artificial intelligence, interactive robotics and neural control. He participated to several robotic projects especially for legged locomotion and control of rhythmic movements. He is a regular reviewer for international journals (IEEE TRO, Frontiers in neuro-robotics, IJARS, JAR, neuro-computing and conferences (ICRA, IROS, IJCNN, AIM).

Keynote Speaker 2

Modelling personality prediction from user's posting on social media

Derwin Suhartono, Head of Computer Science Department Bina Nusantara University
dsuhartono@binus.edu

Abstract

Huge amount of user's postings from social media becomes promising data that can be converted into new knowledge. One of which is to mining the information for predicting user's personality. This task is able to get the real basic characteristics of people which nowadays surfs a lot in social media. Text becomes appropriate type of data to utilize as social media users tend to do texting for expressing their feelings, thoughts, as well as their emotions. The Big Five Personality Traits, also known as OCEAN, is one concept in psychology that is popular in the state-of-the-art research in personality prediction. Research in personality modelling using text involve feature extraction methods as well as deep learning-related architecture are appealing to be much further enhanced. Finally, promising research result is indicated to happen in the future such that actual personality of a person is possible to observe.

Keywords: real basic characteristics, Big Five Personality Traits, personality modelling, feature extraction, deep learning.

Derwin Suhartono is a faculty member of Bina Nusantara University, Jakarta, Indonesia. He currently also serves as Head of Computer Science Department. He got his PhD in computer science from Universitas Indonesia in 2018. His research fields are natural language processing and machine learning. Recently, he is continually investigating argumentation mining, personality recognition and hoax analysis. He actively involves in the Indonesia Association of Computational Linguistics (INACL), and Indonesian Computer Electronics and Instrumentation Support Society (IndoCEISS). His professional memberships are ACM, INSTICC, IACT, IEEE, and many others. He also serves as reviewer in many international conferences and many reputable international journals such as IEEE Access, IJCIS, MDPI journals, etc.

Rundown Program - October 28th, 2021

2021 1st International Conference on Computer Science and Artificial Intelligence ICCSAI 2021

Time	Activities	PIC
07.00–08.00	Registration	Registration Team
VENUE VIRTUAL ROOM		
	Zoom Meeting Link : https://bit.ly/3BbUPm2 Meeting ID = 937 2127 6898 Passcode = 2021	
08.00–08.10 08.10-08.20 08.20-08.30	Opening Ceremony Indonesia Raya LLDikti III video	MC (Mutiara Permata, S.IKom)
WELCOME SPEECH:		
08.30–08.40	Prof. Dr. Ir. Widodo Budiharto, S.Si., M. Kom., IPM, Bina Nusantara University, Indonesia (Conference General Chair)	MC (Mutiara Permata, S.IKom)
08.40 – 08.50	Prof. Tirta N. Mursitama, S.Sos., M. M., Ph.D, (Vice Rector Research & Tech Transfer Bina Nusantara University, Indonesia)	MC (Mutiara Permata, S.IKom)
08.50 – 09.00	Prof. Dr. Ir. Harjanto Prabowo, MM, Bina Nusantara University, Indonesia (Advisory Committee, Rector Bina Nusantara University, Indonesia)	MC (Mutiara Permata, S.IKom)
09.00 – 09.10	Prof. Dr. Agus Setyo Budi, M.Sc (Head Representative of LLDIKTI III Jakarta)	MC (Mutiara Permata, S.IKom)
KEYNOTE SPEAKER		
09.10–09.50	Dr. Derwin Suhartono (Bina Nusantara University, Indonesia)	Dr. Rusdah, S.Kom., M.Kom.
09.40 –10.20	Prof. Patrick Henaff (Lorraine University, France)	Dr. Rusdah, S.Kom., M.Kom.
PARALLEL SESSIONS I:		**Session Chair:**
10.30–12.00 (@15 min)	Room I - ICCSAI: Track Image Processing & Computer Vision	Prof. Dr. Eri Prasetyo Wibowo
	Room II - ICCSAI: Track Image Processing & Computer Vision	Dr. Ionia Veritawati
	Room III -ICCSAI: Track Information System	Dr. Yaya Sudarya Triana, M.Kom
	Room IV - ICCSAI: Track Information System	Dr. Sunny Arief Sudiro, S.Kom., MM.
	Room V - ICCSAI: Track Inf System & Lit Review	Dr. Ir. Edy Irwansyah
	Room VI - ICCSAI: Track Lit Review	Lina, S.T., M.Kom., Ph.D
	Room VII - ICCSAI: Track Lit Review	Dr. Bheta Agus Wardijono, S.Si
12.00-13.00	BREAK	
PARALLEL SESSIONS II:		**Session Chair:**
13.00–15.00 (@15 min)	Room I - ICCSAI: Track Comp Science	Dr. Dina Fitria Murad, S.Kom., M.Kom
	Room II - ICCSAI: Track Comp Science	Prof. Dr. Ir. Widodo Budiharto, S.Si., M. Kom
	Room III -ICCSAI: Track Comp Science	Dr. Evaritus Didik M, S.T., M.Kom
	Room IV - I ICCSAI: Track Comp Science	Anik Hanifatul Azizah, S.Kom., M.IM
	Room V - ICCSAI: Track Informatika	Dr. Ir. Alexander Agung S. Gunawan, M.Sc.
15.00-15.30	BREAK	
15.30–15.45	Announcement	COMMITTEE Operator: Kenny, Hanif
15.45-16.00	Closing	MC (Mutiara Permata, S.IKom) Operator : Kenny, Hanif

ICCSAI 2021 Presentation Guidelines

First, we would like to welcome all of you to ICCSAI 2021. Thank you for presenting your research in the conference. To make sure that all sessions run smoothly, we provide the following brief guidelines for all authors to follow:

- The official language is English.
- Each presenter is allocated 10 minutes presentation time and 5 minutes of question and answer.
- The platform for the virtual presentation is ZOOM.
- Each presenter shall use the given ICCSAI virtual background during the presentation
- Each presenter is required to join the virtual room at least 30 minutes before the session start.
- Please ensure each presenter fill in the attendance form. The link will be shared at the end of each session
- In the next session, for our convienience in moving participants to the breakout room, please use the following name format :
  - PaperID_RoomNo_ Name. Example : 5170_1_Maria Susan

Parallel Room : 10.30 AM-12.00 PM

TIME	PAPER ID	TITLE AND AUTHOR
10.30 AM-10.45 AM	5176	**Line Follower Smart Trolley using RFID** Alexander Agung Santoso Gunawan, Alicia, Junaedi Dede, Muhamad Daffa Mennawi, Heri Ngarianto, Widodo Budiharto, Herman Tolle, Muhammad Attamimi
10.45 AM-11.00 AM	5796	**A Hydrodynamic Analysis of Water System in Dadahup Swamp Irrigation Area** Sentot Purboseno, Teddy Suparyanto, Alam Ahmad Hidayat, Bens Pardamean
11.00 AM-11.15 AM	5383	**Smart Electricity Meter as An Advisor for Office Power Consumption** Muhamad Firman M, Muhammad Nooryoku R, Ferdinand Nathaniel E, Anthony Steven T, Jeffrey Clay S, Boby Siswanto
11.15 AM-11.30 AM	5240	**Development of Portable Temperature and Air Quality Detector for Preventing Covid-19** Widodo Budiharto, Alexander Agung Santoso Gunawan, Edy Irwansyah, Danu Widhyatmoko, Retno Dewanti, Jarot Soeroso Sembodo
11.30 AM-11.45 AM	5348	**Implementation of Face Recognition Method for Attendance in Class** Bryan Gavriell, Nelsen Ardian, Felix Fauzan, Kristien Margi Suyaningrum
11.45 AM-12.00 AM	5800	**AR-Mart: The Implementation of Augmented Reality as a Smart Self-Service Cashier in the Pandemic Era** Chasandra Puspitasari, Gusti Pangestu, Anita Rahayu, Bening Insaniyah Al-Abdillah

Parallel Room : 10.30 AM-12.00 PM

Room II Session Chair (Dr. Ionia Veritawati)
Operator : Hanif

Live Presentation : https://bit.ly/3BbUPm2
Meeting ID = 937 2127 6898
Passcode = 2021

TIME	PAPER ID	TITLE AND AUTHOR
10.30 AM-10.45 AM	5785	**Exploration of React Native Framework in designing a Rule-Based Application for healthy lifestyle education** Anik Hanifatul Azizah, Siti Zuliatul Faidah, Muhammad Bahrul Ulum, Putri Handayani
10.45 AM-11.00 AM	5386	**Building Natural Language Understanding System from User Manual to Execute Office Application Functions** Anis Cherid, Edi Winarko
11.00 AM-11.15 AM	5593	**Study on Face Recognition Techniques** Vanessa Giovani, Ivyna Johansen, Dea Asya Ashilla
11.15 AM-11.30 AM	5631	**Sinophobia in Indonesia and Its Impact on Indonesia-China Economic Cooperation with the SVM (Support Vector Machine) Approach** Tia Mariatul Kibtiah, Rangga Aditya Elias, Eka Miranda, Aditya Permana
11.30 AM-11.45 AM	5527	**A Survey: Crowds Detection Method on Public Transportation** Timothy Gilbert, handry novianto, Ruben Setiawan, Darren Anando Leone, Novita Hanfiah
11.45 AM-12.00 AM	5556	**Effective Methods for Fake News Detection: A Systematic Literature Review** Shevila Pannadhika Sumedha, Rifdah Defrina Abdiansyah, Dewi Mutiara

Parallel Room : 10.30 AM-12.00 PM

<table>
<tr><td colspan="3">Room III Session Chair (Dr. Yaya Sudarya Triana, M.Kom)
Operator : Prayogi</td></tr>
<tr><td colspan="3">Live Presentation : https://bit.ly/3BbUPm2
Meeting ID = 937 2127 6898
Passcode = 2021</td></tr>
<tr><td>TIME</td><td>PAPER ID</td><td>TITLE AND AUTHOR</td></tr>
<tr><td>10.30 AM-
10.45 AM</td><td>5220</td><td>Impact of Computer Vision With Deep Learning Approach in Medical Imaging Diagnosis

Cheryl Angelica, Charleen Charleen, Hendrik Purnama, Fredy Purnomo</td></tr>
<tr><td>10.45 AM-
11.00 AM</td><td>5447</td><td>Student Performance Based on Student Final Exam Prediction

Ignasius Kenny Bagus, Luwita, Nasrullah, Dina Fityria Murad</td></tr>
<tr><td>11.00 AM-
11.15 AM</td><td>5847</td><td>Exploiting Facial Action Unit in Video for Recognizing Depression using Metaheuristic and Neural Networks

Habibullah Akbar, Sintia Dewi, Yuli Azmi Rozali, Lita Patricia Lunanta, Nizirwan Anwar, Djasminar Anwar</td></tr>
<tr><td>11.15 AM-
11.30 AM</td><td>5905</td><td>Auto-Tracking Camera System for Remote Learning Using Face Detection and Hand Gesture Recognition Based on Convolutional Neural Network

Daniel Imanuel Sutanto, Verine, Maria Vanessa Salim, Hanry Ham</td></tr>
<tr><td>11.30 AM-
11.45 AM</td><td>5777</td><td>Street View Object Detection for Autonomous Car Steering Angle Prediction Using Convolutional Neural Network

Ilvico Sonata, Yaya Heryadi, Widodo Budiharto, Antoni Wibowo</td></tr>
<tr><td>11.45 –
12.00 AM</td><td>5602</td><td>Analysis of Big Data in Healthcare Using Decision Tree Algorithm

Evaristus Didik Madyatmadja, Antonius Rianto, Johanes Fernandes Andry, Hendy Tannady, Aziza Chakir</td></tr>
</table>

Parallel Room : 10.30 AM-12.00 PM

Room IV Session Chair (Dr. Sunny Arief Sudiro, S.Kom., MM.) **Operator : Reinhart Previano**		
Live Presentation : https://bit.ly/3BbUPm2 Meeting ID = 937 2127 6898 Passcode = 2021		
TIME	**PAPER ID**	**TITLE AND AUTHOR**
10.30 AM- 10.45 AM	5307	**The Effect of UI/UX Design on User Satisfaction in Online Art Gallery** Alvin Wijaya, Wendy Wihalim, Kefry Kefry, Alexander Agung Santoso Gunawan
10.45 AM- 11.00 AM	5452	**Development of Smart Restaurant Application for Dine-In** Ahmad Ridhwan Naufal, Andriatama Bagaskara, Ivano Ekasetia Dhojopatmo, Ali Abdurrab, Widodo Budiharto
11.00 AM- 11.15 AM	5795	**Design of Water Information Management System in Palm Oil Plantation** Andreas Wahyu Krisdiarto, Eddy Julianto, Irya Wisnubhadra, Teddy Suparyanto, Digdo Sudigyo, Bens Pardamean
11.15 AM- 11.30 AM	5296	**Estimation of Technology Acceptance Model (TAM) on the Adoption of Technology in the Learning Process Using Structural Equation Modeling (SEM) with Bayesian Approach** Elok Fitriani Rafikasari; Nur Iriawan
11.30 AM- 11.45 AM	5269	**Identify high-priority barriers to effective digital transformation in higher education: A case study on XYZ University** Bayu Rima Aditya, Dina Fitria Murad, Ridi Ferdiana, Sri Suning Kusumawardani, Bambang Dwi Wijanarko
11.45 – 12.00 AM	5603	**Detrimental factors of the development of Smart City and Digital City** Evaristus Didik Madyatmadja, Betley Heru Susanto, Darian Handoro

Parallel Room : 10.30 AM-12.00 PM

Room V Session Chair (Dr. Ir. Edy Irwansyah) Operator : Irfan		
Live Presentation : https://bit.ly/3BbUPm2 Meeting ID = 937 2127 6898 Passcode = 2021		
TIME	**PAPER ID**	**TITLE AND AUTHOR**
10.30 AM-10.45 AM	5347	**Design of Cadets Administration System for Nusantara Cilacap Maritime Academy Based On Website** Ana Umul Fadilah, Tisnanto Adisatyo Widcaksono, Eduard Pangestu Wonohardjo, Emny Harna Yossy
10.45 AM-11.00 AM	5365	**The Impact of E-Transport Platforms' Gojek and Grab UI/UX Design to User** Henry Hamilton Prasetya, Bima Bagaskarta Ridwanto, Muhammad Ashraf Rahman
11.00 AM-11.15 AM	5243	**Effectiveness of LMS in Online Learning by Analyzing Its Usability and Features** I Putu Gede Prama Duta, Rio Rio, Mochamad Rizky Febriansyah, Maria Susan Anggreainy
11.15 AM-11.30 AM	5381	**E-Learning Issues and Challenges: An Exploratory Study** Indriani Noor Hapsari, Imam Sutanto, Armando Rilentuah Parhusip, Gerry Firmansyah,Sawali Wahyu,Ainur Rosyid
11.30 AM-11.45 AM	5076	**Web Based Application for Ordering Food Raw Materials** Rita Layona, Budi Yulianto, Yovita Tunardi
11.45 AM–12.00 AM	5544	**Analyze User Interface of Learning Management System (LMS)** Arief Darvin, Jeffry Kosasih, Stefanus Stefanus

Parallel Room : 10.30 AM-12.00 PM

Room VI Session Chair (Lina, S.T., M.Kom., Ph.D)
Operator : Andika

Live Presentation: https://bit.ly/3BbUPm2
Meeting ID = 937 2127 6898
Passcode = 2021

TIME	PAPER ID	TITLE AND AUTHOR
10.30 AM-10.45 AM	5302	**Predicting Stock Market Prices using Time Series SARIMA** Sena Kumara, Aditya Winata, Daryl Latif, Derwin Suhartono
10.45 AM-11.00 AM	5811	**Memorize COVID-19 Advertisement: Customer Neuroscience Data Collection Techniques by Using EEG and fMRI** Maria Seraphina Astriani, Lee Huey Yi, Andreas Kurniawan, Raymond Bahana
11.00 AM-11.15 AM	5530	**Performance Analysis Between Cloud Storage and NAS to Improve Company's** Dimas Sekti Adji, Gabriel Eduardus, Michael Michael, Minawati Minawati, Widodo Budiharto
11.15 AM-11.30 AM	5798	**Spatiotemporal Features Learning from Song for Emotions Recognition with Time Distributed CNN** Andry Chowanda
11.30 AM-11.45 AM	5891	**Review Literature Performance : Quality of Service from Internet of Things for Transportation System** Nizirwan Anwar, Arief Kusuma Among Praja, Habibulah Akbar, Muhammad Fachrudin Arrozi Adikara, Roesfiansjah Rasjidin, Dewanto Rosian Adhy
11.45 AM–12.00 AM	5306	**Block Chain Technology behind Cryptocurrency and Bitcoin for Commercial Transactions** Frederik Arnold Cahyadi, Albert Ivando Owen, Franseda Ricardo, Alexander Gunawan

Parallel Room : 10.30 AM-12.00 PM

Room VII Session Chair (Dr. Bheta Agus Wardijono, S.Si) **Operator : Reynald Slamat**		
Live Presentation: https://bit.ly/3BbUPm2 Meeting ID = 937 2127 6898 Passcode = 2021		

TIME	PAPER ID	TITLE AND AUTHOR
10.30 AM–10.45 AM	5195	**The Influence of UI UX Design to Number of Users Between 'Line' and 'Whatsapp'** Sartika Devina, Angelica Nadia, Vicky Chen, Alexander Gunawan
10.45 AM–11.00 AM	5368	**A Systematic Literature Review of Fintech Investment and Relationship with Bank in Developed Countries** Almira Saphyra, Raesita Zahra, Noerlina Noerlina
11.00 AM–11.15 AM	5732	**Cultural Tourism Technology Used and Themes: A Literature Review** Hendro Nindito, Harjanto Prabowo, Spits Warnars Harco Leslie Hendric, Sfenrianto Sfenrianto
11.15 AM–11.30 AM	5605	**Smart tourism Services: A Systematic Literature Review** Evaristus Didik Madyatmadja, Debri Pristinella, Nicklaus Rahardja, Raheliya Br Ginting
11.30 AM–11.45 AM	5604	**Application of Internet of Things in Smart City: A Systematic Literature Review** Evaristus Didik Madyatmadja, Hendro Nindito, Albert Verasius Dian Sano, Agung Purnomo, Dimas Rizki Haikal, Corinthias P.M. Sianipar
11.45 AM–12.00 AM	5601	**Big Data For Smart City: An Advance Analytical Review** Evaristus Didik Madyatmadja, Asnan Habib Munassar, Sumarlin, Agung Purnomo

Parallel Room : 13.00 AM-15.00 PM

Room I Session Chair (Dr. Dina Fitria Murad, S.Kom., M.Kom)
Operator : Jonathan

Live Presentation: https://bit.ly/3BbUPm2
Meeting ID = 937 2127 6898
Passcode = 2021

TIME	PAPER ID	TITLE AND AUTHOR
13.00 PM-13.15 PM	5346	**Systematic Literature Review: An Intelligent Pulmonary TB Detection from Chest X-Rays** Jimmy, Tjeng Wawan Cenggoro, Bens Pardamean
13.15 PM-13.30 PM	5567	**A Systematic Literature Review: Database Optimization Techniques** Rizki Ashari, Muhammad Fachri Akbar, Winata Dharmawan Thamrin, Novita Hanafiah
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ABSTRACT

5076: Web Based Application for Ordering Food Raw Materials

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Abstract*:* The current declining economic situation in Indonesia is caused by the Covid-19 pandemic. Housewives must continue to shop for food raw materials and at the same time must protect themselves from the interaction of people around to avoid transmission of Covid-19. This research is to provide a web-based application for the community, especially housewives and family members, to shop for food raw materials that are sold from merchants in local location. The purchase and delivery of goods will be carried out by a courier from the local government. The research method used is mixed method through quantitative, and development method used is Waterfall. The results obtained from this study are that housewives are helped to shop for food raw materials safely and easily through this application.

Keywords: food, raw materials, food delivery, food shopping

5093: Comparison of Gaussian Hidden Markov Model and Convolutional Neural Network in Sign Language Recognition System

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Abstract*:* Sign language Recognition is the study to help bridging communication of deaf-mute people. Sign Language Recognition uses techniques to convert gestures of sign language into words or alphabet. In Indonesia, there are two types of sign languages which are used, Bahasa Isyarat Indonesia (BISINDO) and Sistem Isyarat Bahasa Indonesia (SIBI). The purpose of this research is comparing sign language recognition methods between Gaussian Hidden Markov Model and Convolutional Neural Network using indonesian sign language SIBI as a dataset. The dataset comes from 200 videos from 2 signers. Each signer performs 10 signs with 10 repetitions. To improve the recognition accuracy, modified histogram equalization is used as an image enhancement. Skin detection was used to track the movement of the gesture as input features in the Gaussian Hidden Markov Model and fine tuning was used in Convolutional Neural Network using transfer learning, freeze layer, and dropout. The results of the research are the Gaussian Hidden Markov Model provides accuracy value of 84.6% and Convolutional Neural Network provides accuracy value of 82%.

Keywords: sign language; hidden Markov model; convolutional neural network; sign language recognition; machine learning.

5159: Model for Early Heart Disease Prediction using Logistic Regression and Stochastic Gradient Descent (A Preliminary Study)

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Abstract*:* Heart disease, also known as cardiovascular disease (CVDs) caused major death worldwide. Heart disease couldcan be diagnosed using non-invasive and invasive methods. The main distinctions for invasive and non-invasive tests were invasive test use medical equipment entering the human body while non-invasive tests did not. This study was designed a model for non-invasive prediction with an intelligent computational and machine learning approach for predicting early heart disease. Logistic regression and stochastic gradient descent applied for this model. A clinical dataset of 303 patients was gathered from the UCI repository that was available at http://archive.ics.uci.edu/ml/datasets/Heart+Disease. Age, Sex, Cp, Trestbps, Chol, Fbs, Exang Continuous Maximum heart rate achieved, Thalach, Old peak ST, Slope, Ca and Thal variables were used to classify the patient into two class prediction namely No presence or Have heart disease. Classifier performance for logistic regression namely accuracy 91.67%, precision 93.93%, F Measure 92.53%, recall 91.18% and for gradient descent namely accuracy 80.00%, precision 76.47%, F Measure 81.25%, recall, 86.67%. The experiment result revealed logistic regression gained higher accuracy, precision, F-measure and recall value than stochastic gradient descent.

Keywords: heart disease, logistic regression, stochastic gradient descent, machine learning

5176: Line Follower Smart Trolley System V2 using RFID

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Abstract*:* Shopping in supermarket have become a variety of experience for everyone as stores innovate new technologies to support their buyers or customers. One of important innovations was a shopping trolley, inspired by wire shopping baskets held with a folding chair, doubling the quantity of items shoppers can carry as what they want to buy. The design for shopping trolley continuously changes and evolves to satisfy customers' experience when shopping. In this paper, we focus to develop our previous research on shopping trolley, which will be called as smart trolley V2. The smart trolley V2 will adopt line follower model and using RFID (Radio-Frequency Identification) for localization. The smart trolley V2 is designed to have four Mecanum wheels which can go omni-directional moves without the need to rotate. This design is enabling the trolley to move easily from one to another position as desired. The development uses Arduino board as microcontroller to process input from an infrared sensor and RFID reader to support the robot in taking ways to move to a selected location. Finally, the results of the experiment on smart trolley navigation are presented. The result is our smart trolley V2 based on Mecanum wheels and RFID can follow the line and navigate to its destination easily.

Keywords: smart trolley V2, line follower robot, RFID, Mecanum wheels

5178: An Efficient System to Collect Data for AI Training on Multi-Category Object Counting Task

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Abstract*:* This study focused on the problem of collecting data to train AI for a multi-category object counting task, which is like a standard object counting task, where we need to count the number of a particular type of object, for instance, counting how many people in an image. In multi-category object counting, we need to count more than one type of object by keeping track of the number of each type of object. Although in the real object counting case, we often find that AI needs to count objects with multiple categories, the dataset for that particular task is not publicly available. Meanwhile, to have a robust AI for this task, it needs to be trained with a massive amount of data. Therefore, in this study, we developed a system to efficiently facilitate massive data collection for multi-category object counting. This aim was achieved by a careful design of the user experience in the system. The system has been proved to be useful via Technology Acceptance Model (TAM).

Keywords: data collection, object counting, multi-category, annotation system

5195: The Influence of UI UX Design to Number of Users Between 'Line' and 'Whatsapp'

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Abstract *:* In this modern era, many applications have been used to communicate long distances, both for telephone and chat. UI / UX design in applications affects users, as most of the younger generation prefers an attractive, innovative, and many-choice design, while most of the older generation prefers a simple design appearance. In this research, we discuss the effect of UI / UX design on the number of uses between the LINE and Whatsapp applications. Then we conducted a survey with short questions using Google Forms, where 44 respondents participated in our research, 34 (77.3%) respondents out of 44 respondents used Whatsapp more often. Of 34 respondents, 23 (67.6%) of respondents chose a score of 5 which stated that the WhatsApp application was easy to learn and easy to use, 20 (58.8%) respondents were comfortable using the WhatsApp application by choosing a score of 5, 21 (61.8%) respondents did not experience difficulties in using the features on the Whatsapp application by choosing a score of 1 (not confusing), 14 (41.2%) respondents like the appearance and color selection on the Whatsapp application with a score range of 4-5. The results of the survey show that a good UI / UX design has an effect that can increase the number of users of the application.

Keywords: User interface, User experience, Design, User, Whatsapp, Line (key words)

5210: A Comparison of Artificial Intelligence-Based Methods in Traffic Prediction

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Abstract: Traffic plays an important role in our society as its state can affect individuals and industries in various ways. Traffic congestion can bring negative impacts to the society and can lead to bigger problems if let be without a solution to mitigate it. Thus, traffic prediction serves as a solution to said problem. In this systematic literature review, AI-based traffic prediction methods are compared in order to find which ones serve as the better solutions for predicting traffic. Using the PRISMA Flowchart methodology, which helps authors systematically analyze relevant publications and improve the quality of reports and meta-analyses. By conducting further analysis on the screened references, it is found that the methods that integrates Convolutional Neural Network or Recurrent Neural Network with Long Short-Term Memory along with error-recurrent Neural Network proved to be good candidates for an optimal traffic prediction.

Keywords: Traffic Prediction, Traffic Forecasting, Machine Learning, Deep Learning

5220: Impact of Computer Vision with Deep Learning Approach in Medical Imaging Diagnosis

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Abstract: Medical experts are usually the ones who analyze the interpretations of medical data. A medical expert's ability to interpret images is limited due to subjectivity and the complexity of the images. This research purpose is to find out if the uses of computer vision in medical imaging will harm the patient with the impact and challenges, we will face while implementing computer vision in healthcare, especially medical imaging. This research will uncover how well deep learning algorithms compared to health-care professionals at classifying diseases based on medical imaging. In this research, the methods that we use is systematic literature review about Computer Vision. Deep Learning approach in Computer Vision for Medical Imaging is the secret to aiding physicians in maximizing the accuracy of diagnoses, it is harmless and are safe to use for assisting doctors in medical imaging diagnosis.

Keywords: Medical Imaging, Computer Vision, Deep Learning, Healthcare

5234: Finetunning IndoBERT to Understand Indonesian Stock Trader Slang Language

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Abstract : News and social media sentiment is one of the variables to formulate decisions for stock trading activities, although in previous research Twitter was commonly used as the main data source to train models and identify stock market sentiment. In order to tackle bias and noise that highly produced by variety of Twitter audience background, this research utilized data of third-party trading application comments to train and perform an experiment of sentiment analysis approach to predict stock movement price. the model used a fine-tuned IndoBERT model to perform sentiment analysis on stock movement price that achieved 68% accuracy of 1101 records stock comment and posts, furthermore the model also able to identify a number of Indonesian trader slang words on the comments.

Keywords: Natural Language Processing, Sentiment Analysis, Stock Market, IndoBERT, Indonesian Stock Trader Slang

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5240: Development of Portable Temperature and Air Quality Detector for Preventing Covid-19

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Abstract: Due to Covid-19, body temperature measurement is mandatory and become an important consideration in determining whether an individual is healthy or not. This paper presents the development of portable temperature and air quality detector to prevent suspect of Covid-19 with the main symptom is the body of temperature above 38° Celsius. We propose an algorithm and architecture used for temperature detector with maximum distance 80cm and CO_2 and Volatile Organic Compounds (VOC) measurement are as indicator of good air quality. Based on experiment, we can detect temperature accurately until 0.3° Celsius using digital temperature sensor MLX90614 comparing with commercial one, furthermore the system able to give information about the quality of air, allowing/not allowing someone to enter a room with accuracy 92.5%.

Keywords: infrared temperature sensor; air quality sensor; Covid-19

5241: Development of Robot to Clean Garbage in River Streams with Deep Learning

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ABSTRACT: The problem of garbage that continues to fill the oceans has become a serious concern in recent years. Garbage that continues to accumulate in the oceans is very dangerous to the survival of marine life. Several efforts have been made in addressing this problem, ranging from reducing the use of single-use plastics to carrying out garbage transportation from rivers as one of the biggest contributors to garbage that accumulates in the oceans. This paper will present the creation of a robot that can help transport waste on the surface of a river. By building a river cleaning robot, it is hoped that it can control the growth of waste on earth. This robot uses Robot Vision technology to detect the presence of trash around the robot so that it can be transported into a storage tank, and the language that will be used in this robot is python language. In this paper, pictures of the robot components used, and the work system of the robot will be attached.

Keywords: Waste, River, Robot vision, Artificial intelligence, Deep learning, Object recognition

5243: Effectiveness of LMS in Online Learning by Analyzing Its Usability and Features

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Abstract: With the advancement of technology, education and learning processes have evolved and accommodated by many forms of digital applications and services, one of which that is prevalent in most educational institutions is none other than LMS (Learning Management System). In this current digital era, the world is transitioning from offline to online activities including schools and universities due to certain circumstances. This transition affects LMS to fully support online learning as opposed to supplementary support for offline learning process. Therefore, we conduct this research to find out how effective are currently available LMS to support online learning. Our approach is by analyzing LMS features by conducting workflow testing to test the effectiveness of the LMS for online learning. We align our findings in comparison to user satisfaction survey to reach the conclusion. We will see how effective is our current technology to support education especially online learning. We will know what modules are done right, what needs to be improved, which one is important and not as important, and what addition can be made as a reference to enhance future LMS development. (Abstract)

Keywords: Online Learning, Learning Management Systems, Features, Students, User Satisfaction.

5259: Health Chatbot Using Natural Language Processing for Disease Prediction and Treatment

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Abstract*: People who don't know about products or services provided by a company need a system that can provide answers to the questions that are usually asked. This system is called Frequently Asked Questions. This system is not effective and efficient in providing the information. In this paper, we propose a chatbot using Natural Language Processing to provide some information about health.Here, we use NLP to make a chatbot system that can understand and answer the questions that are asked by the user. The cosine similarity is used to find the similarities between the query words (the questions that are asked by the user) and the documents, then return the answers of the document with the highest similarity. Based on our development, our medical chatbot has successfully diagnose the user illness with approximately 87 percent accuracy.

Keywords: Artificial Intelligence, Chatbot, Cosine Similarity, ID3 Decision Tree, Natural Language Processing.

5260: Sentiment Analysis of E-commerce Review using Lexicon Sentiment Method

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Abstract*: Customer satisfaction is a top priority for any company engaged in the e-commerce sector. Therefore, it is very important for any e-commerce, especially those that have served transactions between countries such as Amazon, eBay, and Rakuten to see how the impressions or sentiments of their customers regarding the quality of products and services provided in order to improve or improve their quality. Through the rapid development of technology, this sentiment has become easier to detect. One of them is by utilizing comments on social media such as Twitter. By analyzing Twitter user comments related to the determinants of customer satisfaction with e-commerce using the Lexicon classification method, it is found that the most dominant factor in determining customer satisfaction is the quality of information. E-commerce that wants to increase customer satisfaction, refers to these three factors, because these factors are the main focus of customers when entering an e-commerce.

Keywords: sentiment analysis, e-commerce, lexicon, social media, review comments

5268: Coronary Artery Disease Prediction Model using CART and SVM: A Comparative Study

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Abstract: Heart disease is the major cause of mortality worldwide. Clinical Decision Support System is developed to measure risk level of heart disease and detect heart disease using machine learning methods. Many cases showed that heart disease may not be detected until the person encounters indications of a heart disease. Hence, the research goal is to construct and compare coronary artery disease prediction model using CART and SVM. The model identifies whether the patient has coronary artery disease or not. The result shows that CART and SVM has the same performance of accuracy of 88,33%. For sensitivity, CART has slightly better performance than SVM. While for specificity, SVM has better performance than CART.

Keywords: heart disease, CART, SVM, machine learning, prediction

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5269: Identify High-Priority Barriers to Effective Digital Transformation in Higher Education: A Case Study at Private University in Indonesia

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Abstract: Some barriers negatively affect the implementation of digital transformation in higher education institutions. This research aims to investigate these barriers in a particular context: a private university in Indonesia. The barriers diagnostic framework (BDF) has been applied to identify and prioritize barriers. It is determined that 'Actionable plans based on strategy translation', 'The ability to embed ICT into the education system', and 'Limitations of institutional policies' have high priority barriers and therefore meet critical concerns in the implementation of digital transformation at the case study. The main contribution of this study is providing empirical evidence on barriers to digital transformation in the higher education sector. More understanding of the high-priority barriers will help the management of higher education to find effective and efficient strategies to manage the resources.

Keywords: digital transformation, distance education, online learning, higher education.

5274: A Comparison of Lexicon-based and Transformer- based Sentiment Analysis on Code-mixed of Low-Resource Languages

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Abstract*:* Sentiment analysis from code-mixed texts has been gaining wide attention in the past decade from researchers and practicians from various communities motivated, among others, by the increasing popularity of social media resulted in a huge volume of code-mixed texts. Sentiment analysis is an interesting problem in Natural Language Processing with wide potential applications, among others, to understand public concerns or aspirations toward some issues. This paper presents experimentation results aim to compare performance of lexicon- based and Sentence-BERT as sentiment analysis models from code-mixed of low-resources texts as input. In this study, some code-mixed texts of Bahasa Indonesia and Javanese language are used as sample of low-resource code-mixed languages. The input dataset are first translated to English using Google Machine Translation. The Sentiwordnet and VADER are two English lexicon label datasets used in this study as basis for predicting sentiment category using lexicon-based sentiment analysis method. In addition, a pretrained Sentence-BERT model is used as classification model from the translated input text to English. In this study, the dataset is categorized into positives and negative categories. The model performance was measured using accuracy, precision, recall, and F1 score. The experimentation found that the combined Google machine translator and Sentence-BERT model achieved 83 % average accuracy, 90 % average precision, 76 % average recall, and 83**% average F1 Score.**

Keywords: machine translation, sentiment analysis, lexicon- based approach, transformer model.

5296: Estimation of Technology Acceptance Model (TAM) on the Adoption of Technology in the Learning Process Using Structural Equation Modeling (SEM) with Bayesian Approach

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Abstract*:* Employing computers in the learning technology becomes very important in every classroom learning activity. In fact, the use of computers technology in classroom, however, is often ignored and very rare. Therefore, it is necessary to do a research on teachers' perception of acceptance in the use of computers technology in their teaching and learning process inside classroom. The most appropriate method to measure the level of acceptance technology adoption is TAM. This method is structured as a hierarchical structure and the analysis requires an appropriate statistical analysis tools, namely SEM. There are some assumptions which must be fulfilled in the SEM analysis, including large sample size, and all of the observed value must be multivariate normally distributed. These requirements are frequently cannot match with the conditions in the real world therefore, SEM would not be applicable. This research was conducted to only 30 teachers on SMP BSS Malang by employing Bayesian SEM which is proposed to overcome the restriction to fulfill the SEM requirement. The results show that technology acceptance during the learning process in this school are influenced by Perceived Ease of Use and Perceived Usefulness which are dominated significantly by Subjective Norm, Innovativeness, Training, Experience and Facilitating Conditions.

Keywords: bayesian, learning process technology, SEM, TAM

5302: Predicting Stock Market Prices using Time Series SARIMA

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Abstract - Companies nowadays are not owned by a single person or group who works in said company. They are owned by multiple people who have a portion of the share belonging to the company, these shares are usually called stocks. Stocks are commonly traded in the modern age as it has the possibility to yield high amounts of profit. The use of time series to try and predict future stocks is an ability desired by many. Thus we conducted research to predict Apple's stock prices using the "SARIMA" model. "SARIMA" model is a conventional model based on statistics that are often used to predict the stock market. This is because stock market prices are not static and would often vary over time which "SARIMA" is able to predict. Thus we created 3 "SARIMA" stock predicting models with 580.165, 451.591, 114.612 AIC scores respectively, and found that the best model had a MAPE score of 36.05%. We concluded that although the algorithm is working as intended, it is ultimately unable to accurately predict the real-time stock market value of the Apple company.

Keywords - Apple stock market, SARIMA, sentiment analysis, time series analysis

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5304: Sentiment Analysis using SVM and Naïve Bayes Classifiers on Restaurant Review Dataset

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Abstract: Consumer reviews on the food and services of a restaurant is a significant thing to monitor for restaurant businesses. Sentiment Analysis, having another name of Opinion Mining, is a technique that was used in order to identify people's opinions and attitudes towards certain subjects, and the most widely used application of sentiment analysis is analyzing consumer reviews of their products and services. This paper will assess sentiment analysis' performance with SVM and Naïve Bayes classifiers on a dataset of restaurant reviews. A grid search with different hyperparameters of the classifiers and feature selection methods is done to compare their effects on performance. Each model will be evaluated based on accuracy, F1 score, and confusion matrix. The trained models can be further finetuned to aid restaurant businesses in tracking their business performance and reputation.

Keywords: Sentiment Analysis, Restaurant reviews, Sentiment Classification, ML approach, Naïve Bayes, Support Vector Machines

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5305: Developing an Automated Face Mask Detection Using Computer Vision and Artificial Intelligence

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Abstract*:* As the number of people affected by COVID- 19 keeps on rising. Importance of wearing masks and washing hands has been the most important protocol right now to prevent the spread of COVID-19. As the pandemic has been going on for almost a year now, people have already started to go around to public places whether it is to eat out, work, or grocery shopping. Many people, however, have not been wearing masks properly by only putting them below their nose or putting it down until their chin. Hence, in this project a mask detection system is made to detect people live time who are wearing or not wearing a mask and can generate a business intelligence report for the shop owner to be aware of the number of people not wearing a mask per day. This system can detect the percentage of the mask is worn properly or not. The more proper it is worn (full up to nose), the higher the percentage will be. This system is useful in a pandemic like this as it is hard to keep track of the number of people who are not wearing masks, especially in a big crowd or in a large space as one person not wearing a mask can greatly affect others.

Keywords: Augmented Reality, User Experience, Furniture Shop.

5306: Blockchain Technology behind Cryptocurrency and Bitcoin for Commercial Transactions

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Abstract*:* Blockchain is a technology used as a digital data record system connected through cryptography. Meanwhile, cryptocurrency is a digital asset that is understood as a digital currency mainly based on blockchain technology. This research aims to understand how blockchain works inside cryptocurrency by conducting a systematic literature review (SLR). In future, it may the cryptocurrency will replace paper currency into digital currency. Blockchain serves to be a security system to prevent loss or duplication of data. With this new technology makes the security system especially for finance to be improved. Based on our study, it can be concluded that blockchain is the right technology for cryptocurrency in commercial transactions because it allows cryptocurrency to work without a central authority. This can reduce risk as well as transaction costs.

Keywords: Blockchain, Bitcoin, Commercial Transaction, Cryptocurrency, Cyber Security, Cryptography

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5307: The Effect of UI/UX Design on User Satisfaction in Online Art Gallery

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Abstract*:* UI and UX design in an online art gallery has a big impact for user satisfaction. The purpose of this research is to find out how UI and UX design affects user satisfaction and how to design good UI and UX in an online art gallery. We evaluated 27 research papers related to UI and UX design in an online art gallery using literature review approach. Furthermore, we used a survey to measure System Usability Scale (SUS) of two renown Art Gallery in the form of a questionnaire. The results showed that the UI and UX designs in an online art gallery do have a big impact on user satisfaction. Nevertheless, user satisfaction is relative factors depend on the user, for example users do not like websites that tend to be dark. Based on our research, we concluded four important factors which need to be considered in designing UI and UX for an online art gallery, that is web system must be simple, consistent, work properly, and fulfill the user requirements. We encourage further research to conduct larger studies to correlate with our findings.

Keywords: UI/UX, User Satisfaction, Online Art Gallery, DeviantArt, ArtStation

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5314: Covid-19 Vaccine Tweets - Sentiment Analysis

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Abstract*:* The primary goal of this study is to identify various kinds of tweets that are shared on Twitter in order to learn about how people really feel about this Covid-19 vaccination and also to analyze its impact on society. Social media is the key source where we can learn about people's feeling, reactions about Covid-19. The secondary goal is to identify the main types of vaccine hesitant tweeters, why they are against the vaccination program and is it bad or not. This may give additional ideas on the types of Twitter users that refuse to get vaccinated information. One of the social media capabilities is to track the condition of public health, but the purpose here is not primarily to identify vaccine concerns, since these have been revealed in previous surveys, but to describe the information shared on Twitter, precisely from tweets that are posted by the masses, because of the risk that it is spreading hesitancy. Similarly, although this study is not about politics, vaccine hesitancy has political dimensions that will be explored when it is needed to.

Keywords: Classified, Sentiment Analysis, Covid-19 Vaccine, Collected, Tweets (key words)

5315: Image Data Encryption Using DES Method

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Abstract - Data encryption has been considered as a way to secure data that is stored either on personal computers or on the internet such as cloud storage and cloud computing. Because advances in data storage technology, the main problem that is often faced is data security, so we apply the concept of data encryption using the DES method. by analyzing using the DES method is the safest data encryption process for safeguarding data stored on personal computers and on the internet. Based on the application that has been designed using the DES Algorithm with input in the form of an image, it can successfully encrypt the image.

Keywords: Encryption, DES Algorithm, Data Security, Cloud Storage, Cloud Computing

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5346: Systematic Literature Review: An Intelligent Pulmonary TB Detection from Chest X-Rays

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Abstract: Tuberculosis (TB) is one of the top ten reasons for death from an infectious agent. Although TB is curable and preventable, delay in diagnosis and treatment can lead the patient to death. Advancements in computer-aided diagnosis (CAD), particularly in medical images classification, significantly contribute to early TB detection. The current state-of-art CAD for medical images classification applications using a method base on deep learning techniques. The problem faced in this deep learning technique is that, in general, it only uses a single modal for the model. In contrast, in medical practice, the data used for TB analysis not only focuses on images but also includes clinical data such as demographics, patient assessments, and lab test results. This systematic literature review describes different deep learning methods using single modal or multimodal techniques that combined images with other clinical data. We conducted a systematic search on Springer, PubMed, ResearchGate, and google scholar for original research leveraging deep learning for Pulmonary TB detection.

Keywords: tuberculosis, deep learning, transfer learning, CNN, CAD, single modal, multimodal

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5347: Design of Cadets Administration System for Nusantara Cilacap Maritime Academy Based On Website

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Abstract: Submitting permits and registering for scholarships are activities often conducted by cadets at the Cilacap Nusantara Maritime Academy. All activities carried out are still conventional, with the cadets having to come straight to the permit and scholarship registration. To overcome this, a website-based management system was set up by the Nusantara Cilacap Maritime Academy. The system development method used is the waterfall model. The programming language used is PHP with a MySQL database and CodeIgniter framework. Evaluation methods are using BlackBox testing for the system and eight golden rules for the user interface. The result of this research is the development of a website-based management system for the Nusantara Cilacap Maritime Academy. This research concludes that the Cilacap Nusantara Maritime Academy's administrative system can increase the efficiency of time for filing permits and writing letters.

Keywords: Information system, Waterfall Model, PHP, MySQL, CodeIgniter

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5348: Implementation of Face Recognition Method for Attendance in Class

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Abstract: Face recognition has become one of the key aspects of computer vision. In this paper, a face recognition system is proposed based on full features of a face image for identification. Face detection is the first act of face recognition. A high detection rate method used for image processing is Viola-Jones Algorithm. Viola-Jones is used to automatically identify a person from a still image or a video frame. In this paper, we proposed an automated attendance management system. In this research, our effort is to develop a system that allows easy attendance marking using real-time face recognition. The system is based on the Viola-Jones algorithm, this research provides a more efficient and secure Attendance for students at Binus University.

Keywords: Face Recognition; Viola-Jones; Feature Extraction; Distance Measurement; Machine Learning;

5353: Comparative of Advanced Sorting Algorithms (Quick Sort, Heap Sort, Merge Sort, Intro Sort, Radix Sort) Based on Time and Memory Usage

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Abstract*:* Every algorithm has its own best-case as well as its worst-case scenario, so it is difficult to determine the best sorting algorithm just by its Big-O. Not only that, the amount of memory required also affect the algorithm's efficiency. This research provides an overview for the advanced sorting algorithms, namely Radix Sort, Heap Sort, Quick Sort, Merge Sort, and Introspective Sort, that are used directly in real life work to sort 11K GoodRead's data and compare each algorithm, in terms of time required and memory usage to complete the sort. The test is completed by using visual studio code to write the application and is implemented using python programming language. The program will do the testing for each algorithm up to 5 times in a row and will be recorded. This research show that Introspective sort is the best at time and Heap sort is the best at memory usage.

Keywords: Heap, Introspective, Merge, Radix, Sorting Algorithm, Big-O, Memory Required, Efficient of Timing

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5362: Factors that Affect Data Gathered Using Interviews for Requirements Gathering

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Abstract*:* Building software does not rely heavily on the technical side, i.e., coding. There are initial steps that need to be done before constructing the software, that is requirements gathering. Requirements gathering is frequently called as requirements elicitation because the good requirements cannot just be collected from the stakeholders but must be discovered. Therefore, gathering requirements should be done using interviews. While it seems that interviews can be done easily, the interview process can massively impact the result of the software by discovering hidden requirements. This study would like to find out the factors that can affect the data gathered using the interview method by conducting a systematic literature review (SLR). Based on our study, we can conclude that the main factor in the success of an interview relies on the interviewer or the analyst. Since interviewing is a social act, their communication skills will play a big role. Not only that, but the technical standpoint on the interviewing is also considered, with choosing the right structure of the interview and basic knowledge on the problem at hand.

Keywords: systematic literature review, interview, requirements elicitation, effective communication

5365: The Impact of E-Transport Platforms' Gojek and Grab UI/UX Design to User Preference in Indonesia

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Abstract: UI/UX are the elements of an app that are experienced first-hand by the user, and is a factor in the user's engagement with the app. In Indonesia, Grab and Gojek are two main competitors in the E-hailing application market. The purpose of this paper is to determine if UI/UX is the main factor of user preference between the two apps and identify the UI/UX elements that are preferred or avoided by users in both apps by utilizing Shneiderman's rules for UI elements as a baseline. The paper will conduct a comparison to determine the usability when compared to the baseline. Survey will be conducted by giving a comparison and asking users about their preference, followed up by a questionnaire using the System Usability Scale (SUS) method that identifies and scores 10 subjective factors from the overall User Experience of each app.

Keywords: UI/UX, E-hailing, Gojek, Grab, User Preference, Mobile, Design.

5367: Compare the Path Finding Algorithms that are Applied for Route Searching in Maps

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Abstract: The purpose of the conducted research is to find the most optimal algorithm in terms of finding the shortest path that are applied for route searching in maps. This research will compare the pathfinding algorithm such as Dijkstra, BFS, and A * algorithms in terms of time, path, and distance found, by considering the existing real life variables such as distance, weather, average speed, obstructions, and road width that are encountered by every road users to increase accuracy. With the characteristic and following the procedure of each algorithm, we finally manage to dive thoroughly about how the algorithm works by performing calculation and analyze the advantages and drawbacks of each algorithm. The comparison will be made by a system designed using Python Programming Language. This study concludes that Dijkstra's algorithm is 13.78% faster than A* Algorithm and 32.3% faster than Breadth First Search in terms of time but the paths found are not always optimal.

Keywords: Time efficiency, Heuristic, Graph, A*, Dijkstra, Breadth First Search

5368: A Systematic Literature Review of Fintech Investment and Relationship with Bank in Developed Countries.

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Abstract*:* The financial industry has been evolving for decades, especially in developed countries. People in developed countries can adapt to technological changes more quickly. As a result, the potential for the growth of fintech companies is growing, owing to an increase in the number of investors involved in investing in fintech companies. The introduction of new fintech product developments demonstrates this. At the customer interface as well as in back-office operations, this evolution is marked by improved connectivity and information processing speed. Which, by collaborating with banks, one of the latest technologies will help all parties. A large number of innovative financial goods, business finance, financial related tools, and new forms of communication are all part of digital finance. As a result, this article explores the state of fintech capital and investment in developed countries by defining research, insights, trends, relationships, impacts, and challenges that are most relevant to developed countries in terms of fintech investment. Fintech and banks, as financial services, also play a significant role in the global financial market. As a result, by collaborating with fintech and banks, the financial services business model will become more effective and profitable. However, as this study shows, this partnership has its own set of implications and challenges for fintech investment.

Keywords: FinTech; Fintech and Banks; Fintech investment, Developed countries.

5372: Enhancement Design for Smart Parking System Using IoT and A-Star Algorithm

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Abstract*:* Finding parking slot inside packed parking area can be frustrating sometimes. Multiple cars chasing single parking space phenomenon often happens, and numbers of cars wasting vehicle distance without knowing where to go, and hopefully found empty parking slot, or a car that about to leave the occupied parking slot. This study will focus to increase IoT environment functionality on parking area with the help of A* path finding algorithm to accurately pinpoint driver to vacant parking slot, determined by nearest building entrance, and remotely reserved the parking slot prior when the vehicle got the parking ticket. In this study we also discuss about few possible scenarios, further discuss about the sensors, and the system architecture.

Keywords: Smart Parking System, IoT, sensors, smart building.

5381: E-Learning Service Issues and Challenges: An Exploratory Study

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Abstract: The use of e-learning in higher education has been known since the late 90's albeit its development and adoption remained a slow process in higher education institutions. The adoption of e-learning is gaining traction as the Covid-19 pandemic hit the world in 2019 and become a necessity for all educational institutions. Although today the institutions have opted for e-learning as an alternative way to carry out the learning process, many are still not ready and facing difficulties in implementing, managing, and using it. This research aimed to investigate the issues and challenges of e-learning implementation during the Covid-19 pandemic at Universitas Esa Unggul. This research was conducted using exploratory research method by conducting literature study, observation, interview, and survey to examine the lecturer's and student's experiences and perspectives of the e-learning system. The questionnaire was adapted from an Information Technology Service Management perspective to gain data of e-learning satisfaction, availability of e-learning facilities, e-learning ease of use, availability of guidelines, availability of system supports, and to get feedbacks from the student and the lecturer. Based on the study, we identify the following seven e-learning issues: 1) e-learning infrastructure, 2) e-learning system integration, 3) e-learning policy, 4) e-learning support, 5) individual workload, timeliness, and 7) interactivities. E-learning infrastructure is a dominant challenge for Universitas Esa Unggul that requires special attention to improve on its support and regulation. This finding gives implications that improving e-learning service is essential to provide a better learning experience. The e-learning service includes the infrastructure, the system integration, the policy and regulation, IT support, the lecturer, and the interactivity. This research could contribute to the design of an effective model of e-learning service by giving more structured guidance on how to do readiness self-assessment and factors to be focused on.

Keywords: e-learning, issues, challenges, IT service, higher education

5383: Smart Electricity Meter as An Advisor for Office Power Consumption

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Abstract: Technological advances are growing fast, with the presence of new technology that helps everyday work. Big companies often have a lot of fluctuation in power usage, where there is no monitoring being done, there is no way of knowing the cause. There is a need for a system that can do the monitoring of power consumption. Internet of Things is a product of technological growth that is focused on helping humans manage their everyday activity, especially in controlling electronics automatically. This research aims to create a system able to monitor power consumption in offices that could be accessed from anywhere. Found that this system can predict electrical consumption every month.

Keywords: Electrical monitoring, IoT, power consumptions, monthly billing

5386: Building Natural Language Understanding System from User Manual to Execute Office Application Functions

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Abstract*:* To improve the flexibility of using office applications, it takes a natural language interface that can execute the office application's functions. To achieve this, the office application must have an inference engine that can automatically detect the intents and the entities contained in an instruction, into an algorithm to execute the related functions in the application on the entities. Creating a natural language understanding system by manually listing various rules in a knowledge base, is very inefficient and makes the effort of using natural language to execute office application functions too expensive. The author proposes conducting research to build a natural language understanding system more efficient, by analyzing the text contained in the office application user manual, by means of natural language processing technology. We propose to build a variety of simple rules automatically, using the text in the user manual, which is specifically crafted to facilitate and support natural language processing technology. In future works, research will be conducted to automatically build various complicated rules, from analysis of the text from common and commercially available user manual. In this preliminary study, the necessary steps to execute the application functions, is executed on an office application prototype specifically built for this study.

Keywords: natural language understanding, natural language interface, inference engine, natural language processing, office application

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5388: Aspect Based Sentiment Analysis: Restaurant Online Review Platform in Indonesia with Unsupervised Scraped Corpus in Indonesian Languag

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Abstract*:* The paper has designed a dynamic dashboard that will show a summarized information of restaurants in Indonesia on four distinct metrics which are Food, Service, Ambience and Covid Safety. Each metrics shown will have their own ratings which shows the detailed score for each aspect of the restaurant. The data inside the dashboard have been developed by using semi supervised learning of aspect-based sentiment analysis approach. The idea is to analyze past reviews/comments of each restaurant in the current restaurant's online review platform and extract the sentiment as well as the aspect of each of the reviews. The restaurant lists and the reviews have been collected through web scraping method on one of the most used online review platforms in Indonesia which is Tripadvisor. Scraped data has been cleaned through several process of data pre-processing by utilizing Sastrawi and NLTK library for Indonesian languages. The machine learning tools that will extract the aspect and sentiments in every of the reviews will be built by applying Monkeylearn machine learning platform through APIs. Cleaned datasets have been imported into the platform for data annotations of model training to identify the set of words belongs in each aspect categories as well as their sentiment values. Although after reaching the end of the analysis, this paper has concluded that accuracy of the analysis may not be ideal due to lack of negative sentiment dataset being gathered which affects the model during the training process. In conclusion, the feature has successfully been built and implemented as well as deployed into a web server which supported by Ngrok services however, there are still more room for improvement regarding the analysis of the model.

Keywords: Sentiment Analysis, Aspect Based, Semi- Supervised Data, Web Scraping, NLTK, Sastrawi, Monkeylearn

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5417: A Review of Signature Recognition Using Machine Learning

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Abstract: Signatures have been used for years for transactions and consenting to responsibilities. Yet, online or offline, signatures can easily be falsified as there are no security measures in place to prevent this. Numerous researches have been carried out to find the most accurate and reliable signature recognition and verification system. This study examines the two problems previously mentioned. A primary goal of this study is to determine the best algorithms for recognizing signatures based on the signature type. This systematic literature review is conducted using a PRISMA flow diagram. The results indicate that offline signatures mostly use Convolutional Neural Networks (CNN) for their recognition, while online signatures use Recurrent Neural Networks (RNN) with other architectures.

Keywords: Signature Recognition, Offline Signature, Online Signature, Machine Learning, Handwritten Signature

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5447: Student Performance Based on Student Final Exam Prediction

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Abstract: The Covid-19 pandemic situation has made changes to the education system. Educational institutions carried out the shift from the face-to-face learning model to the distance learning model to adapt to the pandemic situation to maintain educational activities' sustainability. Despite changes in learning models, education providers certainly want to maintain academic quality by producing graduates with superior academics, practical knowledge, and innovative thinking. The problem currently faced is how education providers can monitor students' performance to complete their studies correctly. Therefore, a grade prediction is needed that helps students, lecturers, and administrators of educational institutions maintain and improve academic quality. This study compares the techniques. This study shows that the Naïve Bayes method provides a higher level of accuracy than the KNN method, which is 96%.

Keywords: exam score prediction, classification, naïve Bayes, KNN.

5452: Development of Smart Restaurant Application for Dine-In

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Abstract*:* The Coronavirus disease has dealt the Food and Beverage industry a great blow. Restaurants have to reduce their open hours and customers allowed to follow with the regulations, and it leaves them at a huge financial loss. We conduct this research to find the optimal possible way for restaurant to stay open and still have customer on this pandemic era. We propose that restaurant should make their reservation and booking system online as we have seen that online booking and ordering became popular lately. The purpose of this application is to reduce the contact needed between the customer and the staff to as little as possible, while also avoid creating waiting time for the customer. Our application is consisted of reservation system and ordering system. The reservation system enables customers to book a table online and check in via QR Code. The ordering system enables customers to pick a menu using their Smartphone and confirm their order, as well as paying it directly using electronic money.

Keywords: restaurant reservation, food ordering, QR Code verification, electronic payment, android studio

5456: Utilization Big Data and GPS to Help E-TLE System in The Cities of Indonesia

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Abstract*:* Indonesia government currently keep practicing on Electronic Traffic Law Enforcement. Over the last three years the E-TLE was launched by the Ditlantas Polda Metro Jaya the government keep developed a system to provides the smoothness and safety of traffic violations at the cities in Indonesia. Using a Big Data Analytics for helping the large amount of data to recording all the traffic violations, GPS for moving activity and can be used for analysis to identify and information. We used the literature review to find out how to develop the E-TLE concept, system, and implement in Indonesia. The main problem in Indonesia is due to the lack of equipment to support all traffic systems and the accuracy of the inference algorithm varies greatly depending on the size of the collected data sample. In this study, we find out all the problem that can be cause by the system and find out how to solve all the problem using the literature review method for identifying, understanding, and transmitting information to help E-TLE system. Finally, we concluded the big data is must for implementing the E-TLE system. Furthermore, GPS and radar sensor is the critical data beside CCTV for enforcement of electronic traffic law.

Keywords: big data, electronic ticketing system, GPS, camera sensor, smart city

5483: Expert System to Predict Acute Inflammation of Urinary Bladder and Nephritis Using Naïve Bayes Method

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Abstract*:* Bad life habits such as not consuming enough water and often delaying the urge to urinate are the causes of bladder-related diseases. In this study, a solution is given to overcome this problem by developing an expert system that can predict acute inflammation of nephritis and urine bladder disease using one of the classification algorithm that is often used and gets a lot of attention from researchers in predicting problems, namely Naïve Bayes. Data utilized include a list of symptoms that include patient fever, nausea, lumbar discomfort, urinary pushing (continuous urination, urethra burning and micturition pain, itching and urethra fluid swelling). The results of the diagnostic analysis consist of a confusion matrix and system accuracy values. The accuracy value of predicting acute urine bladder disease is 83% and acute nephritis of renal pelvis origin is 96%.

Keywords: Expert System, Naïve Bayes, Python, Scikit-learn, inflammation of urinary bladder, nephritis

5517: The Search for the Best Real-Time Face Recognition Method for Finding Potential COVID Patients

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Abstract*:* Face detection and face recognition has been a part of our daily life for a while now. They usually help us speeding up the time of any identification process in many places. In early 2020, COVID-19 has become a worldwide pandemic and drives many people to find many solutions to this problem. Our contribution to the case is finding the best method to find potential COVID patients before they infect more people in public places by using facial detection and recognition. Using the PRISMA Flowchart methodology, which helps authors systematically analyze relevant publications and improve the quality of reports and meta-analyses The first matter to be solved is to find the most used algorithms used in facial detection and recognition, then followed by finding out which is the best one to be implemented for our case study. Our findings suggests that algorithms that can detect and recognize faces under occluded conditions works best for this case.

Keywords: Face Recognition, Convolutional Neural Networks, Face Detection, Face Identification, Support Vector Machine

5523: Waste Classification Using EfficientNet-B0

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Abstract*:* Waste management has become one of the emerging problems. A way to speed up the whole process is by doing waste sorting, which could be done by computer using image recognition. EfficientNet-B0 could be utilized in this scenario due to the more efficient architecture and comparable performance with others deep convolutional neural network. For this experimentation, we did transfer learning and fine-tuning on it, and then do hyperparameter exploration. We also did the same process on few other models, and EfficientNet-B0 achieves the best accuracy at 96% accuracy on training with one of the smallest models. While we got 91% accuracy on validation, we also discover that our model has noticeable difficulty in classifying recyclables waste.

Keywords: Waste Image Classification, EfficientNet, Deep Learning, Confusion Matrix, CNN

5527: A Survey: Crowds Detection Method on Public Transportation

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Abstract*:* Face recognition is a computer technology being used in a variety of applications that identifies human faces in digital images. At this time, face recognition can be used to find out how crowded a public transport is. Face recognition can be used to calculate how many people are in a public transport. Nowadays, we have been assisted by the existence of Closed- Circuit Television (CCTV). The video, images from the CCTV footage can be used to detect crowds in a public transport. Our aim in making this paper is to compare which method is most suitable for use in detecting crowds in a public transport. The writer used various different research papers in the period of 2015-2021. From our analysis, there are many methods that can be used to check the crowd in a public transport, such as CNN, RCNN, YOLO, Viola Jones, and still many more. From our research, we found that the CNN method has the highest accuracy rate than the other methods.

Keywords: Face recognition, Crowd Detection, Image, Video, Survey

5530: Performance Analysis Between Cloud Storage and NAS to Improve Company's Performance: A Literature Review

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Abstract: Storage systems are becoming increasingly important in framework for storing and accessing information with less retrieval time and a low budget. It is common for every small organization or large company to use storage for storing their data. The data that they store later will boost their value as an organization or company. The problem is that many companies do not know the best option for their storage system. Most companies pick one storage type without knowing the best type for their companies. This paper aims to know and compare what kinds of storage a company uses nowadays and what kind of storage suits its needs. In this paper, we proposed to look for and compare two storages, namely Cloud Storage and Network Attached Storage (NAS) because these two systems are the most commonly used. Based on our research, both storages are good depending on their needs. Even so, for the small companies, Cloud Storage is the best choice as it cost lower, has easier configuration and data back-up, takes up a little space, scalability, and many more.

Keywords: Cloud Storage, Network Attached Storage, Cloud based Storage, Cloud Computing, Architecture

5544: Usability Evaluation of Learning Management System

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Abstract: In the current era of globalization, there are a lot of things have been done with technology. One of them is education. LMS is an example implementation of technology in Education. LMS is a platform that provided by schools or universities, to support teaching and learning activities. Many literatures show that with the LMS, online learning can be fulfilled properly. To make an LMS comfortable and easy to use, it is necessary to have a good user interface design and user experience. User interface and user experience are a very important part of developing an LMS. Without a good user interface and user experience, the LMS cannot be used by the user properly. Based on the research, there are two methods commonly used to evaluate user interface design and user experience. Usability measurement and heuristic evaluation are two methods that are always used to evaluate user interface and user experience. In addition, there is an important part of the LMS, it was features. Based on the research, the most common features in LMS are discussion forums and learning materials. Therefore, users can discuss the materials each other and also share learning materials.

Keywords: User Interface; User Experience; Learning Management System

5551: Self-Checkout System Using RFID (Radio Frequency Identification) Technology: A Survey

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Abstract*:* RFID (Radio Frequency Identification) is a combination of radio frequency technology and microchip technology, and as an alternative to barcodes microchipped in tags to store and transmit detailed information about tagged items. The number of RFID applications in everyday life is due to the convenience it provides, one of which is the self-checkout system. In this literature review, the authors have analyzed various techniques that can be used to implement RFID in a self- checkout system through methodological and model analysis. The purpose of this study is to explore various possible applications of RFID technology in a self-checkout system. The authors have identified 30 different research papers in the period 2010 - 2021. The analysis shows that each selected research study has achieved respectable, but imperfect results, as each study points to its own unique strengths and weaknesses. There are several methods that may suit the application of RFID technology to the self-checkout system, namely by using mobile devices through mobile applications, smart shopping carts, cloud systems and cloud database software.

Keywords: RFID, Self-Checkout, Internet of Things (IoT), Smart Cart, Automatic Identification Technology

5556: Effective Methods for Fake News Detection: A Systematic Literature Review

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Abstract*:* The development of the spread of fake news is increasingly worrying, triggering many researchers to conduct experiments in creating a fake news detection system. Various algorithm methods were tested and produced different results. Therefore, we conducted a study to find out which method is the most effective in detecting fake news, based on total accuracy and consideration of its advantages and disadvantages. Other than that, we also analyze what datasets are used in each different method and paper. By reviewing the methods of 22 journals that have entered the eligibility criteria, we can find out that Naive Bayes is the one who gives the best results with the highest accuracy of 96.08% and an average of 81.43%.

Keywords: Hoax Detection, Effective, Methods, Research, Algorithm

5559: Determining the best Delivery Service in Jakarta using Tsukamoto Fuzzy Algorithm

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Abstract*:* With the increasing and developing of technology, shipping service providers are also increasing. This research paper helps the people in choosing the best delivery service in Jakarta. Since the competition of delivery service is rising, it confuses people to choose which delivery service is the best. By using Tsukamoto Fuzzy we can determine the best delivery service in Jakarta by using a few categories such as delivery time, price, availability, safeness, and customer service then calculate the data collected with the Tsukamoto Fuzzy model. After calculating the data, the best delivery service can be determined by the score. Tsukamoto Fuzzy are relevant to determine the best delivery service in Jakarta.

Keywords: algorithm, decision making, fuzzy logic, fuzzy system, shipping services.

5561: RTR AR PHOTO BOOTH: THE REAL-TIME RENDERING AUGMENTED REALITY PHOTO BOOTH

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Abstract *:* The use of Photo Booth at several events has become a means of documentation such as selfies and wefies, However, in some applications, the technology has not been utilized properly. This study aims to describe how the application of Augmented Reality technology to be applied to the form of photography services in the form of a photo booth with real-time rendering techniques from Spark AR and the use of the cloud. We propose a creation schema to implement augmented reality in photobooths for marketing purposes in exhibitions or events. The implementation description will include how augmented reality technology is used, development methods, and references on how to use it until it is ready for use. The performance measurement was also carried out using Frame Rate Per Second (FPS) on two different device configurations in several experiments. The results show that the proposed photobooth can run up to more than 60 FPS or at above standard performance.

Keywords: Augmented Reality, Photo Booth, Photo Corner, Spark AR, One Drive.

5567: A Systematic Literature Review: Database Optimization Techniques

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Abstract: Big data optimization is the main thing in getting accurate and fast data. The condition of the data at this time is very much, therefore optimization must be done. As technology develops, more and more data is generated, some data optimization techniques still take a long time to get optimal results. This research paper aims to find out several ways of optimizing the database with several existing techniques. The design used is a literature review. The criteria for the papers used are those published in 2005-2020. In the paper that we have researched, there are several ways to optimize a database, the methods used, and the challenges that will exist during database optimization. Based on the collected papers, it was found that there are indeed many ways to optimize the database. Then there are many methods in database optimization that use the Map Reduce Algorithm, and it is proven that the algorithm can reduce the amount of work time when transferring data, and there are several challenges in database optimization. This research paper shows how to optimize the database from several sources. Then there is an explanation of the methods or algorithms used in database optimization.

Keywords: Big Data Analysis, Cloud Computing, Systematic Literature Review, Optimizing Database, Query Database, NoSQL, Algorithm

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5593: Study on Face Recognition Techniques

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Abstract: Face recognition is a favoured research subject as it's a more conventional method to record students' attendance, an identification method by using individuals' faces using images, or (real-time) camera. In these papers, the authors have researched and discussed the different techniques used to be implemented in face detection, face recognition, and face recognition through their methodology and algorithm's accuracy. The purpose of this research is to explore the different algorithms implemented in creating a face recognition system with its accuracy performing the system's algorithm. The authors have identified 30 different research papers, conference papers, and journal papers within the period of the years 2012- 2020. Each paper discussed and achieved results based on the accuracy of the algorithm used, demonstrating its advantages and disadvantages. Thus, giving the conclusion which algorithm is suitable to be used in a face recognition system.

Keywords: face detection, face training, face recognition, algorithm , methodology, accuracy

5601: Big Data For Smart City: An Advance Analytical Review

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Abstract*:* The use of IOT over the centuries has evolved on many ways, many people have developed various of method on using these technologies, it has even reached to the point that it can even support the disaster response, even though not every system is perfect, there is always a room to improve trough maintenance and improving every development milestone. One of the biggest usages of IOT are mainly on big companies, cities, or even just used on daily basis by everyone. One of the biggest usages of these IOT technologies are on smart city. The development of smart city require many information from various department, since smart city is a big scope covering the daily basis of their citizen which covers many scope from energy, transportation, public services, security, and many more, these massive traffic data that are gathered to ensure the productivity on smart city to keep running on daily basis, which is why on this paper the author will be discussing on the challenges on implementing smart city, the role of big data on smart city, and an advance review on the systematic of the big data system on the smart city. The author of this paper hoped that the result of this research will benefit government understanding on how to build an appropriate system for smart city and its citizen.

Keywords: analytics, challenges, data analytics, smart city, big data, data visualization, data mining, governance, IOT.

5602: Analysis of Big Data in Healthcare Using Decision Tree Algorithm

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Abstract*:* Era of technological developments, big data has been widely implemented in various any company especially healthcare. Big data has opened up new gaps in health care. Big data in healthcare has the potential to improve better healthcare. The effective use of Big data can reduce health care problems such as how to provide proper care, maximum care solutions, and improve existing systems of health care. There are 6 defining domains in Big Data, which are Vol., and etc. Big data represents a variety of opportunities to improve the quality and efficiency of healthcare. Big Data in healthcare need to expanded and explore utilize big data analytics to gain valuable knowledge. Big data analytics is used to catch value any information from all kinds of sources in healthcare that can be used to gain information for the purpose of better decision making in healthcare. Big data analytics in healthcare has the prospect to increased healthcare by discovering decision tree and understanding formats and trends in medical record data. Cardiovascular illness datasets is big data in healthcare which is one or others resources in the health sector and is used as part of facilitating the process of documenting medical records that must be analysed to offer an effective solution to solve problems in healthcare. This paper provides valuable information by using big data analytics from medical data cardiovascular disease to provide effective solutions for the problems in healthcare and also provide how important big data for healthcare is.

Keywords: Healthcare, Analysis of Big Data, Medical Records.

5603: Detrimental Factors of the Development of Smart City and Digital City

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Abstract: The modern civilization strive to integrate technology into our life more and more everyday. Such technology evolves more and more everyday improving in every aspects of its performance. Every technology used to improve the life quality of its user uses power in order to operate and the power source used varies depending of the item used. Every power source needs fuel and will produce residue and the residue could range from eco friendly to environmental hazard. Government tries to take care of such problems by using smart technologies that are eco friendly to reduce pollution. Now with all those technology used and implemented our lives will also be dependent on such technology and we will try to integrate it into every aspects of our life and in the end the whole human settlement will be integrated with technology in its every aspects eventually it will be called smart city and digital city. The development of both digital city and smart city is never without problems and challenges. This research is hoped to identify and disect the concept of both smart city and digital city to help improve the development process of both concept and reduce the problems encountered by every developers.

Keywords: Smart City, Digital City, Technology, Quality of Life

5604: Application of Internet of Things in Smart City: A Systematic Literature Review

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Abstract: Nowadays, every urban area in developed countries needed to have a "Smart City" to compete with other country to simply make the name of "Future City" to become a true existent. By using Smart City the development of country will heavily increase by the amount of used Things that connected with the Internet, not only increase the development of a country but also increase the productivity of people that used the things. To get the right results and according to the purpose, this paper will use a research method, namely Systematic Literature Review (SLR). This study will collect data from the previous research that include journal and conference papers to be observed. The results of this paper will be used as a help to reverence for the newer journal on the same topic, then for the end goals this paper will give an example about the country that already applied "Smart City" and the benefit of using Smart City itself.

Keywords: Smart City, Internet of Things, SLR.Introduction

5605: Smart Tourism Services: A Systematic Literature Review

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Abstract*:* Smart tourism is a new technology in tourism how increasing of tourism industries. by this technology can help tourists and tourism agent by concept smart tourism make massive income to be transformed into value propositions in tourism object and other, from this paper we can learn from some success smart tourism in Province Bali, Indonesia has success to transform Sukowati art market in Ubud from traditional market to be smart tourism for help tourist to find shop want they buy and can help owner shop to promote the product in her shop in social media. Smart tourism can help tourists and owner shop can use new smart tourism trends, and then can increase and government to make better tourism. Smart tourism can be improved and make from traditional tourism to modern tourism in this era

Keywords: services, systematic literature review, smart tourism

5622: Indonesia China Trade Relations, Social Media and Sentiment Analysis: Insight from Text Mining Technique

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Abstract*:* Sentiment Analysis (SA) employed for detecting, extracting, and classifying people opinions about an issue. Social media is a channel to show people opinions and thoughts. This study aimed to detect and classify Indonesia public opinion from Twitter written in Indonesia language for trade relations between Indonesia and China topic with text mining techniques. The result was the model that detected and classified sentiment of public opinion into negative, neutral or positive sentiment. The sentiment detected by lexicon-based and rule-based sentiment analysis. VADER was chosen as a tool for sentiment analysis lexicon-based. The text classification process was a training stage for the model. The experiment revealed SVM classifier performed higher accuracy value than Naïve Bayes, 67.28% and 64.68% respectively.

Keywords: social media, twitter, sentiment analysis, SVM, naïve bayes

5631: Sinophobia in Indonesia and Its Impact on Indonesia-China Economic Cooperation with the SVM (Support Vector Machine) Approach

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Abstract-- This article describes Sinophobia in Indonesia and its impact on China and Indonesia's economic cooperation. Sinophobia is an extreme dislike or fear of strangers, customs, religion, etc. Sinophobia often overlaps with forms of prejudice including racism and homophobia. This condition in Indonesia occurred as a result of colonialism, the privileged ethnic Chinese during the Suharto era and continued to increase sharply during the Jokowi's administration. In addition to using qualitative methods, to determine the analysis of anti-Chinese sentiment in Indonesian society and its influence on Indonesia-China economic cooperation, this study uses SVM (Support Vector Machine). The research step starts from crawling data from Twitter, cleaning data, translating data into English, and testing the classification results by calculating accuracy. SVM classification text with a training: testing data ratio of 80:20, resulting in an accuracy of 76.40%, precision of 74.44%, and F- measure of 74.48%.

Keywords: Indonesia, China, Sinophobia, SVM, Economic Cooperation

5682: Towards Classification of Personality Prediction Model: A Combination of BERT Word Embedding and MLSMOTE

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Abstract: The rise in internet usage improved digital communication and an increase in user data, particularly on social media. The information supplied from social media, including Twitter, can be used to retrieve user personality. In this paper, we experiment to predict user's personality based on Big Five Personality Trait on Twitter, particularly Indonesian users. We focus on using XGBoost classifier as it gives promising result in the previous study. We experiment on using multiple Bidirectional Encoder Representations from Transformer (BERT) models for extracting contextual word embeddings from tweets data to see the best model. We also address the imbalanced dataset problem with Multilabel Synthetic Minority Oversampling Technique (MLSMOTE). Our research found that the IndoBERT model, which is pre-trained with general data including Indonesian Twitter tweets, has the best overall performance on our dataset. We also found that using MLSMOTE could increase the accuracy up to 19,91% and the F1 up to 19,38%, which is a huge increment and shows that MLSMOTE works well with our dataset.

Keywords: BERT, Five-factor model, Indonesian personality prediction, MLSMOTE, Twitter dataset

5700: Level of Password Vulnerability

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Abstract*:* Nowadays password vulnerability is very dangerous for accounts on the internet. The need to create an account is very important as it can properly store personal data. However, with a password, an account can maintain the integrity or authenticity of the account owner. Several things are very influential so that they make passwords vulnerable, such as several criteria in making passwords, namely the length of the password, the elements used in the password, reuse of passwords, frequently changing passwords, and other things that will be discussed in this research. To determine the password vulnerability of current users. From the questionnaire data, the most vulnerable key in password security is password reusability and frequently changed password.

Keywords: Security; Password Strength; Text Password; Usable Security; Password Component;

5732: Cultural Tourism Technology Used and Themes: A Literature Review

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Abstract*:* In today's circumstances, there is a phenomenon for people to want to find out culture outside their neighborhood. This can be realized by collaborating technology with cultural tourism. This study discusses the application of ICT technology in the cultural tourism domain by conducting peer-reviewed articles using *Keywords* and analyzing their content. This study finds trends and technology themes in the visualized cultural tourism domain so that it can make it easier for researchers in this field to understand and further develop the cultural tourism domain. (Abstract)

Keywords: Cultural Tourism Technology, Technology themes, Visualized.

5770: IoT Sensors Integration for Water Quality Analysis

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Abstract: Water quality data is important for analysis in many domain applications. The research aims to collect water quality data through Internet of Things (IoT) approach that integrates several sensors and a micro-controller. This research is conducted by constructing a research framework that covers conceptual design, component selection, design realization, and sensor accuracy and precision test. An integrated sensor with high accuracy and precision is provided as the research outcome. It is suggested that future research explore water quality classification and surpass the limited visualization with a modern method.

Index Terms: Internet of Things (IoT), Integration, Sensors, Water Quality Analysis

5777: Street View Object Detection for Autonomous Car Steering Angle Prediction Using Convolutional Neural Network

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Abstract: Autonomous car research is currently developing rapidly to find optimal and accurate steering angle and speed control. Various sensors such as cameras, LIDAR, and RADAR are used to recognize the surrounding environment to determine the correct steering angle prediction in avoiding obstacles. In addition to being expensive, LIDAR and RADAR have several drawbacks such as the level of accuracy that depends on the weather and the ability to detect adjacent objects. This paper will propose the prediction of steering angle and speed control in autonomous cars based on the detection of street view objects such as cars in front, traffic signs, pedestrians, and lane lines. The process of object detection and prediction of steering angle, as well as prediction of speed control using a convolutional neural network (CNN) through video captured using a single camera. In this method, other sensors such as LIDAR and RADAR are no longer needed so that the costs required are lower and the weaknesses found in LIDAR and RADAR can be eliminated. The results obtained are very good with 92% accuracy for steering angle prediction and 85% for speed control prediction. The autonomous car can run well in the simulator environment through the video taken on the real road.

Keywords: CNN, object detection, single camera, steering angle

5781: Extract Transform Loading (ETL) Based Data Quality for Data Warehouse Development

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Abstract*:* Extract Transform Loading (ETL) plays a decisive role in data warehouse (DW) construction. It involves retrieval informations from multiple sources to improve information quality in DW for decision making process. A DW development relies on the development of ETL. Therefore, ETL conceptual model not only represents an overview of overall process, but also as a mapping amongst data sources, DW targets and required transformation to make sure that data quality (DQ) dimensions are incorporated in order to meet the requirements. In this paper, an ETL framework is proposed which incorporates data quality to improve information processes in data warehouse development through 'the story' of process whilst others framework more to technical approach. In order to be useful, the proposed framework compared with other framework in case of advantages and disadvantages for future improvement.

Keywords: data quality, data quality incorporation, ETL, style, data warehouse

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5782: Spread of COVID-19 Deaths in Jakarta: Cluster and Regression Analysis

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Abstract*:* Jakarta as the center of the capital city of Indonesia has a very high mobility and population density. This has resulted in the spread of COVID-19 cases also have a very high increasing trend. Regional clustering and the detection of variables that affect COVID-19 deaths can be an early warning or the basis for government policies in handling the spread of disease outbreaks. This study aims to classify areas at the sub- district level in Jakarta based on distribution of COVID-19 cases using the K-Means method. After the regional clusters were formed, Bayesian regression analysis was carried in each cluster and sub-district to identify variables that had an effect on COVID-19 deaths. The number of deaths is assumed to have Normal distribution, and statistical inference in Bayesian regression using the Integrated Nested Laplace Approximation (INLA) approach. This study produced several interesting results including: (1) there are 4 clusters that indicate areas prone to spread with a high case rate, fairly high risk, low risk to very low risk areas. (2) most of Jakarta's sub-districts, which is about 45%, are included in areas with a fairly high risk of spreading. (3) In general, the number of recovered cases is a significant variable on the majority decrease number of COVID-19 deaths in each cluster.

Keywords: K-Means, Bayesian regression, INLA, COVID-19, cluster analysis

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5783: Indonesian Banking Stock Price Prediction with LSTM and Random Walk Method

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Abstract: Investing in stock market is the challenging for every new investor, as the stock market always move in dynamic way. When using technical or fundamental analysis approach, investor can reduce the loss probability and increase the profit probability. When one tries to analyze the stock market data, any techniques can be used. For example, the LSTM as the part of Neural Network and Machine Learning, which need past data to train the model and try to give the best prediction result based on the model generated by the data. The other example of techniques used in this paper is the Random Walk which come from Integrated Nested Laplace Approximation (INLA) library of R language which approximate the Bayesian Inference. Both methods are used to get the best prediction result. To get some comparison, the data can be split to several period and from several choices, the best result can be generated. As a result, the LSTM always predict the best result (comparison using the RMSEP / Root Mean Square Error for Prediction value) and the more data fed to the model will produce lower rate of RMSE, which is good for prediction result.

Keywords: stock market, machine learning, LSTM, INLA, random walk

5785: Exploration of React Native Framework in designing a Rule-Based Application for healthy lifestyle education

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Abstract: Researches indicates the implementation of hybrid applications is more profitable for mobile application development solutions. Hybrid application combine the advantages of web and native application. React Native is a hybrid framework for developing mobile applications. React Native framework can create within two platform applications by compiling the code written in React. The utilization of React Native in a rule-based application can build a solution for healthy lifestyle education. The aim of this study is to build a rule-based application for healthy reminder in daily activities. By developing an application in React Native, the study will design a comprehensive mobile application that make users easy to use. Moreover, this study will explore and construct an application that guide the user to maintain their daily health. To develop the application, author uses waterfall methodology. Before building the application, a systematic survey was conducted to gain relevant data from the users and also to invent a rule-based that will be the way of thinking of the application design. The results indicate that React Native framework can be utilized in building a reminder application about healthy lifestyle education. This study built a mobile application product that has good performance and helps users change the lifestyle in order to improve the quality of a healthy lifestyle.

Keywords: Rule-based application, React Native, daily reminder, healthy lifestyles.

5795: Design of Water Information Management System in Palm Oil Plantation

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Abstract: The water level on peatlands is a critical factor in the production of oil palm plantations on peatlands because oil palm requires water but should not be inundated. The optimal water depth from the surface should be controlled from 70 to 80 cm by opening or closing the drain gate. Currently, most measurements are made with a piezometer. Then the opening and closing of the sluice gate at the end of the primary channel are done manually. In many cases, the distance between the plantation block and the floodgate is quite far and is limited by inaccessible infrastructure (roads), so opening or closing take a lot of time and money. Currently, a water level measurement system has been designed automatically using a microcontroller. This study aims to develop a design of a drainage management information system in oil palm plantations. The information system includes the water level of peatlands data in oil palm plantations taken from the water level sensor in the drainage system. The system uses the data from the water level sensor to manage the drainage system's sluice gates. This system was developed using the SDLC waterfall method. The final result of this research was a design of a water information management system that can regulates automatic and real-time peatland oil palm plantations water level.

Keywords: Oil palm, water level, automatic control, information management system

5796: A Hydrodynamic Analysis of Water System in Dadahup Swamp Irrigation Area

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Abstract: Dadahup Swamp Irrigation Area (DIR) in Kapuas Regency, Central Kalimantan is developed for agricultural activities to provide food security after the pandemic. The water system consists of various channels, gates, and a flood embankment structure, which is also connected to three different rivers: Barito River, Mangkatif River, and Kapuas Mumpung River. To quantify flood risk assessments in the area, we perform a hydrodynamic analysis using the unsteady flow method via HEC-RAS software version 4.1.0. We use geometrical profiles from topography measurements and the outer boundary of the Dadahup DIR as input for the hydrologic model. Our results estimate the maximum surface water level from both cross and longitudinal sections in the channels and find that several points near the flood embankment area are prone to flood events. Our modeling approach provides a preliminary assessment for the local government to formulate a flood mitigation plan and policy in the area.

Keywords: flood, hydrology, modeling, river, water system

5798: Spatiotemporal Features Learning from Song for Emotions Recognition with Time Distributed CNN

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Abstract*:* Building a system that can naturally interact with humans has been one of the ultimate goals for researchers in the computer science field. The system should be able to interpret both verbal and non-verbal meanings from the messages conveyed by the interlocutors. A song can also be a vehicle to express a message to the listeners, and capturing the emotions from the song automatically can provide a system that can have the digital feeling when they are listening to the song. Emotions can be automatically captured and processed through several modalities via sensors. Deep learning has been the golden standard of learning architecture in many fields. The emotions recognition model can be trained well with some of the deep learning architectures. Convolution Neural Networks (CNN) is famous to train models that have multi-dimensional input features. However, it has a limitation when dealing with features that have temporal information. This research aims to use Time Distributed layers to CNN architecture to learn Spatio-temporal features from the songs (audio signals). Eight architectures were proposed in this research to explore the potential of learning Spatio-temporal features from songs with CNN architecture. The best model presented in this paper achieved 99.95%, 93.41%, 1.84, 2.03 in training accuracy, testing accuracy, training loss and testing loss, respectively.

Index Terms**:** Emotions Recognition, Audio Signals, Spatio-Temporal Features, Deep Learning, Time Distributed

5800: AR-Mart: The Implementation of Augmented Reality as a Smart Self-Service Cashier in the Pandemic Era

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Abstract*:* Considering the recent booming of cashier-less checkout technology and the future trend of increasing self-service and contactless conditions due to Covid-19, it is necessary to find an alternative checkout concept suitable for local retail conditions. Using augmented reality, the aim of this study is to compare the proposed method with the conventional method of cashier checkout using barcode scanner. The method used in this study is marker- based tracking, where the marker is an image file which will be uploaded to Vuforia SDK Kit. The result of the proposed method for AR-Mart as a smart cashier is faster, more accurate and can reduces the duration for cashier checkout significantly.

Keywords**:** Augmented Reality, Vuforia, AR-Mart, Smart Cashier

5801: Immersive Experience with Non-Player Characters Dynamic Dialogue

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bstract*:* Non-Player Character (NPC) is one of the important elements in the game, because NPCs can liven up the atmosphere in the game by means of intense interaction with players with various functions. This has an impact on the game experience which is more immersive than the game being played. This study provides an overview so that NPCs are able to have dynamic dialogue with players, and this study also discusses chatbots as a communication technology that is currently emerging and its impact when combined with NPC.

Keywords: Non-Player Character, Dynamic Dialogue, Dialogue System, Chatbot, Immersive, Game Experience.

5806: Explainable Supervised Method for Genetics Ancestry Estimation

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Abstract*:* Ancestry estimation is one crucial stage in genomic research. It generates scores that represent the admixed genetics profile as the result of human evolution. In the previous research, we implemented multiple unsupervised methods to estimate these scores from large genomics data obtained from the 1000 Genome Project. These methods were limited to only cluster the samples to the five global populations in the dataset. The main challenge arose when implementing these methods to cluster the samples into more specific sub- populations. In this paper, we proposed a supervised approach to answer this challenge. Two state-of-the-art supervised machine learning methods, XGBoost and Deep Neural Network (DNN), were applied to the same dataset. These methods were aimed to classify samples, both into five main populations and also into 26 sub-populations. In the first classification task, both methods achieved similar results to our previous unsupervised approach. Interestingly, for the second classification task, which posses a relatively higher difficulty, DNN yielded better performance in the train, validation, and test dataset, despite its overfitting problem. Furthermore, the feature importance scores from each model were calculated using Shapley Additive Explanations (SHAP) method. Finally, 11 overlapped SNPs from all models were evaluated based on the reported Minor Allele Frequency (MAF) from the 1000 Genome Project. Overall, only using these 11 SNPs, we could differentiate each population in regards to its average MAF.

Keywords: genomics, ancestry, genetic marker, supervised, explainable machine learning,

5811: Memorize COVID-19 Advertisement: Customer Neuroscience Data Collection Techniques by Using EEG and fMRI

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Abstract*:* Coronavirus Disease (COVID-19) confirmed cases in the world still occurred more than 1.5 years after the first cases outbreak in Wuhan, China. Education is a main key to deal with this pandemic. The information on how to prevent COVID-19 continues to be informed by direct approach and by using advertisements on television, radio, printed media, and on the internet are being provided to gain the awareness to the people. Consumer neuroscience is necessarily needed and important for understanding consumer behavior. This research paper proposed the techniques to collect the visual data of COVID-19 advertisements by using electroencephalogram (EEG) and Functional Magnetic Resonance Imaging (fMRI) to understand the brain activity. The results of this research can be useful to create a better COVID-19 advertisement that can attract people to memorize the health protocol.

Keywords: brain activity, data collection, memory, COVID- 19, advertisement, consumer neuroscience, EEG, fMRI

5836: Development of Stock Market Price Application to Predict Purchase and Sales Decisions Using Proximal Policy Optimization Method

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Abstract*:* Stocks are an investment that many investors choose because stocks are able to provide attractive returns. Stock market prices experience fluctuating changes in stock prices from one time to another. Stocks use indicators from technical analysis to evaluate stocks in order to predict stock market price movements. The fluctuation of stock market price fluctuations affects the decision to buy and sell shares where these decisions do not occur every day. In this research, we used deep reinforcement learning algorithm called as the Proximal Policy Optimization method to predict stock buying and selling decisions. The decision to buy and sell shares affects profits. The data used are indicators of technical analysis and historical data. The Proximal Policy Optimization method allows to develop automatic buy and sell decision via iterative policy optimization based on previous sample data to reduce sample complexity. Proximal Policy Optimization method generates rewards to maximize profit. The results of this research indicate that the cumulative profit during the last one year from the results of our deep reinforcement learning approach is an increase compared to the cumulative profit by manual decision approach.

Keywords: stocks, indicators, Proximal Policy Optimization, buying and selling decisions, profit

5847: Exploiting Facial Action Unit in Video for Recognizing Depression using Metaheuristic and Neural Networks

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Abstract: The ubiquity of coronavirus cases around the world has been severe and its impact is not only affecting the economy and physical health, but also mental health such as depression. Unfortunately, the number of coronavirus cases may inhibit people to look for general practitioners or hospitals. This study represents research on facial behaviour analysis on recognizing depression from facial action units extracted from images or videos. We aimed to find a reduced set of facial action unit features using the metaheuristic approach. We utilized particle swarm optimization to select the best predictors and feed them to optimized standard feedforward neural networks. We obtained 97.83% accuracy for depression detection based on Distress Analysis Interview Corpus Wizard-of-Oz (DAIC WOZ) database containing 189 video sessions associated with the Patient Health Questionnaire depression label. This level of accuracy requires almost 9 minutes. However, this level of accuracy is higher than other state-of-the-art methods.

Keywords: depression, PHQ-8, facial action unit, PSO

5891: Review Literature Performance : Quality of Service from Internet of Things for Transportation System

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Abstract : The Internet of Things (IoT) is one of the technologies that are becoming a trend nowadays. Needs and implementation develop very fast. These conditions encourage increased infrastructure requirement and good data management. The number of points connected to IoT increases rapidly, as does the quantity and quality of data sent. IoT is a technology that connects objects (things) or devices in a digital communication. Is a development from the previous internet connection that connects only computer devices. In a Scale-up transportation system, it can occur due to an increase in connected vehicles, the amount of data sent, the area or range of vehicle mobility that is increasingly widespread. Data generated by the IoT system will be widely used by various parties according to their interests. Data increase will result in a decrease in data quality in terms of data source trust, data security from improper changes and timely and targeted data distribution. The expected result of the research is an IoT system in transportation that is able to produce valid, accurate and up to date data. The use of these data further improves the performance of the transportation system. Transportation is one area that has the potential to benefit from IoT. But unique and challenging characteristics require a guarantee of the quality of the IoT. The flow of information on transportation is needed to improve services for users. Utilization of IoT in transportation will provide major benefits such as ease of getting vehicle position information, accuracy in getting information on engine conditions and in the future leading to transportation automation. If the quality of the data flow is not guaranteed, the implementation of IoT will pose a potential hazard.

Keywords: IoT architecture, contribution, extraction mapping, focus area and contribution, object research and implementation, transportation efficiency increasingly Introduction.

5905: Auto-Tracking Camera System for Remote Learning Using Face Detection and Hand Gesture Recognition Based on Convolutional Neural Network

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Abstract*:* The purpose of this study is to develop an auto-tracking camera used for remote learning with a direct recording classroom video type, which aims to focus on reducing the model's size so that the model can run on devices that have low computational capabilities, such as the use of the Central Processing Unit (CPU). This study used face detection FaceBoxes to detect faces so that auto-tracking can be applied. This study also used hand gesture Unified Gesture and Fingertip Detection, which can be used for doing specific commands towards the camera. The idea to implement this multi-modal is to help the lecturers create a seamless transition during the lecturing process thus the lecturers do not need to worry the their movement that could make the camera pointing to the wrong direction due to the static movement.. This study conducted experiments on the number of batch sizes, CNN architecture, and optimizer as well as the IoT protocols. While the model inferences are running on CPU, we used Raspberry Pi for controlling the servo motor to follow the face in the frame by defined protocols. The expected result is that an auto-tracking camera can enhance learning more effectively and study a more accurate model and inference time to do face detection and recognize hand gestures in real-time on CPU devices.

Index Terms**:** Face Detection, Hand Gesture recognition, Real-time, Auto-Tracking Camera, Remote learning.

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