LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	Best Parameters Selection of Arrhythmia Classification Using Convolutional Neural Networks		
Jumlah Penulis	:	Tiga (Rizqi Hadi Prawira, Adi Wibowo, Ajif Yunizar Pratama Yusuf)		
Status Pengusul	:	Penulis ke 2 (Dua)		
Identitas Prosiding	:	a. Judul Prosiding	:	2019 3rd International Conference on Informatics and Computational Sciences (ICICoS)
		b. ISBN/ISSN	:	978-1-7281-4610-2/0018-9219
		c. Thn Terbit, Tempat Pelaks.	:	2019
		d. Penerbit/Organiser	:	IEEE Xplore
		e. Alamat Repository/Web	:	https://ieeexplore.ieee.org/document/8982418
		Alamat Artikel	:	https://doc-pak.undip.ac.id/15702/1/C21.pdf
		f. Terindeks di (jika ada)	:	Scopus dan WoS

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : ☑ *Prosiding* Forum Ilmiah Internasional
☐ *Prosiding* Forum Ilmiah Nasional

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Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional (25)	Nasional ( )	
a. Kelengkapan unsur isi prosiding (10%)	2,5		2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	7,5		7
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	7,5		7
d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	7,5		7,5
Total = (100%)	**25**		**24**
Nilai Pengusul = 40% x ½ x 24 = 4,8			

Catatan Penilaian artikel oleh Reviewer :

1. **<u>Kesesuaian dan kelengkapan unsur isi jurnal:</u>**
   Isi jurnal sesuai dan lengkap dengan komponen-komponennya: abstrak, pendahuluan, metode, hasil dan diskusi, lalu kesimpulan dan daftar pustaka, semuanya sesuai dan tepat.
2. **<u>Ruang lingkup dan kedalaman pembahasan:</u>**
   Ruang lingkup paper ini membahas tentang penggunaan metode deep learning dalam klasifikasi jenis-jenis penyakit pada jantung / aritmia melalui data ECG. Metode yang digunakan dalam penelitian ini adalah Convolutional Neural Network (CNN), yang merupakan metode deep learning yang sering digunakan untuk klasifikasi. Penelitian ini berfokus pada optimasi hyperparameter tuning untuk meningkatkan akurasi klasifikasi
3. **<u>Kecukupan dan kemutakhiran data/informasi dan metodologi:</u>**
   Data-data hasil yang diperoleh dalam penelitian baik dengan didukung metodologi yang tepat dengan jumlah referensi kurang dari 5 tahun sejumlah 8.
4. **<u>Kelengkapan unsur dan kualitas terbitan:</u>**
   Paper ini diterbitkan dalam conferences and 2019 3rd International Conference on Informatics and Computational Sciences (ICICoS) oleh IEEE Xplore

Semarang, 3 April 2023
Reviewer 1

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		Alamat Artikel	:	https://doc-pak.undip.ac.id/15702/1/C21.pdf
		f. Terindeks di (jika ada)	:	Scopus dan WoS

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d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	7,5		7
Total = (100%)	**25**		**23,5**
Nilai Pengusul = 40% x ½ x 23,5 = 4,7			

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   Isi jurnal sesuai dan lengkap dengan komponen-komponennya:.
2. **<u>Ruang lingkup dan kedalaman pembahasan:</u>**
   Ruang lingkup paper ini membahas tentang penggunaan metode Convolutional Neural Network (CNN), dalam klasifikasi data sinyal ECG untuk mengklasifikasikan Aritmia. Penelitian ini berfokus pada optimasi hyperparameter tuning untuk meningkatkan akurasi klasifikasi
3. **<u>Kecukupan dan kemutakhiran data/informasi dan metodologi:</u>**
   Data-data hasil yang diperoleh dalam penelitian baik dengan didukung metodologi yang tepat dengan jumlah referensi cukup
4. **<u>Kelengkapan unsur dan kualitas terbitan:</u>**
   Paper ini diterbitkan dalam conferences and 2019 3rd International Conference on Informatics and Computational Sciences (ICICoS) oleh IEEE Xplore dan terindek Scopus

Semarang, 3 April 2023
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Best Parameters Selection of Arrhythmia Classification Using Convolutional Neural Networks

Prawira, Rizqi Hadi[a] ; Wibowo, Adi[a] ; Yusuf, Ajif Yunizar Pratama[b]
Save all to author list

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[b] Kyushu Institute of Technology, Japan

Abstract

Arrhythmia are disturbances in the heart where the heart beats slower or faster. Some types of Arrhythmia can became a serious problem and life-threatening. Early detection of Arrhythmia is very crucial to patients. Tools that can be used to determine heart condition is Electrocardiogram (ECG). Deep learning methods can be used to classify types of Arrhythmia from ECG images. Convolutional Neural Network is one of deep learning methods that is often used to classify images. CNN-based model such as VGG, ResNet, and MobileNet has gotten success in images classification . Those models are using lots of convolution layer, so those models are easily run into over fitting problem if those are

used in small dataset. CNN model in this research needs parameter adjustments to solve over fitting problem. Parameter that were being adjusted were learning rate, dropout rate, and the number of convolution layer. The testing results on CNN model showed that the best learning rate and dropout rate which produced the best model to classify Arrhythmia were 0.0001, and 0.0075 respectively. The number of convolution layers which obtained the best accuracy was 4. Classification using CNN model for Arrhythmia with learning rate, dropout rate, and number of convolution layers were 0.0001, 0.0075, and 4 respectively resulted in the best model with 94.2 % accuracy value. © 2019 IEEE.

Author keywords

arrhythmia ; convolutional neural network ; deep learning; electrocardiogram

Indexed keywords

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ICICoS 2019

The 3rd International Conference
on Informatics and Computational Sciences

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October 29th - 30th 2019
Semarang, Central Java, Indonesia

ICICoS 2019

"Accelerating Informatics
and Computational Research
for Smarter Society in The Era of Industry 4.0"

Organized by :
Department of Informatics
Faculty of Science and Mathematics
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WELCOME SPEECH FROM GENERAL CHAIR OF ICICoS 2019

On behalf of the organizing committee, I am delighted to welcome all participants to the 3rd International Conference on Informatics and Computational Sciences (ICICoS 2019). This conference is the third international conference held by Department of Informatics, Universitas Diponegoro and took place in Santika Premiere Hotel, Semarang from October 29th to October 30th, 2019.

In this conference, the committee decided to choose the following theme: "Accelerating Informatics and Computational Research for Smarter Society in The Era of Industry 4.0". This highlight is selected inline with Indonesian Government Policy in Industry Sector. The aim of the conference is to provide an interactive international forum for sharing and exchanging information on the latest research in the area of computer sciences, informatics, computational science, and related field, which contribute to the industry 4.0.

Nearly 150 academicians, researcher, practitioner and presenters from 8 countries (Austria, Croatia, India, Indonesia, Japan, Malaysia, Netherland and Taiwan) have gathered in this event. In total, there are 123 active papers submitted to this conference. Each paper has been reviewed with tight criteria from our invited reviewers. Based on the review result, 76 papers have been accepted, which lead to an acceptance rate of 61.8%.

This conference will not be successful without extensive effort from many parties. First, I would like to thank all keynote speakers for allocating their valuable time to share their knowledge with us. I would also like to express my sincere gratitude to all participants who participate in this conference. Special acknowledgement should go to the Technical Program Committee Chairs, Members, and Reviewers for their thorough and timely reviewing of the papers. We would also like to thank our sponsors: IEEE Indonesia Section; IEEE Student Branch Universitas Diponegoro; Research and Society Service Institution Universitas Diponegoro, and our patronage: PT Bank Mandiri and Trans Semarang who have helped us to keep down the costs of ICICoS 2019 for all participants. Last but not least, recognition should also go to the Local Organizing Committee members who have put enormous effort and support for this conference.

At last, we hope that you have an enjoyable and inspiring moment during our conference. Thank you for your participation on ICICoS 2019.

Dr. Retno Kusumaningrum
Chair of Organising Committee 3rd ICICoS 2019

WELCOME MESSAGE FROM IEEE INDONESIA SECTION

Prof. Dr.Eng Wisnu Jatmiko, SMIEEE
Chairman, IEEE Indonesia Section

Dr. Kurnianingsih, SMIEEE
Vice Chair, IEEE Indonesia Section

On behalf of IEEE Indonesia Section, we would like to extend our warmest welcome to all keynote speakers, presenters, and participants to the 3rd International Conference on Informatics and Computational Sciences (ICICoS 2019). The conference theme is "Accelerating Informatics and Computational Research for Smarter Society in The Era of Industry 4.0". ICICoS is an annual international conference organized by Department of Informatics, Faculty of Science and Mathematics, Diponegoro University, and sponsored by IEEE Indonesia Section.

The core purpose of IEEE is to foster technological innovation and excellence for the benefit of humanity and we believe that this conference will bring researchers, academicians, scientists, students, engineers and practitioners together to participate and present their latest research finding, developments and applications related to the various aspects of current state of technology and the outcome of ongoing research in the area of informatics, computational science and related fields.

IEEE Indonesia Section has conducted many activities over 32 years in Indonesia. In terms of collaboration, IEEE Indonesia section has a good and mutual relationship with ICT organizations, Industries, Government, Universities as well as the Community in Indonesia. IEEE Indonesia Section has contributed in about 58 different International conferences annually, and this conference is one of the conferences which were initiated by Department of Informatics, Diponegoro University. As the third year of ICICoS, this conference shows it's sustainability due to the hard work of the conference organizers, well organized conference and high quality papers. We do hope in the near future some high quality conferences will be continued and strengthened, so the result will give more benefit and positive impact to the human being, especially to Indonesian people.

In this occasion, I would also like to say welcome to Semarang, which serves beautiful heritages, culture, with warm, polite and friendly people, a vibrant culture and lifestyle.

Finally, we do hope all of you will have enjoyable and valuable experience during this event. You may share your best knowledge in your area of research and professional activities.

Thank you.

Semarang, 29th October 2019

IEEE Indonesia Section

Program Schedule

Tuesday, October 29th, 2019

07.30-08.00		Registration	Borobudur 1 Room
08.00-08.15	Opening Ceremony	Opening Speech from the General Chair of ICICoS 2019 **(Dr. Retno Kusumaningrum, S.Si, M.Kom)**	
08.15-08.25		Opening Speech from the Dean of Faculty of Science and Mathematics, Universitas Diponegoro **(Prof. Dr. Widowati M.Si.)**	
08.25-08.45		Opening speech from Chair of IEEE Indonesia Section **(Prof. Wisnu Jatmiko)**	
08.45-08.55		Opening Speech from the Rector Universitas Diponegoro **(Prof. Dr. Yos Johan Utama, S.H., M.Hum)**	
08.55-09.15		Photo Session and Coffee Break	
09.15-10.10	Plenary	• Keynote Speaker I: **Mahardika Pratama, Ph.D**	
10.10-11.05		• Keynote Speaker II: **Prof. A Min Tjoa**	
11.05-12.00		• Keynote Speaker III: **Prof. Riyanarto Sarno**	
12.10-13.00		Lunch	Restaurant (Cafe Delima)
13.00-15.00	Parallel Session I	Six Parallel Sessions	1: Borobudur 1 2: Borobudur 2 3: Sewu 4: Mendut 5: Kalasan 6: Prambanan
15.00-15.30		Coffee Break	
15.45-17.45	Parallel Session II	Five Parallel Sessions	1: Borobudur 2 Room 2: Sewu Room 3: Mendut Room 4: Prambanan Room 5: Kalasan
17.45-18.30		Free Session	

Parallel Session Details

S1: Software Engineering and Embedded System

S1.1 ***Testing of Owner Estimate Cost Model with Android-based Application***
Sholiq Sholiq, Pandu Hutomo, Ariani Wulandari, Apol Pribadi Subriadi, Anisah Herdiyanti and Eko Darmaningrat

S1.2 ***The Effect of Knowledge Management System on Software Development Process with Scrum***
Mochamad Umar Al Hafidz and Dana I. Sensuse

S1.3 ***Conceptual Model for Human Anatomy Learning Based Augmented Reality on Marker Puzzle 3D Printing***
Wahyu Hidayat, Adhistya Erna Permanasari, Paulus Insap Santosa, Nur Arfian and Lina Choridah

S1.4 ***Development and Validation of Instruments for Evaluation Enterprise Resource Planning on human resource management in Higher Education sector***
Henry Widjaja, Meyliana Meyliana, Erick Fernando, Surjandy Surjandy, Denardo Grady, Bellarika Liejaya and Mareta Siwi

S1.5 ***The Key Role of Ontology Alignment and Enrichment Methodologies for Aligning and Enriching Dwipa Ontology with the Weather Concept on the Tourism Domain***
Guson Kuntarto, Irwan Prasetya Gunawan and Yossy Alrin

S1.6 ***An Optimum Clustered Grid-Based Particle Swarm Optimization to Enhance Efficiency Energy in Wireless Sensor Networks***
Kun Nursyaiful Priyo Pamungkas, Waskitho Wibisono and Supeno Djanali

S1.7 ***Prioritizing Determinants of Internet of Things (IoT) Technology Adoption: Case Study of Agribusiness PT. XYZ***
Sonia Ladasi, Muhammad Rifki Shihab, Achmad Hidayanto and Nur Fitriah Ayuning Budi

S1.8 ***Ranking of Game Mechanics for Gamification in Mobile Payment Using AHP-TOPSIS: Uses and Gratification Perspective***
Mutia Putri, Achmad Hidayanto, Edi Surya Negara, Zaenal Abidin, Prahastiwi Utari and Nur Fitriah Ayuning Budi

Coffee Break

S1.9 ***A Mixed Method using AHP-TOPSIS for Dryland Agriculture Crops Selection Problem***
Wiwien Hadikurniawati, Edy Winarno, Dwi Budi Santoso and Purwatiningtyas Purwatiningtyas

S1.10 ***Verification of a Rule-Based Expert System by Using SAL Model Checker***
Maria Ulfah Kalijaga and Sayekti Abriani

S1.11 ***Implementation of Case-Method Cycle for Case-Based Reasoning in Human Medical Health: A Systematic Review***
Damayanti Elisabeth, Dana I. Sensuse and Shidiq Al Hakim

S2: Natural Language Processing

S2.1 ***Twitter Sentiment Analysis About Public Opinion On 4G Smartfren Network Services Using Convolutional Neural Network***
Muhammad Aldiansyah and Priyo Sasongko

S2.2 ***Social Network Analysis of Health Development in Indonesia***
Agung Tika Wicaksono and Siti Mariyah

S2.3 ***Fuzzy Semantic-Based String Similarity Experiments to Detect Plagiarism in Indonesian Documents***
Chonan Firda Odayakana Umareta and Siti Mariyah

S2.4 ***Document Similarity Detection using Indonesian Language Word2vec Model***
Nahda Rosa Ramadhanti and Siti Mariyah

S2.5 ***Music Emotion Classification Based on Indonesian Song Lyrics Using Recurrent Neural Network***
Helmi Piliang and Retno Kusumaningrum

S2.6 ***The Question Answering System of Indonesia's History Using Dynamic Memory Networks (DMN) Model***
Afifah Ayuningtyas and Retno Kusumaningrum

S2.7 ***Twitter Storytelling Generator Using Latent Dirichlet Allocation and Hidden Markov Model POS-TAG (Part-of-Speech Tagging)***
Yasir Rohman and Retno Kusumaningrum

S2.8 ***Aspect Based Sentiment Analysis in E-Commerce User Reviews Using Latent Dirichlet Allocation (LDA) and Sentiment Lexicon***
Eko Wahyudi and Retno Kusumaningrum

Coffee Break

S2.9 ***Classification of Radicalism Content from Twitter Written in Indonesian Language using Long Short Term Memory***
Nur Idris, Widy Widyawan and Teguh Bharata Adji

S2.10 ***Ensemble Learning Approach on Indonesian Fake News Classification***
Herley Al-Ash, Alhadi Bustamam, Petrus Mursanto and Mutia Putri

S2.11 ***Twitter Buzzer Detection for Indonesian Presidential Election***
Andi Suciati, Ari Wibisono and Petrus Mursanto

S2.12 ***Classification of Indonesian Music Using the Convolutional Neural Network Method***
Saesarinda Juwita and Sukmawati Nur Endah

S2.13 ***Song Emotion Detection based on Arousal-Valence from Audio and Lyrics using Rule Based Method***
Fika Rachman, Riyanarto Sarno and Chastine Fatichah

S2.14 ***Normal and Murmur Heart Sound Classification Using Linear Predictive Coding and K-Nearest Neighbor Methods***
Aghus Sofwan, Imam Santoso, M Arfan, Ajub Ajulian Zahra and Himawan Pradipta

S2.15 ***Indonesian Music Genre Classification on Indonesian Regional Songs using Deep Recurrent Neural Network Method***
Muhammad Naufal Furqon, Khadijah Khadijah, Suhartono Suhartono and Retno Kusumaningrum

S3: Computer in Social Science

S3.1 ***Factors Influence Knowledge Sharing Through Social Networking Site Case Study: Virtual Community Institut Ibu Profesional (IIP)***
Aisha Adetia, Peny Rishartati, Sari Agustin Wulandari, Dana I. Sensuse, Sofian Lusa, Pudy Prima and Regina Carla Handayani

S3.2 ***Workflow Complexity in Constructive Cost Model II***
Sholiq Sholiq, Riyanarto Sarno, Aris Tjahyanto and Ariani Wulandari

S3.3 ***Gratification sought in Gamification on Mobile Payment***
Mutia Putri, Achmad Hidayanto, Edi Surya Negara, Nur Fitriah Ayuning Budi, Prahastiwi Utari and Zaenal Abidin

S3.4 ***An Assesment of Knowledge Sharing System: SCeLe Universitas Indonesia***
Nadya Safitri, Nur Wulan Pohan, Dana I. Sensuse, Deki Satria and Shidiq Al Hakim

S3.5 ***Analysis of Server-Based Electronic Money Acceptance Using Partial Least Square Method***
Alvina Rahmi and Satriyo Adhy

S3.6 ***eParticipation Provision and Demand Analysis of a Regional Government: Insights from Metro City***
Zikri Irfandi, Muhammad Rifki Shihab and Achmad Hidayanto

S3.7 ***Analysis of E-Commerce using Technology Acceptance Model and Its Interaction With Risk, Enjoyment, Compatibility Variables***
Muhammad Irfan Setiyadi, Bunga Mangiwa and Dinar Mutiara Kusumo Nugraheni

S3.8 ***User Continuance in Playing Mobile Online Games Analyzed by Using UTAUT and Game Design***
Hafiz Marham and Ragil Saputra

Coffee Break

S3.9 ***Inclusive Security Models To Building E-Government Trust***
Aji Supriyanto, Budi Hartono, Dwi Diartono and Herny Februariyanti

S3.10 ***Methods to Enhance the Utilization of Business Intelligence Dashboard by Integration of Evaluation and User Testing***
Ruth Magdalena, Yova Ruldeviyani, Charles Bernando and Dana I. Sensuse

S3.11 ***Examining the Acceptance of Virtual Assistant - Vanika for University Students***
Devina Gunadi, Bernardinus Harnadi and Ridwan Sanjaya

S3.12 ***Success Factor for IT Project Implementation in Banking Industry: A Case Study***
Apiladosi Priambodo, Putu Wuri Handayani and Ave Adriana Pinem

S3.13 ***Trust and Risk for Measuring OnlineTax Application Acceptance***
Wulan Lestari, Edy Suharto, Panji Wirawan and Kabul Kurniawan

S4: Computer Vision 1

S4.1 ***Selecting the Function of Color Space Conversion RGB / HSL to Wavelength for Fluorescence Intensity Measurement on Android Based Applications***
Ronaldo Kristianto, Farida Dwi Handayani and Adi Wibowo

S4.2 ***Denoising Convolutional Variational Autoencoders-Based Feature Learning for Automatic Detection of Plant Diseases***
Vicky Zilvan, Hilman F Pardede, Endang Suryawati, Budiarianto Kusumo, Ade Ramdan and Dikdik Krisnandi

S4.3 ***Deep Convolutional Adversarial Network-Based Feature Learning for Tea Clones Identifications***
Endang Suryawati, Vicky Zilvan, Raden Sandra Yuwana, Hilman F Pardede, Dadan Rohdiana and Ana Heryana

S4.4 ***Cataract Detection Using Single Layer Perceptron Based on Smartphone***
Riyanto Sigit, Elvi Triyana and Mochammad Rochmad

S4.5 ***Detection of the Emergence of Exudate on the Image of Retina Using Extreme Learning Machine Method***
Zolanda Anggraeni and Helmie Arif Wibawa

S4.6 ***Real-Time Human Detection and Tracking using Two sequential frames for Advanced Driver Assistance System***
Agus Mulyanto, Rohmat Borman, Purwono Prasetyawan, Wisnu Jatmiko and Petrus Mursanto

S4.7 ***Snake Fruit Classification by Using Histogram of Oriented Gradient Feature and Extreme Learning Machine***
Rismiyati Rismiyati and Helmie Arif Wibawa

S4.8 ***Face Recognition Using Faster R-CNN with Inception-V2 Architecture for CCTV camera***
Lavin J. Halawa, Ferda Ernawan and Adi Wibowo

Coffee Break

S4.9 ***Sumatra Traditional Food Image Classification Using Classical Machine Learning***
Puteri Khatya Fahira, Ari Wibisono, Hanif A Wisesa, Zulia Putri Rahmadhani, Petrus Mursanto and Adi Nurhadiyatna

S4.10 ***Attribute Selection for Detection of Soybean Plant Disease and Pests***
Sukmawati Nur Endah, Eko Sarwoko, Priyo Sasongko, Roihan Auliya Ulfattah and Saesarinda Juwita

S5: Computer Vision 2

S5.1 ***Energy Aware Parking Lot Availability Detection using YOLO on TX2***
Yohan Anggawijaya, Tien-Hsiung Weng and Rosita Herawati

S5.2 ***Ensembles of Convolutional Neural Networks for Skin Lesion Dermoscopy Images Classification***
Muhammad Ammarul Hilmy and Priyo Sasongko

S5.3 ***Analysis of Reliance Factors in the Text, Images and Videos on Social Media***
Surjandy Surjandy, Erick Fernando, Meyliana Meyliana, Ferianto Surya Wijaya, Theresia Swasti and Kristianus Oktriono

S5.4 ***Feature Extraction using Self-Supervised Convolutional Autoencoder for Content based Image Retrieval***
Indah Agustien Siradjuddin, Mochammad Kautsar Sophan and Wrida Wardana

S5.5 ***Improved Line Operator for Retinal Blood Vessel Segmentation***
Randy Wihandika

S5.6 ***Classification of Abnormality in Chest X-Ray Images by Transfer Learning of CheXNet***
Mawanda Almuhayar, Henry Horng-Shing Lu and Nur Iriawan

S5.7 ***Hyperspectral Imaging Feature Selection Using Regression Tree Algorithm: Prediction of Carotenoid Content of Velvet Apple Leaf***
Maulana Ihsan, Adhi Harmoko Saputro and Windri Handayani

S5.8 ***Chlorophyll A and B Content Measurement System of Velvet Apple Leaf in Hyperspectral Imaging***
Femilia P Mayranti, Adhi Harmoko Saputro and Windri Handayani

Coffee Break

S5.9 ***Best Parameters Selection of Arrhythmia Classification Using Convolutional Neural Networks***
Rizqi Hadi Prawira, Ajif Yunizar Pratama Yusuf and Adi Wibowo

S5.10 ***Acquiring domain knowledge for Cardiotocography: A Deep Learning Approach***
Priyamvada Pushkar Huddar and Sumedh Sontakke

S6: Machine Learning & Computation

S6.1 ***Rating Prediction on Movie Recommendation System: Collaborative Filtering Algorithm (CFA) vs. Dissymetrical Percentage Collaborative Filtering Algorithm (DSPCFA)***
Johan Eko Purnomo and Sukmawati Nur Endah

S6.2 ***Genetic Algorithm-Based Feature Selection and Optimization of Backpropagation Neural Network Parameters for Classification of Breast Cancer Using MicroRNA Profiles***
Amazona Adorada and Adi Wibowo

S6.3 ***An efficient scheme to combine the user demographics and item attribute for solving data sparsity and cold-start problems***
Noor Ifada, Mochammad Kautsar Sophan, Irvan Syachrudin and Selgy Zahranida Sugiharto

S6.4 ***Diphtheria Case Number Forecasting using Radial Basis Function Neural Network***
Wiwik Anggraeni, Dina Nandika, Faizal Mahananto, Yeyen Sudiarti and Cut Fadhilla

S6.5 ***Facial Expression Recognition using Extreme Learning Machine***
Serenada Shafira, Nadya Ulfa, Helmie Arif Wibawa and Rismiyati Rismiyati

S6.6 ***Implementation of Alpha Miner Algorithm in Process Mining Application Development for Online Learning Activities Based on MOODLE Event Log Data***
Phyllalintang Nafasa, Indra Waspada, Nurdin Bahtiar and Adi Wibowo

S6.7 ***A Comparative Performance Evaluation of Random Forest Feature Selection on Classification of Hepatocellular Carcinoma Gene Expression Data***
Moh Abdul Latief, Titin Siswantining, Alhadi Bustamam and Devvi Sarwinda

S6.8 ***Data Mining Implementation for Monitoring Network Intrusion***
Annisa Andarrachmi and Wahyu Catur Wibowo

Coffee Break

S6.9 ***Clustering of Districts in Indonesia using the 2015 High School Social Sciences National Examination Results***
Ridha Ferdhiana, Taufik F. Abidin and Khairul Amri

S6.10 ***An Energy-Aware Computation Offloading Framework for a Mobile Crowdsensing Cluster Using DMIPS Approach***
Fuad Dary Rosyadi, Waskitho Wibisono, Tohari Ahmad, Royyana Ijtihadie and Ary Mazharuddin Shiddiqi

S6.11 ***Multiple Imputation with Predictive Mean Matching Method for Numerical Missing Data***
Emha Fathul Akmam, Titin Siswantining, Saskya Soemartojo and Devvi Sarwinda

S6.12 ***Analysis of GPGPU-Based Brute-Force and Dictionary Attack On SHA-1 Password Hash***
Laatansa Imroni, Ragil Saputra and Beta Noranita

S6.13 ***Multi-Layered Encryption Method***
Usman Sudibyo and Cinantya Paramita

S6.14 ***Application of Sequential Regression Multivariate Imputation Method on Multivariate Normal Missing Data***
Nurzaman Nurzaman, Titin Siswantining, Saskya Soemartojo and Devvi Sarwinda

S6.15 ***Missing Value Analysis of Numerical Data using Fractional Hot Deck Imputation***
Samuel Zico Christopher, Titin Siswantining, Devvi Sarwinda and Alhadi Bustamam

S6.16 ***Comparative Experimental Study of Multi Label Classification using Single Label Ground Truth with Application to Field Majoring Problem***
Oxapisi V Adikhresna, Retno Kusumaningrum and Budi Warsito

S6.17 ***Application of A Causal Discovery Model to Study The Effect of Iron Supplementation in Children With Iron Deficiency Anemia***
Fajar Agung Nugroho, Tom Ederveen, Adi Wibowo, Jos Boekhorst, Marien de Jonge and Tom Heskes

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