

# **2024 IEEE International Conference on Data and Software Engineering (ICoDSE 2024)**

**Gorontalo, Indonesia  
30-31 October 2024**



**IEEE Catalog Number: CFP24AWL-POD  
ISBN: 979-8-3315-0641-4**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24AWL-POD
ISBN (Print-On-Demand):	979-8-3315-0641-4
ISBN (Online):	979-8-3315-0640-7
ISSN:	2640-0235

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Table of Content

<b>A Next Generation Web Browser Execution Environment</b>	<b>1</b>
Zahir Toufie and Boniface Kabaso	
<b>A Secure Software Development Methodology for Enterprise Business Applications</b>	<b>7</b>
Hrishikesh Joshi	
<b>A Systematic Literature Review of the Application of Agile Applied to Large-Scale, Safety-Critical, Cyber-Physical Systems</b>	<b>13</b>
Robin Yeman and Yashwant Malaiya	
<b>Allergen Information Interaction Design in Food Delivery Application Using User-Centered Design Approach</b>	<b>19</b>
Natasha Tiovanny Silaban and Wikan Danar Sunindyo	
<b>An Enhanced Vigenère Encryption Algorithm using 6S-Substitution and 2S-Transposition Technique</b>	<b>25</b>
Sugar Mae Galeza, Ariel Sison and Ruji Medina	
<b>An Initial Analysis of Newcomers based on Labels in Contemporary GitHub Projects</b>	<b>31</b>
Fadhlih Hasan Setiawan, Yusuf Sulistyo Nugroho and Raula Gaikovina Kula	
<b>An Ontology for Capturing and Integrating Statistical Data Production Metadata</b>	<b>37</b>
Sulthoni Ashiddiqi, Fajar J Ekaputra, Muhammad Zuhri Catur Candra and Gusti Ayu Putri Saptawati	

**Analysis of In-Processing Algorithms Meeting Monotonic Selective Risk Conditions for Fairness and Accuracy in Machine Learning 43**

Nayotama Pradipta and Windy Gambetta

**Assessment Tool for Software Failure and Risk Mitigation in Project Management 49**

Mohammad Ibraigheeth

**Blockchain-based Public Key Infrastructure using Smart Contracts 55**

Frederik Louis and Muhammad Zuhri Catur Candra

**Classification of Hashtag's Popularity Growth Patterns Using Shape Dynamic Time Warping 61**

Ren Hayashi and Yasuhiro Hashimoto

**CodeView: A Tool for Software Visualization in Development View 67**

Christopher Jeffrey, Aditya Prawira Nugroho, Satrio Adi Rukmono and Yani Widayani

**Collaborative Virtual Reality for Short-Range Combat Training: System Design and Initial Technical Evaluation 73**

Melisa Rende and Kusno Prasetya

**Curriculum Vitae Matching Module Development Using Semantic Textual Similarity in the Curriculum Vitae Screening Application 79**

Kevin Roni, Gusti Ayu Putri Saptawati, Ricardo Irwan Rei, Yoseph Alexander Siregar and Rizky Akbar Asmaran

**Detection of Broken Access Control Vulnerability Using Graph Representation 84**

Fawwaz Anugrah Wiradhika Dharmasatya and Yudistira Asnar

**Development of a Module for Information Extraction and Curriculum Vitae Classification for Candidate Matching Using Machine Learning Model 90**

Muhammad Risqi Firdaus, Agung Dewandaru and Gusti Ayu Putri Saptawati Soekidjo

**Development of a Text-Based Anti-Cheat Component Using ALBERT 96 for Detecting Cheating in Automated Interviews**

Yakobus Iryanto Prasethio, Agung Dewandaru and G A Putri Saptawati

**Development of Cascading Circuit Breaker System using Event-Driven Approach in Microservices 102**

Mohamad Daffa Argakoesoemah and Muhammad Zuhri Catur Candra

**Development of LLM-Based System for IT Talent Interview 108**

David K H Pasaribu, Agung Dewandaru and G A Putri Saptawati

**Development of Machine Learning Module in Intrusion Detection System for Unknown Threat Detection 114**

Christine Hutabarat and Yudistira Asnar

**Enhanced Multi-SARIMA Model for Anomaly Detection in Multi-Seasonal Time Series Data 120**

Ashton Williams and Soon Chung

**Enterprise Architecture Practical in Telecommunication Industry 126**

Muhammad Rayhan and Muhammad Mahreza Maulana

**Evolving Student Expectations in Information Systems: A Three-Year Trend Analysis 131**

Rahmat Taufik R L Bau, Hermila A and Nayla Putri Salsabila

**Explainable Artificial Intelligence (XAI) Application on Classification of Diseases and Symptoms of Pest Infestation on Plants (Case Study on Rice Plant Leaves) 137**

William Manuel Kurniawan, Windy Gambetta and Rika Alfianny

**Exploring Potential AI Use Cases in Internal Developer Portals: A Path to Enhanced Developer Experience 143**

Yasya Rusyda Aslina and I Gusti Bagus Baskara Nugraha

**Image Captioning on Diseased Chili Plants Using ResNeXt50 and Transformer 149**

Dwi Ratna Sulistyaningrum, Budi Setiyono and Muhammad Khusni Nailul Mubarak

**Implementation of Exact Machine Unlearning Algorithm in Credit Scoring Cases 155**

Ilham Pratama and Windy Gambetta

**LLM2Vec Sentence Embeddings Analysis in Sentiment Classification 161**

Matthew Martianus Henry, Nur Adhianti Heryanto, Mahmud Isnani, Dian Kurnianingrum, Chyntia Ika Ratnapuri and Bens Pardamean

**Micro Frontend Application Shell and Module Federation  
Architecture implementation and comparison** **166**

Marcos Roberto G Bahiense-Junior, Lanier M dos Santos, Renan R Bezerra and Erick C Bezerra

**Microinteractions Development for Enhancing Usability in Klik  
Indomaret Application** **172**

Faizah Kamilah Setiawan and Adi Mulyanto

**On Performance Comparison Between Strong Machine Unlearning  
Algorithms for Logistic Regression Credit Assessment Models** **178**

Jeremy Syaloom Okey Nathanael Simbolon and Windy Gambetta

**Optimizing Load Forecasting in Smart Grids with AI-Driven  
Solutions** **182**

Asif Ahamed, Md Tanvir Rahman Tarafder, S M Tamim Hossain Rimon, Ekramul Hasan and Md Al Amin

**Optimizing White Blood Cell Nuclei Segmentation: A Proficient  
Method for Improved Diagnostic Accuracy** **188**

Abdulaziz Ahmed Siyad, Abdisalam Abdulkadir Adam, Ibrahim Abdullahi Farah, Mohamed Abdirahman Yusuf and Bashir Abdirahman Hussein

**PERISAI: Design and Implementation of a Remote Deployment  
System for IoT Applications** **194**

Muhammad Garebaldhie and Muhammad Zuhri Catur Candra

**ReduJavator: A Tool to Simplify Developer-written Java Unit Tests** **199**

Brandon Wilber, Tuan Le and Arpit Christi

**Sentence Embedding-based Soft Clustering for Analyzing Texts of Student Outcomes 205**

Steven Siahaan and Masayu Khodra

**SRS for Software with Machine Learning Features 211**

Muhammad Helmi Hibatullah and Yani Widyani

**Text Augmentation to Overcome Data Limitations in Sentiment Analysis 217**

Muhammad Nasry Ashar and Daniel Oranova Siahaan

**The Development of Blockchain-Based Access Control with a Decentralized XACML Approach: A Case Study on Payment Gateway 223**

I Gede Arya Raditya Parameswara and Muhammad Zuhri Catur Candra

**Use Case Generator Based on User Stories 229**

Hana Fathiyah and Yani Widyani

**User-Centered Interaction Design for Indonesia's E-Government Passport Application: The M-Paspor Indonesia Case Study 235**

Claudia and Dessi P Lestari

**Utilisation of Artificial Intelligence through ChatGPT in Teaching: A Comprehensive Review of Perspectives and Future Directions 241**

Hermila A , Rahmat Taufik R L Bau and Mukhlisulfatih Latief