Time Zone: UTC+7

2025 5th International Conference on Electrical Engineering and Information Systems (CEEIS 2025)

Bali, Indonesia | February 28-March 2, 2025

Co-Organized by

UNIVERSITAS UDAYANA

Supported by

INSTIKI
INSTITUT BISNIS DAN TEKNOLOGI INDONESIA

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WELCOME MESSAGE

Dear all, we are delighted to welcome you to this conference 2025 5th International Conference on Electrical Engineering and Information Systems (CEEIS 2025) to be held in Bali, Indonesia during February 28-March 2, 2025, which is co-organized by the Faculty of Mathematics and Natural Sciences, Udayana University, and supported by INSTIKI, University of Indonesia, ITB STIKOM Bali, Ganesha University of Education, etc.

The objective of the conference is to provide a premium platform to bring together researchers, scientists, engineers, academics and graduate students to share up-to-date research results. We are confident that during this time you will get the theoretical grounding, practical knowledge, and personal contacts that will help you build a long term, profitable and sustainable communication among researchers and practitioners in the related scientific areas.

This year's program is composed of the keynote speeches delivered respectively by Prof. Eko Kuswardono Budiardjo (University of Indonesia, Indonesia), Prof. Kenji Doya (Okinawa Institute of Science and Technology Graduate University, Japan), Prof Yukari Shirota (Gakushuin University, Japan) with one technical session. We would like to express our gratitude to all the speakers in this conference. Special thanks to all of our committee members, all the reviewers, the attendees for your active participation. We hope the conference will be proved to be intellectually stimulating to us all. Finally, we wish you a very successful conference!

Conference Organizing Committee

Contact Us

CEEIS 2025

Ms. Teri Zhang

Email: ceeit_info@163.com

CONFERENCE COMMITTEE

(in no particular order)

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Koorosh Gharehbaghi, RMIT University, Melbourne, Australia

GENERAL INFORMATION

A Conference Venue

Venue: Discovery Kartika Plaza Hotel

Add.: Jl. Kartika Plaza, P.O. Box 1012, South Kuta Beach, Bali 80361 – Indonesia

Reservation Contact: Sumico Zhuo (Mrs.)
Email: sumico@discoverykartikaplaza.com
Tel.: +628197410866, +6281138301790
Website: https://www.discoverykartikaplaza.com/

B On-site Registration

Registration desk→ Inform the staff of your paper ID→ Sign-in→ Claim your conference kits.

C Devices Provided by the Organizer

Laptops (with MS-Office & Adobe Reader) / Projectors & Screen / Laser Sticks

D Materials Provided by the Presenter

Oral Session: Slides (pptx or pdf version). Format 16:9 is preferred.

Presentation Language: English only.

E Duration of Each Presentation

Keynote Speech: 45min, including 5min Q&A. Oral Session: 15min, including 3 min Q&A.

F Notice

※ Please wear your delegate badge (name tag) for all the conference activities. Lending your badge to others is not allowed.

※ Please take good care of your valuables at any time during the conferences. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants during conference day.

G Zoom Meeting

zoom	Room	Meeting ID	Link
✓ Zoom Download ✓ Zoom Background ✓ Conference Banner	A	872 0203 6132	https://us02web.zoom.us/j/87202036132

Note:

1. We recommend to install the Zoom platform beforehand. New users can login the Zoom meeting **without registration**.
2. Please set your display name before joining the online meeting. For instance,
   Committee/Speaker: Committee/Speaker_Name < Committee/Speaker_Veronica Reed >
   Author/Presenter: Paper ID_Name < EI001_Veronica Reed >
   Delegate: Delegate_Name < Delegate_Veronica Reed >

AGENDA OVERVIEW

FRIDAY, FEBRUARY 28, 2025 (UTC+7)	
9:30~10:30 Zoom Test Session (Room A: 872 0203 6132, Link: https://us02web.zoom.us/j/87202036132)	
9:30~10:30	EI521 EI533 EI5002
10:30~11:00	For other online participants, includes but not limited to keynote speaker, session chair, committee member, delegate, etc.

Online presenters are required to join the rehearsal in Zoom on Friday, February 28. Duration: 2~3min apiece. Feel free to leave after you finish the test.

AGENDA OVERVIEW

SATURDAY, MARCH 1, 2025 (UTC+7)		
On-site Registration |<RAMA, 1F>		
Plenary Session |<RAMA, 1F> | Room A: 872 0203 6132, https://us02web.zoom.us/j/87202036132		
Chairman: **Eko Kuswardono Budiardjo,** University of Indonesia, Indonesia		
09:00~09:10	Opening Speech **Eko Kuswardono Budiardjo,** University of Indonesia, Indonesia	
09:10~09:55	Keynote Speech I *"Visioning the Future of Artificial Intelligence for Software Engineering Process (AI4SE-Proc)"* **Eko Kuswardono Budiardjo,** University of Indonesia, Indonesia	
09:55~10:40	Keynote Speech II *"Reinforcement Learning, Bayesian Inference and the Digital Brain"* **Kenji Doya,** Okinawa Institute of Science and Technology Graduate University, Japan	
10:40~11:10	**Group Photo / Coffee Break <Open Space out of RAMA, 1F>**	
11:10~11:55	Keynote Speech III *"Revolutionizing Education with AI: Solving Complex Mathematics Problems and Generating Educational Graphics Using ChatGPT"* **Yukari Shirota,** Gakushuin University, Japan	
11:55~14:00	**Lunch Time (Pond Restaurant, 1F)**	
SATURDAY, MARCH 1, 2025 (UTC+7)| Technical Session		
14:00~16:00	**Technical Session: Software Design and Intelligent Power Control Technology** EI503-A EI502 EI508 ***EI5002 (Online)*** ***EI521 (Online)*** EI531 EI522 ***EI533 (Online)***	**<RAMA, 1F>**
15:00~16:00	**Coffee Break <Open Space out of RAMA, 1F>**	
17:30~19:30	**Dinner Time (Pond Restaurant, 1F)**	

INTRODUCTION OF KEYNOTE SPEAKER

09:10-9:55 | Mar. 1, 2025 | RAMA, 1F
Room A: 872 0203 6132, https://us02web.zoom.us/j/87202036132

Eko Kuswardono Budiardjo

University of Indonesia, Indonesia

Visioning the Future of Artificial Intelligence for Software Engineering Process (AI4SE-Proc)

Abstract: Artificial Intelligence (AI) is rapidly transforming diverse industries, with Software Engineering (SE) undergoing a similar paradigm shift. AI provides potent tools and methodologies to enhance and automate various stages of the Software Engineering Process (SEP), demonstrably increasing efficiency, improving software quality, and accelerating development cycles, thereby facilitating the creation of novel software solutions. This transformative influence of AI is anticipated to pervade all phases of the SEP through task automation, intelligent support systems, and data-driven decision-making, empowering software engineering teams to achieve superior software quality with enhanced efficiency. Although implementation challenges persist, the potential benefits of AI integration within SEP are substantial, driving ongoing research and innovation in this field. Therefore, it is critical for software engineers and organizations to proactively explore and adopt these advancements, strategically integrating AI to optimize processes and advance the state of software engineering.

Biography: Prof. Eko K. Budiardjo has been the faculty member of the Faculty of Computer Science, Universitas Indonesia since 1985. Teaching, research, and practical services are aligned; give result in a full spectrum of academic achievement. Majoring in Software Engineering as a professional track record, he has made some scientific contributions such as Software Requirement Specification (SRS) patterns representation method, R3 Method, ZEF Framework, FrontCRM Framework, SCRM-HE Framework, and ScrumBoosterTM. Graduated from Bandung Institute of Technology (ITB) in 1985, holds Master of Science in Computer Science from the University of New Brunswick - Canada in 1991, and awarded Philosophical Doctor in Computer Science from Universitas Indonesia in 2007. He is a member of the Association for Computing Machinery (ACM), a member of the International Association of Engineers (IAENG). Currently, he is the Head of the Reliable Software Engineering (RSE) Lab. Faculty of Computer Science Universitas Indonesia, and Chairman of The Indonesian ICT Profession Society (IPKIN).

INTRODUCTION OF KEYNOTE SPEAKER

09:55-10:40 | Mar. 1, 2025 | RAMA, 1F
Room A: 872 0203 6132, https://us02web.zoom.us/j/87202036132

Kenji Doya

Okinawa Institute of Science and Technology Graduate University, Japan

Reinforcement Learning, Bayesian Inference and the Digital Brain

Abstract: In this lecture, I will introduce our theory-driven and data-driven approaches to brain functions.Bayesian inference is a standard way of handling uncertainties in sensory perception and While they are used in combination for perception and action in uncertain environments, the similarity of their computations has been formulated as the duality of inference and control, or control as inference.I will first review the theoretical frameworks, their possible implementation in the cerebral cortex and the basal ganglia, and common circuit architectures of the sensory and motor cortices.

In the second round of Japan's brain science program, Brain/MINDS 2.0 (https://brainminds.jp/en/), a remarkable feature is that the Digital Brain is supposed to play a central role in integrating structural and dynamic brain data from multiple species for understanding brain functions and tackling neuropsychiatric disorders. I will discuss what is the Digital Brain of Brain, how we can build that, and how we can use that.

Biography: Kenji Doya is a Professor of Neural Computation Unit, Okinawa Institute of Science and Technology (OIST) Graduate University. He studies reinforcement learning and probabilistic inference, and how they are realized in the brain. He took his PhD in 1991 at the University of Tokyo, worked as a postdoc at U. C. San Diego and the Salk Institute, and joined Advanced Telecommunications Research International (ATR) in 1994. In 2004, he was appointed as a Principal Investigator of the OIST Initial Research Project and as OIST established itself as a Graduate University in 2011, he became a Professor and served as the Vice Provost for Research till 2014. He served as a Co-Editor in Chief of Neural Networks from 2008 to 2021 and the Chairperson of Neuro2022 in Okinawa, and currently serves as the President of Japanese Neural Network Society (JNNS). He received INNS Donald O. Hebb Award in 2018, JNNS Academic Award and APNNS Outstanding Achievement Award in 2019, and the age-group 2nd place at Ironman Malaysia in 2022.

INTRODUCTION OF KEYNOTE SPEAKER

11:10-11:55 | Mar. 1, 2025 | RAMA, 1F
Room A: 872 0203 6132, https://us02web.zoom.us/j/87202036132

Yukari Shirota

Gakushuin University, Japan

Revolutionizing Education with AI: Solving Complex Mathematics Problems and Generating Educational Graphics Using ChatGPT

Abstract: In my keynote speech, I will explore the feasibility of using ChatGPT to solve financial mathematics word problems and generate educational graphics as teaching materials. ChatGPT, an AI based on statistical methods, leverages deductive reasoning capabilities derived from large-scale language model training to solve financial mathematics problems by combining formulas deductively. This capability is further enhanced by incorporating AI for symbolic processing, such as Wolfram Cloud, allowing ChatGPT to provide perfect solutions to fundamental word problems without assistance. Additionally, ChatGPT can illustrate the deductive reasoning process as a graph, enabling the efficient generation of visual teaching aids. This approach has already been implemented in my financial mathematics classes, where students are provided with deductive reasoning graphs generated by ChatGPT as part of their learning materials. These graphs not only facilitate understanding but also enable students to perform answer verification, enriching their learning experience through active engagement.

Biography: Prof Yukari SHIROTA (Professor of Gakushuin University) graduated from the Department of Information Science, Faculty of Science, the University of Tokyo, and then received a D.Sc. in computer science in 1998. As a researcher in the private sector, she conducted research for 13 years and then in 2001 she was involved in Faculty of Economics, Gakushuin University, Tokyo as Associate Professor. In 2002, she became a Professor, Faculty of Economics at Gakushuin University. In 2006 to 2007, she stayed at University of Oxford, Oxford, UK as an academic visitor. She is a Fellow of the Information Processing Society of Japan, a Board Member of the Japan Society of Business Mathematics, and a Board Member of the Japanese Operations Management and Strategy Association. Research fields are industry analysis by AI, data visualization on the web, social media analysis, and visual education methods for business mathematics. She has read the paper in the top conference of the “AI in Finance” field: “An Analysis of Political Turmoil Effects on Stock Prices – a case study of US-China trade friction – “ (ACM AI in Finance 2020). She organized the special session titled “Awareness Technology for Economic and Social Data Analysis” in IEEE iCAST in 2019 and 2020, so that they can discuss the economics/social themes with the latest machine learning technologies.

TECHNICAL SESSION

SATURDAY, MARCH 1, 2025 <14:00~16:00>	<RAMA, 1F> Room A: 872 0203 6132 https://us02web.zoom.us/j/87202036132
Session Title: Software Design and Intelligent Power Control Technology **Chairperson: Asst. Prof. Chhavi Sharma, M.J.P Rohilkhand University, India**	
14:00~14:15 EI503-A	The Application of Code Plagiarism Detection Function in a C Programming University Course **Xiqin Lu**, Ritsumeikan University, Japan
14:15~14:30 EI502	Scenario-Based Requirement Engineering: A Pathway to Robust AI System **Sandfreni,** Universitas Indonesia, Indonesia
14:30~14:45 EI508	A Comparative Study on User Experiences between In-Situ Mobile and Desktop-based Tools for Location-Based Augmented Reality Content Authoring **Komang Candra Brata,** Okayama University, Japan
14:45~15:00 EI5002 ***Online***	Comparative Analysis of Nonlinearity in Asymmetrically Clipped OFDM VLC Systems Using a Precoding Scheme for Sustainable Connectivity Across Modulation Orders **ALISHA,** M.J.P.ROHILKHAND UNIVERSITY, BAREILLY UTTAR PRADESH, INDIA
15:00~15:15 EI521 ***Online***	Design of an Integrated Power Electronics and Control System for Optimized Regenerative Braking to Mitigate Battery Degradation in Electric Vehicles **Bintang Kriesna Nugraha,** Telkom University, Indonesia
15:15~15:30 EI531	A Proposal of SQL Syntax Description Problem in SQL Programming Learning Assistant System **Ni Wayan Wardani,** Okayama University, Japan
15:30~15:45 EI522	An Isolated Current Source High Step-Up DC-DC Converter with High Conversion Ratio Output Based on a Voltage Doubler Rectifier **Sokhana Lim,** King Mongkut's University of Technology North Bangkok, Thailand
15:45~16:00 EI533 ***Online***	The Impact of Human-AI Collaboration on User Satisfaction: The Role of Trust **Yao Yan,** Xi'an International Studies University, China

NOTE