### **EJEA International Hybrid Conference 2024**

5-7 November 2024 Linköping University, Sweden

## "Future Knowledge and Competence for Al-driven Innovation in Europe and Japan"

jointly organized by











kindly funded by



**Toshiba International Foundation** 

https://liu.se/en/research/ejea-conference-2024

### DAY 1, November 5, 2024 (Tuesday):

Kronan, Studenthuset, 6-th floor, Campus Valla, Linköping University,

Linköping (Map: <a href="https://link.mazemap.com/895dEnHL">https://link.mazemap.com/895dEnHL</a>)

CET	JST	
8:30	16:30	Bus transfer from Clarion Collection Hotel Slottsparken to LiU, registration
9:00	17:00	Welcoming remarks:
		Prof. Jan-Ingvar Jönsson, Rector of Linköping University Prof. Fredrik Heintz, Director of AI, Department of Computer Science, IDA, LiU Dr. Yusuke Mori, First Secretary, Embassy of Japan in Sweden Dr. Lena Miranda, CEO of Linköping Science Park Prof. Dietrich Albert, Chairperson of EJEA
9:30	17:30	Introduction and technical instructions by the IDA team Moderation by the EJEA team
9:40	17:40	Keynote 1: "How Should We Consider the Cultural Aspects of Human-Al Relationships?"
		Prof. Osamu Sakura, RIKEN, AIP Center for Advanced Intelligence Project (Japan)
10:10	18:10	Keynote 2: "Exploring the Foundations of Human-Al Teaming"
		Milad Morad, Fraunhofer FIT, RWTH Aachen University (Germany)
10:40	18:40	Coffee break
11:00	19:00	Workshop: Unlocking the Potential of GenAl Innovation: Perspectives from Business, Technology and Design
		Workshop Leader: Milad Morad, Fraunhofer FIT, RWTH Aachen University
12:15	20:15	Wrap-up workshop by Milad Morad, End of Online conference Nov. 5
12:30	20:30	Lunch break at Universitetsklubben (https://www.hors.se/linkoping/17/6/universitetsklubben/ map: https://use.mazemap.com/#v=1&campusid=742&zlevel=2&center=15.572211. 58.397311&zoom=18&sharepoitype=poi&sharepoi=1001275424)
13:45		Bus transfer to Linköping Science Park
14:00		Guided visit to Linköping Science Park <a href="https://linkopingsciencepark.se/">https://linkopingsciencepark.se/</a> (Goto10 Teknikringen 7, 583 30 Linköping)
15:00		Bus transfer back to Clarion Collection Hotel Slottsparken
19:00		Social dinner at restaurant SmakSak (https://smaksak-lkpg.se/)

### DAY 2, November 6, 2024 (Wednesday):

Kronan, Studenthuset, 6-th floor, Campus Valla, Linköping University,

Linköping (Map: <a href="https://link.mazemap.com/895dEnHL">https://link.mazemap.com/895dEnHL</a>)

CET	JST	
8:30	16:30	Bus transfer from Clarion Collection Hotel Slottsparken to LiU, registration
9:00	17:00	Welcoming and technical instructions
9:15	17:15	Keynote 3: "Re-design in Homage to the Works of Kunibo Wada: The Challenge of Al and Student Designers"
		Prof. Koji Kida, Kagawa University (Japan)
9:45	17:45	Keynote 4: "Bridging the Gap: Exploring Al Literacy for Teachers and Students in a Transformative Educational Landscape"
		Prof. Linnéa Stenliden, Linköping University (Sweden)
10:15	18:15	Coffee break
10:45	18:45	Workshop: Bridging Al Research and Business Innovation
		Workshop Leader: Dr. Mattias Tiger, Al Researcher and Deputy Lab Leader, Reasoning and Learning (ReaL) Lab, Linköping University,Sweden
		As part of the "Future Knowledge and Competence for Al-driven Innovation in Europe and Japan" conference, this interactive workshop will explore how Al tools can address real-world business challenges. Designed to encourage discussion and creative thinking about the future of Al in business, the workshop will offer insights into the transformative potential of Al across various industries.
		The session will use real business cases to demonstrate how AI can optimize operations, solve complex problems, and drive innovation. By bringing together AI research and business expertise, the workshop aims to spark new ideas for applying AI technologies in Europe and Japan.
12:15	20:15	Wrap-up workshop by Mattias Tiger, End of Online conference Nov. 6
12:30	20:30	Lunch break at Universitetsklubben (https://www.hors.se/linkoping/17/6/universitetsklubben/ map: https://use.mazemap.com/#v=1&campusid=742&zlevel=2&center=15.572211, 58.397311&zoom=18&sharepoitype=poi&sharepoi=1001275424)
13:45		Bus Transfer from LiU to Toyota Materials
14:00		Study Tour at Toyota Materials (Innovation Centre at Kunskapslänken 36, Linköping)

	Introduction to Toyota and welcoming tour
	Presentation of case studies:
	Welcome to a presentation of TMHE AI DataLabs, an initiative driving transformative change within our organization.
	From successful sales lead Use Cases to optimizing predictive maintenance of forklift trucks. TMHE AI DataLabs is exploring tangible future value and significant possible cost savings across various business areas. Let's dive into the possibilities of TMHE AI DataLabs and we'll explore the success story of our Proof of Concept "Service Agreement" Use Case, from a POC to a real-world Business application.
	2) Activity recognition for forklift trucks
	Monitoring progress is important to control cost and quality, detect anomalies, and avoid wasted resources. To date, industry practices for monitoring forklift truck activities have been coarse, essentially measuring electric motor activity, and better forklift truck monitoring is one of the top digital priorities across logistics SMEs, according to a recent study. Reliably monitoring forklift truck activity is a challenge. The forklift truck is a flexible piece of equipment that can be used for handling very different types of goods, and different drivers act differently when performing the same task. There is also the desire to use as few sensors as possible. We present how available on-board sensors have been used in a machine learning approach to better monitor forklift trucks, using also unlabeled industrial data.  • Mingle
15:30	Bus transfer to Clarion Collection Hotel Slottsparken
17:30	Reception by the Mayor of Linköping at the Townhall
19:00	Dinner at Linköping Castle by invitation of the Governor of Östergötland

### DAY 3, November 7, 2024 (Thursday):

Kronan, Studenthuset, 6-th floor, Campus Valla, Linköping University, Linköping (Map: <a href="https://link.mazemap.com/895dEnHL">https://link.mazemap.com/895dEnHL</a>)

CET	JST	
8:30	16:30	Bus transfer from Clarion Collection Hotel Slottsparken to LiU, registration
9:00	17:00	Welcoming and technical instructions
9:15	17:15	Keynote 5: "Pathways to the Al Governance"
		Prof. Arisa Ema, University of Tokyo (Japan)
9:45	17:45	Keynote 6: "Al Agenda for Sweden - the Process that Builds on Inclusion, Sharing Knowledge and Work Together"
		Jeannette Nilsson, Research Institute for Sweden RISE, Centre for Applied AI (Sweden)
10:15	18:15	Coffee break
10:45	18:45	Conference presentations:
		"Introduction to AI and IoT Utilization Support Case Studies by the Nagano Prefecture General Industrial Technology Center" Dr. Junji Sakamoto, Nagano Prefecture General Industrial Technology Center, Japan
		"Teaching Al Machines to Productively Treat Explicit Entropy Notion" Dr. Evgeni B. Starikov, Kobe University; Chalmers University of Technology, Japan/Sweden
		"Self-supervised Learning for Machine Activity Recognition" (Poster) Kunru Chen, Halmstad University, CAISR, Sweden
		"Recent Progress of Japan-Germany Collaboration Activites between Nagano Prefecture and Fraunhofer Institute for FIT"  Prof. Kiyoshi Tanaka, Academic Assembly (Engineering), Shinshu University, Japan, in coauthorship with: Tatsuya Tanaka, Industrial and Labor Affairs Department of Nagano Prefecture, Japan Sabine Ganter-Richter, Network for Science, Germany Dr. René Reiners, Fraunhofer Institute for Applied Information Technology, Germany
12:00	20:15	Wrap-up presentations by Prof. Kiyoshi Tanaka
12:15	20:35	Wrap-up conference and farewell by Sabine Ganter-Richter and Prof. Dr. Kiyoshi Tanaka End of online conference Nov. 7

12:30	20:30	Lunch break at Universitetsklubben (https://www.hors.se/linkoping/17/6/universitetsklubben/ map: https://use.mazemap.com/#v=1&campusid=742&zlevel=2&center=15.572211. 58.397311&zoom=18&sharepoitype=poi&sharepoi=1001275424)
13:45 - 15.20		Meeting the Robots at Linköping University Terra Building Entrance 37
		The autonomous drones, a quadruped robot dog, and humanoid robots - they all live at LiU, and we are going to meet them and the researchers who collaborate with them, to learn their story
15:30		Bus transfer to Clarion Collection Hotel Slottsparken
17:15		Bus transfer to the Swedish Airforce Museum - Flygvapenmuseum <a href="https://flygvapenmuseum.se/">https://flygvapenmuseum.se/</a>
17:30		Guided tour at the Swedish Airforce Museum
19:00		Dinner at the Swedish Airforce Museum
22:00		Bus transfer to Clarion Collection Hotel Slottsparken

#### Conference details:

The official language of the conference is English.

**Hosted by:** Linköping University (on-site and online)

(Bus stop: Mäster Mattias väg)

Official accommodation: Clarion Collection Hotel Slottsparken, Storgatan 76, 582

28 Linköping, Sweden. Booking link

(Bus stop: Barnhemsgatan)

#### Public transportation mobile app:

https://play.google.com/store/apps/details?id=se.ostgotatrafiken.washington

**Social dinner:** 5 November, 19.00 - 21.45, restaurant SmakSak - <u>to be booked and paid individually</u>. Please pre-book before October 21 to secure your place. <u>Booking link</u>

**Guided tour and dinner at the Airforce Museum**: 7 November, guided tour at 17:30 (included in the fee), dinner at 19:00, (to be paid individually)

Conference fee: 300€ in-person, 100€ online/students, 1000€ booth/advertisement

Conference website: https://liu.se/en/research/ejea-conference-2024#

**Registration**: at the conference website or click this <u>registration link</u>

### **Keynote speakers**

# Professor Arisa Ema, The University of Tokyo, RIKEN Center for Advanced Intelligence Project

Arisa Ema is an Associate Professor at the University of Tokyo and Visiting Researcher at RIKEN Center for Advanced Intelligence Project. She co-founded the Acceptable Intelligence with Responsibility Study Group (AIR) and is on the board of the Japan Deep Learning Association (JDLA). She contributed to Japan's "Social Principles of Human-Centric AI" and was awarded Excellent Young Researcher by the University of Tokyo in 2021. Ema earned her Ph.D. from the University of Tokyo and previously served as Assistant Professor at Kyoto University's Hakubi Center.

Title: Pathways to Al Governance

**Abstract**: Al governance is being discussed at various levels: corporate, industry associations, national, and international. Despite the creation of many rules and guidelines, their usability for all actors remains questionable. This presentation will highlight issues in Al governance using case studies.

# Jeannette Nilsson, Research Institute for Sweden (RISE), Centre for Applied Al

**Jeanette Nilsson**, an Al Ecosystem expert at RISE, leads the Al Agenda for Sweden. With an engineering degree from Luleå University of Technology, she has worked in business development at various levels. She was nominated for Al Swedish of the Year in 2022. Nilsson also participates in the HPC community and is part of groups connecting industry with Sweden's HPC center. Additionally, she is Sweden's representative in EU Al working groups and has been actively involved in building Al ecosystems for societal growth.

**Title**: Al Agenda for Sweden – Building Inclusion, Sharing Knowledge, and Collaboration

**Abstract**: Since 2019, Sweden's Al Agenda has been a collaborative effort, initiated by the Minister for Enterprise, to increase Al adoption. Six diverse groups worked together, resulting in 25 proposals aimed at accelerating Al use. This initiative emphasizes collaboration between research, industry, schools, and civil society, aiming to position Sweden as a leader in Al and create mutual support between sectors.

# Professor Osamu Sakura, The University of Tokyo, RIKEN Center for Advanced Intelligence Project

**Osamu Sakura** is a Professor at the University of Tokyo and PI of a research project at RIKEN AIP. His research focuses on science and technology studies, social aspects of AI, and the cultural history of science in East Asia. He holds a Ph.D. in primatology from Kyoto University and has served in academic roles in Japan, Germany, and Canada. He also directs the Inter-field Network in Science, Technology, and Media (INSTeM) and has published extensively on science and society.

Title: Cultural Aspects of Human-Al Relationships

**Abstract**: Innovation often reflects cultural views of technology. In Japan, technology is rooted in holistic approaches, drawing from medical and agricultural traditions. Unlike European reductionist approaches, Japanese technology is seen as art, influenced by cultural artifacts like Karakuri dolls and traditional arts. This presentation explores how different cultures perceive AI and innovation, using historical and contemporary examples from Japan and China, and their implications for human-AI relationships.

### Milad Morad, Fraunhofer FIT, RWTH Aachen University

**Milad Morad** is an AI researcher at Fraunhofer FIT and a PhD candidate at RWTH Aachen University. With over six years of experience in AI, including roles in industry and research, he focuses on Human-AI Teaming and adapting Foundation Models to corporate environments.

Title: Foundations of Human-Al Teaming

**Abstract**: Generative AI (GenAI) is transforming human-machine collaboration, reshaping workplaces, and enhancing organizational success. This session explores how GenAI supports human-AI teamwork, leveraging new frameworks to maximize AI's benefits. By examining practical implementations, it highlights how organizations can strategically integrate GenAI into their operations to drive innovation and efficiency.

# Professor Linnéa Stenliden, Linköping University, Department of Behavioural Sciences and Learning

**Linnéa Stenliden** is a Professor at Linköping University, specializing in AI and education. She leads participatory design projects on AI literacy in primary education and teacher training, funded by the Swedish Research Council and Wallenberg programs. Her research focuses on AI in educational policy, classroom practices, and digital citizenship.

Title: Bridging the Gap: Al Literacy for Teachers and Students

**Abstract**: In a rapidly Al-driven world, Al literacy is crucial for students, teachers, and educators. This presentation explores the challenges and opportunities in integrating Al into education, emphasizing the importance of developing critical competencies for understanding Al. The presentation draws from global initiatives and research efforts in Sweden to highlight the need for ongoing exploration of Al's impact on education.

### Professor Koji Kida, Kagawa University

**Koji Kida** is a Professor at Kagawa University and a researcher at NEC Central Research Laboratories. He holds a Doctor of Engineering degree from Kagawa University and has contributed to research in malware detection, big data processing, and AI security applications. He has received several awards for his work in technology and AI, including the Innovation Grand Prix at CEATEC JAPAN 2017.

Title: Re-designing Kunibo Wada's Legacy: Al and Student Collaboration

**Abstract**: This presentation introduces two AI-driven projects aimed at preserving the legacy of Japanese artist Kunibo Wada. The first focuses on creating a unique Kanji font based on Wada's handwritten characters, while the second involves using generative AI to render virtual spaces based on his landscape paintings. These projects showcase the integration of AI and traditional art forms to foster cultural preservation.

### **EJEA Conference 2024 organizers**



#### IDA: Al activities at Linköping University

Linköping University has been conducting AI research for over 50 years and today does leading research in a broad range of topics within AI. Notable areas include computer vision, natural language processing, planning, autonomous systems, and machine learning.

Three especially interesting topics are:

- the development of trustworthy and factual large language models (TrustLLM)
- computer vision techniques for video object tracking
- sports analytics. LiU also has several robot labs equipped with ground and aerial robots capable of performing a wide range of tasks



#### Al activities at Fraunhofer FIT

As a partner for digitization, application-focused generative AI integration and machine learning, the Fraunhofer Institute for Applied Information Technology FIT has been developing IT solutions tailored to people and seamlessly integrated into business processes for 40 years.

As a driving force of human-centered innovation, FIT not only provides guidance, but also shapes the digital transformation in business, the environment and society. Thus, the understanding and purpose-driving integration of generative AI technologies from a user's perspective play a major role in our research activities. Together with end users, we investigate processes to find suitable, understandable and therefore accepted solutions.



#### Al activities at Kagawa University

Kagawa University is actively involved in innovative endeavors at the intersection of Al research and education. Kagawa University acts as a representative institution within the Shikoku block of the Japan Inter-University Consortium for Mathematics, Data Science, and Al Education, comprising higher education institutions across Japan.

Kagawa University provides specialized education programs catering to students with varying levels. For instance, "The Crisis Management Program for Mathematics, Data Science and AI Education" offers a unique opportunity to delve into advanced AI utilization techniques, particularly in the realm of disaster mitigation. This program equips students with AI skills in areas such as object detection modeling, which are crucial for identifying slope failure regions and enhancing disaster preparedness measures.



#### **Previous EJEA Conferences**

"Riding the Digital Wave into the Future: Chances, Risks and Actions for Japan and Europe", jointly organized by EJEA, Fraunhofer FIT, Kagawa University, and Linköping University in 2023 (hybrid): <a href="https://ejea.eu/conference-2023/">https://ejea.eu/conference-2023/</a>

"Innovation and Action for Managing Urgent Future Local and Global Issues and Domains in Japan and Europe", jointly organized by EJEA, Linköping University, Fraunhofer FIT and RIKEN in 2022 (online): <a href="https://ejea.eu/conference-2022/">https://ejea.eu/conference-2022/</a> and <a href="https://www.fit.fraunhofer.de/en/business-areas/human-centered-engineering-and-design/ejea-conference-2022.html">https://www.fit.fraunhofer.de/en/business-areas/human-centered-engineering-and-design/ejea-conference-2022.html</a>

International conference on "Human-centered Sustainability and Innovation for an Al-assisted Future: New Interdisciplinary Education & Research for the Next Stages in Japan and Europe" / Al が支援する未来に向けた人間中心のサステイナビリティとイノベーションを 考える: 新たなステージへ導く日本とヨーロッパの学際的な教育と研究の紹介 (Japan) 2021: <a href="https://eiea.eu/conference-2021/">https://eiea.eu/conference-2021/</a> and <a href="https://eiea.eu/conference-2021/">www.kagawa-u.ac.jp/kuio/circ/event/ejeaconf/</a>

International conference on "Human-centered Digitalization: How to Develop Next Generations of Humans and Robots for a Secure, Harmonic and Prosperous Future of Europe and Japan" (Austria) 2019: https://ejea.eu/conference-2019/

International Conference on "Integration and Disintegration in the Japanese Vision of Society 5.0: A Model for an Open Society in Europe?" (Sweden) 2018: <a href="https://ejea.eu/conference-2018/">https://ejea.eu/conference-2018/</a>