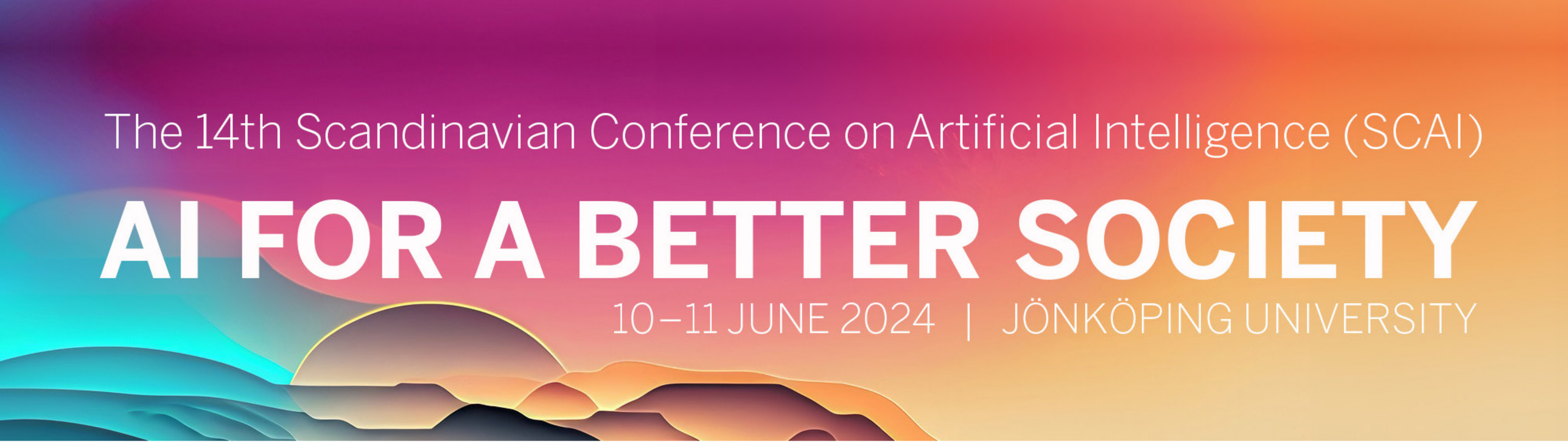

Conference Programme

SWEDISH ARTIFICIAL INTELLIGENCE SOCIETY

JÖNKÖPING UNIVERSITY

NAIS

MONDAY, 10TH OF JUNE

08:30 Registration

09:00 **Opening Remarks**
Fredrik Heintz, Chairman of the Swedish AI Society (SAIS)
Kerstin Bach, Board member of The Norwegian AI Society (NAIS)
Kerstin Johansen, Associate Dean of Research, JTH

Location: E1423 Fagerhult

09:20 **Keynote 1 - online**
Location: E1423 Fagerhult

Prof. Timo Minssen

Prof. Timo Minssen is of Law at the University of Copenhagen (UCPH), Denmark. He is the Founding Director of UCPH's Center for Advanced Studies in Bioscience Innovation Law (CeBIL), and an LML Research Affiliate at the University of Cambridge. His research, supervision, teaching, and part-time advisory practice at X-officio Advokat AB, concentrates on Intellectual Property-, Competition & Regulatory Law, as well as on the law & ethics of emerging health and life science technologies, such as genome editing, big data, artificial intelligence, and quantum technology. He serves as a member of several international committees and as an advisor to the WHO, WIPO, EU Commission, various organizations, companies, national governments, and law firms.

Title: Navigating the EU AI Act in a complex regulatory eco-system: Implications for Medical Devices

Abstract: The newly adopted EU AI Act represents a pivotal milestone that heralds a new era of AI regulation across industries. With its broad territorial scope and applicability, this comprehensive legislation establishes stringent requirements for AI systems. This talk is based on a collaborative article analyzing the AI Act's impact on digital medical products such as medical devices. Timo Minssen will address several pressing questions, such as: How does the AI Act apply to AI/ML-enabled medical devices? How are they classified? What are the compliance requirements? And what are the obligations of 'providers' of these AI systems? And what will be AI Act's broader implications for the future of medical device innovation.

10:15 Coffee

10:30 **Session 1 – AI Applications**
Location: E1423 Fagerhult

Private Sensitive Content on Social Media: An Analysis and Automated Detection for Norwegian

Authors: Haldis Borgen, Oline Zachariassen, Pelin Mise

Poisoning Attacks on Federated Learning for Autonomous Driving

Authors: Sonakshi Garg, Hugo Jönsson, Gustav Kalander, Axel Nilsson, Bhhaanu Pirange, Viktor Valadi, Johan Östman

Detecting and Segmenting Solar Farms in Satellite Imagery: A Study of Deep Neural Network Architectures

Authors: Erling Olweus, Ole J Mengshoel

Enhancing Indoor Temperature Forecasting through Synthetic Data in Low-Data Regime

Authors: Massimiliano Ruocco, Zachari Thiry, Alessandro Nocente, Michail Spitieris

Generative AI and Teachers - For Us or Against Us? A Case Study

Authors: Jenny Pettersson, Elias Hult, Tim Eriksson, Oluwatosin Adewumi

12:00 Lunch

13:00 **Keynote 2 - online**
Location: E1423 Fagerhult

Prof. Shalom Lappin

Prof. Shalom Lappin is Professor of Natural Language Processing in the School of Electronic Engineering and Computer Science at Queen Mary University of London, Former Director of the Centre for Linguistic Theory and Studies in Probability at the University of Gothenburg, and Emeritus Professor of Computational Linguistics in the Department of Informatics at King's College London.

Title: The Deep Learning Revolution in AI: Dangers Real and Imagined

Abstract: The emergence of transformers that drive Large Language Models has produced a revolution in the capacities of AI systems. Many of these systems can now handle a variety of cognitively interesting tasks at or above human levels of performance. In this talk I will briefly review the major technical breakthroughs and architectural changes that have given rise to transformers. I will then look at some of the dangers that they pose. These need to be carefully described and distinguished from some of the ungrounded anxieties that have been the focus of discussion in the popular media. It is essential to understand the scientific and engineering elements of current AI systems in order to appreciate what they can actually do, this needs to be the starting point for a serious discussion of a rational public policy for regulating these systems.

14:00 **Session 2 – AI Methods**
Location: E1423 Fagerhult

Green Urban Mobility with Autonomous Electric Ferries: Studies of Simulated Maritime Collisions using Adaptive Stress Testing

Authors: Jan-Marius Vatle, Bjørn-Olav Holtung Eriksen, Ole J Mengshoel

Can machine learning help reveal the competitive advantage of elite beach volleyball players?

Authors: Said Hemaz, Ola Thorsen, Emmanuel Esema, Kai Olav Ellefsen, Henrik Herrebrøden, Hugh A von Arnim, Jim Torresen

Exploring demonstration pre-training with improved Deep Q-learning

Authors: Max Pettersson, Florian Westphal, Maria Riveiro

3D pointcloud Registration in-the-wild

Authors: Peter Ørnulf Ivarsen, Marianne Bakken, Ahmed Mohammed

Weight Rescaling: Applying Initialization Strategies During Training

Authors: Lukas Niehaus, Ulf Krumnack, Gunther Heidemann

15:15 Coffee

15:15 **Poster Session – Extended Abstracts**
Location: JTH entrance

Machine Learning based Discrimination of Neoplastic and Non-neoplastic Intracerebral Hemorrhage on Computed Tomography

Authors: Sophia Schulze-Weddige, Jawed Nawabi, Georg L Baumgärtner, Tobias Orth, Helge Kniep, Uta Hanning, Jens Fiehler, Tobias Penzkofer

The ethics of computer vision: An overview in terms of power

Authors: Rosalie A. Waelen

Bridging Temporal Gaps in Sentinel-2 NDVI Time Series using Gaussian Process Regression

Authors: Tibo Bruneel

Towards Enhancing Home Garden Biodiversity: Integrating AI for Monitoring and Measuring Green Spaces for Sustainability

Authors: Alexandra Kogan, Einav Peretz-Andersson, Maria Riveiro, Odi Dahan, Anna Zamansky

Demand Forecasting in Local Power Grid

Authors: Kristoffer Pettersson, Johan Hallberg Szabadváry, Tuwe Löfström

Neurosymbolic AI approaches, an ongoing Ph.D. Project

Authors: Prashani Keshala, Rodrigo Jayasingha Arachchige

Transforming Casting Knowledge Dissemination: Insights from Large Language Models

Authors: Per Jansson, Haolin Fan, Ziyu Li, Bingbing Li, He Tan, Jerry Fuh, Wen Feng Lu, Anders Jarfors, Lucia Lattanzi

Using ChatGPT as a combined invoice OCR and key-value extractor

Authors: Nemi B. Pelgrom

16:15 **SAIS Master Thesis Award presentation**
Location: E1423 Fagerhult

16:25 **NAIS PhD Thesis Award presentation**
Location: E1423 Fagerhult

16:45 **SAIS annual meeting**
Location: E1423 Fagerhult

NAIS annual meeting
Location: E1405

18:00 **Dinner at Gyllene Uttern**
Transportation: Buses depart from the campus

TUESDAY, 11TH OF JUNE

08:45 Registration

09:00 **Keynote 3**
Location: E1423 Fagerhult

Patrik Jägenstedt

Patrik Jägenstedt is the Director Advanced Development, Robotics & AI Lab. Husqvarna. Patrik Jägenstedt is the innovation director and plays a crucial role in the development of lawn care products. His vision is to make robotic lawnmowers smarter, more automated, and more personal. Partik and his AI lab at Husquvarna envision the robotic lawnmower of the future as a smart garden assistant that will use artificial intelligence to maintain the lawn just like a gardener.

Title: TBD

10:00 Coffee

10:00 **Poster Session – Full Papers**
Location: JTH entrance

On Population Fidelity as an Estimator for the Utility of Synthetic Training Data

Authors: Alexander Florean, Jonas Forsman, Sebastian Herold

Evaluating Topic Models using Checklists: A Case Study using Norwegian Parliamentary Corpora

Authors: Lotfi Amin, Ole J Mengshoel

Leveraging Logit Space Embeddings for Reliable Out-of-Distribution Detection

Authors: Vangjush Kostandin Komini, Sarunas Girdzijauskas

Local Interpretable Model-Agnostic Explanations for Neural Ranking Models

Authors: Amir Hossein Akhavan Rahnama, Laura Galeraaa, Zhendong Wang, Maria Movin

Predicting Overtakes In Trucks Using Can Data

Authors: Talha Hanif Butt, Prayag Tiwari, Fernando Alonso-Fernandez

Designing Robots to Help Women

Martin Cooney, Lena M Widin Klasén, Fernando Alonso-Fernandez

Evolutionary Optimization of Artificial Neural Networks and Tree-Based Ensemble Models for Diagnosing Deep Vein Thrombosis

Authors: Ruslan Sorano, Kazi Shah Nawaz Ripon, Lars Vidar Magnusson

Machine Learning for Lithology Analysis using a Multi-Modal Approach of Integrating XRF and XCT data

Authors: Suraj Neelakantan, Alexander Hansson, Johan Schött, Jesper Norell, Martin Längkvist, Amy Loufti

The Bias that Lies Beneath: Qualitative Uncovering of Stereotypes in Large Language Models

Authors: William Babonnaud, Estelle Delouche, Mounir Lahlouh

Analysing Unlabeled Data with Randomness and Noise: The Case of Fishery Catch Reports

Authors: Aida Ashrafi, Bjørnar Tessem, Katja Enberg

From Basic Empathy to Basic Trust in Human-Robot Relation: A Phenomenological Proposal

Authors: Abootaleb Safdari

11:00 **Keynote 4**
Location: E1423 Fagerhult

Prof. Virginia Dignum

Virginia Dignum is Professor of Responsible Artificial Intelligence at Umeå University, Sweden where she leads the AI Policy Lab. She is also senior advisor on AI policy to the Wallenberg Foundations. She has a PHD in Artificial Intelligence from Utrecht University in 2004, is member of the Royal Swedish Academy of Engineering Sciences (IVA), and Fellow of the European Artificial Intelligence Association (EURAI). She is a member of the United Nations Advisory Body on AI, the Global Partnership on AI (GPAI), UNESCO's expert group on the implementation of AI recommendations, OECD's Expert group on AI, founder of ALLAI, the Dutch AI Alliance, and co-chair of the WEF's Global Future Council on AI. She was a member of EU's High Level Expert Group on Artificial Intelligence and leader of UNICEF's guidance for AI and children. Her new book "The AI Paradox" is planned for publication in late 2024.

Title: Beyond the AI hype: Balancing Innovation and Social Responsibility

Abstract: AI can extend human capabilities but requires addressing challenges in education, jobs, and biases. Taking a responsible approach involves understanding AI's nature, design choices, societal role, and ethical considerations. Recent AI developments, including foundational models, transformer models, generative models, and large language models (LLMs), raise questions about whether they are changing the paradigm of AI, and about the responsibility of those that are developing and deploying AI systems. In all these developments, is vital to understand that AI is not an autonomous entity but rather dependent on human responsibility and decision-making.

In this talk, I will further discuss the need for a responsible approach to AI that emphasize trust, cooperation, and the common good. Taking

responsibility involves regulation, governance, and awareness. Ethics and dilemmas are ongoing considerations but require understanding that trade-offs must be made and that decision processes are always contextual. Taking responsibility requires designing AI systems with values in mind, implementing regulations, governance, monitoring, agreements, and norms. Rather than viewing regulation as a constraint, it should be seen as a stepping stone for innovation, ensuring public acceptance, driving transformation, and promoting business differentiation. Responsible Artificial Intelligence (AI) is not an option but the only possible way to go forward in AI.

12:00 Lunch

13:00 **Session 3 – Human-Centered AI**
Location: E1423 Fagerhult

Fast Approximation of Shapley Values with Limited Data

Authors: Amr Alkhatib, Henrik Boström

The Social Life of Algorithmic Values: Examining the Impact of Value-Based Frameworks in Everyday Life

Authors: Ignacio Garnham, Rachel Smith

A Clearer View on Fairness: Visual and Formal Representations for Comparative Analysis

Authors: Julian Alfredo Mendez, Timotheus Kampik, Andrea Aler Tubella, Virginia Dignum

Local Point-wise Explanations of LambdaMART

Authors: Amir Hossein Akhavan Rahnama, Judith Bütepage, Henrik Boström

Should You Trust Your Voice Assistant? It's Complicated, but No

Authors: Filippos Stamatiou, Xenofon Karakonstantis

14:15 Coffee

14:30 **Panel – AI for a better Society**
Patrik Jägenstedt (Director Advanced Development, Robotics & AI Lab. Husqvarna), Professor Ole Jakob Mengshoel , Professor Fredrik Heintz
Moderator: Associate Professor Özlem Özgöbek

16:30 **Closing remarks**
Location: E1423 Fagerhult

VENUE

The SCAI Symposium conference 2024 will be hosted at the School of Engineering (JTH) in Jönköping. JTH is marked ‘E‘ on the map.

For travel information, please visit the **following link**

CAMPUS MAP