



AIROV AI & Vision 2025

Austrian Symposium on AI and Vision

Program Booklet

July 07–09, 2025
Klagenfurt, Austria



Organized by
ASAI and OAGM
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AIoV Keynotes

Univ.-Prof. Dr. Nikolaus Forgó — Tue, 8. July 2025, 9:30

Europe as Standard Setter? Regulatory Approaches to Data, Cloud, AI and all the other Glitter

Prof. Forgó will give a critical overview on how Europe has been trying to regulate computers since 1970 with a particular focus on AI regulation.

Nikolaus Forgó studied law in Vienna and Paris from 1986–1990 and then worked as university assistant at the Faculty of Law at the University of Vienna. In 1997, he received his doctorate in law with a dissertation on legal theory. Since October 1998, he has been head of the university course for information and media law at the University of Vienna, which still exists today. From 2000 to 2017, he was Professor of Legal Informatics and IT-Law at the Faculty of Law at Leibniz Universität Hannover, where he headed the Institute for Legal Informatics for 10 years and was also Data Protection Officer and CIO. Since October 2017, he has been Professor of Technology and Intellectual Property Law at the University of Vienna and Director of the Department of Innovation and Digitalisation in Law at the same university. He is also an honorary expert member of the Austrian Data Protection Council and the Austrian AI Advisory Board.

Univ.-Prof.ⁱⁿ Dr.ⁱⁿ Martina Seidl — Tue, 8. July 2025, 11:00

Reasoning with Quantified Boolean Formulas

As the prototypical NP-complete problem SAT, the decision problem of propositional logic, is considered to be hard. Despite this hardness, SAT is very successfully applied in many practical domains, because very powerful reasoning techniques are available. There are, however, reasoning problems that cannot be efficiently encoded in SAT. For such problems, formalisms with decision problems beyond NP are necessary. One of such formalisms are quantified Boolean formulas (QBFs), the extension of propositional logic with existential and universal quantifiers over the Boolean variables. The QBF decision problem is PSPACE-complete, making QBF well suitable for encoding and solving many problems from formal verification, synthesis, and artificial intelligence. In this talk, we review the state of the art of QBF technology and show how to perform automated reasoning with QBFs.

Martina Seidl is head of the Institute for Symbolic Artificial Intelligence at the Johannes Kepler University (JKU) in Linz, Austria. She obtained her PhD from the Vienna Technical University and her habilitation in computer science from JKU. Her research focuses on symbolic reasoning techniques with special emphasis on quantified Boolean formulas and applications in formal verification and symbolic artificial intelligence. She is a director of the cluster of excellence Bilateral AI.

Univ.-Prof.ⁱⁿ Dr.ⁱⁿ Yufang Hou — Wed, 9. July 2025, 14:00

Automated Reasoning for Scientific Knowledge Synthesis and Claim Verification

The exponential growth of scholarly literature poses a substantial challenge for researchers seeking to stay current with the latest findings and synthesize knowledge effectively. This challenge is further exacerbated by the proliferation of misinformation and the increasing complexity of scientific data. In this talk, I will begin with an overview of our efforts in processing scientific documents to support knowledge discovery, synthesis, and effective communication. I will then delve into our recent work on identifying and reconstructing fallacies in misrepresented scientific findings, as well as our approaches for supporting experts in generating forest plots for biomedical systematic reviews. Finally, I will highlight several open research challenges in modeling and reasoning over scholarly documents.

Yufang Hou is a university professor at ITU – Interdisciplinary Transformation University Austria. At ITU, she leads the NLP group with a strong focus on large language model (LLM) governance (with a particular focus on content veracity), computational argumentation, fact-checking, knowledge and reasoning, and human-centered multimodal NLP applications in education, science, and health.

AIRoV Schedule

Monday, July 7, 2025

- 18:30 Registration (Restaurant Laguna at Seepark Hotel)
- 19:00 Opening
- 19:05 Dinner (optional)

Tuesday, July 8, 2025

- 08:30 Registration (Aula, Zentraltrakt AAU)
- 09:00 Welcome, Greetings from Vice Rector Assoc. Prof. Dr. Jan Steinbrener (HS B)
- 09:30 Keynote – Univ.-Prof. Dr. Nikolaus Forgó, University of Vienna (HS B)
- 10:30 Coffee break (Aula, Zentraltrakt AAU)
- 11:00 Keynote – Univ.-Prof.ⁱⁿ Dr.ⁱⁿ Martina Seidl, JKU (HS B)
- 12:00 Lunch break (AAU Mensa)
- 13:30 Workshops
 - Applied Vision - AV (HS 3)
 - AI Certification, Fairness and Regulations - CERT-AI (Z.1.08)
- 15:00 Coffee break (Aula, Zentraltrakt AAU)
- 15:30 Workshops
 - Applied Vision - AV (HS 3)
 - AI Certification, Fairness and Regulations - CERT-AI (Z.1.08)
 - Digital Transformation of Animal Science Research - DTAS (Z.1.09)
- 17:00 Organizational break
- 18:00 Poster session + Buffet (Aula, Zentraltrakt AAU)

Wednesday, July 9, 2025

- 09:00 Workshops
 - AI and Robotics in Agriculture - AIRAG (HS 3)
 - Digital Transformation of Animal Science Research - DTAS (Z.1.09)
 - Spiking Neural Networks - SNNSys (Z.1.08)
- 10:30 Coffee break (Aula, Zentraltrakt AAU)
- 11:00 Workshops
 - AI and Robotics in Agriculture - AIRAG (HS 3)
 - Digital Transformation of Animal Science Research - DTAS (Z.1.09)
 - Spiking Neural Networks - SNNSys (Z.1.08)
- 12:30 Lunch break (AAU Mensa)
- 14:00 Keynote – Univ.-Prof.ⁱⁿ Dr.ⁱⁿ Yufang Hou, IT:U (HS B)
- 15:00 Award ceremony (HS B)
- 15:15 Coffee break (Aula, Zentraltrakt AAU)
- 15:45 Best paper talk (HS 4)
- 16:15 Closing ceremony (HS 4)
- 17:00 End

AIrOV Posters

A - AI and Robotics in Agriculture

- A01 Quantitative Assessment of Smart Intra-Row Weeders Using RGB-D Data**
V. Pejakovic, F. Kitzler, F. Schmeisser, A. Bauer
- A02 Cross-Modal Anomaly Detection for Enhanced Reliability in Small Agricultural Robots**
S. Gruber, H. Steinkellner, U. Bicici, P. Riegler-Nurscher, M. Gansberger
- A03 Dynamic Simulation and Real-Time Bale Weight Prediction Using Analytical Modeling**
M. Mansouri, D. Puckmayr, P. Riegler-Nurscher
- A04 Insights from multiple years of using crop robots in a small-scale plant production**
S. Kopfinger, O. Spykman
- A05 Development of an electrical nose detects stress in the forest based on MOX sensor array in combination with AI**
G. Schneider

B - Applied Vision

- B01 Photogrammetry meets Computer Vision: Simplified LiDAR to Camera Calibration**
R. Ladstädter, G. Lodron, M. Klopschitz, R. Perko
- B02 Human Perception for Print Defect Detection**
L. Brunner
- B03 Assessing the Impact of Binarization for Writer Identification in Greek Papyrus**
D. Akt, M. Peer, F. Kleber
- B04 Visual Emotion Recognition for an Empathic Vehicle**
R. P. Palenzuela, M. Hödlmoser, N. Fraissl, T. Berens, D. Schörkhuber, B. Salzbrunn, S. Kitting, R. Dimov, M. Gelautz
- B05 Vision-based Measurement of Rail Sleeper Vibrations**
G. Zauner
- B06 Efficient Automatic Detection of Scanned Body Regions in CT Scans**
B. Sabrowsky-Hirsch, A. Alshenoudy, S. Thumfart, T. Potrusil, J. Gottwald, M. Moser
- B07 On Pretraining for Earth Observation**
L. Čehovin Zajc, B. Rolih, F. Wolf
- B08 Camera Movement Classification in Historical Footage: A Comparative Study of Deep Video Models**
T. Lin, A. Dadras, F. Kleber, R. Sablatnig
- B09 Soft-label Based Regression for Contamination Grading with HSI in Plastics Recycling**
S. Vedyshv

C - AI Certification, Fairness and Regulations

- C01 DP-KAN: Differentially Private Kolmogorov-Arnold Networks**
N. Kalinin, S. Bombari, H. Zakerinia, C. Lampert
- C02 Towards a Framework for Supporting the Ethical and Regulatory Certification of AI Systems**
F. Kovac, S. Neumaier, T. Pahi, T. Priebe, R. Rodrigues, D. Christodoulou, M. Cordy, S. Kubler, A. Kordia, G. Pitsiladis, J. Soldatos, P. Zervoudakis
- C03 Human-Robot Interaction through a Guided Speech Dialogue System: Leveraging Semantic Analysis with Large Language Models**
M. Dalkilic, W. Kurschl, J. Schoenboeck, S. Pimminger, G. Zwettler
- C04 Sequential Hypothesis Testing for Model Updates**
S. Schmid, M. Lewandowski, B. Nessler
- C05 The Missing Modality: Open-Source Compliance under the GPAI Code of Practice**
A. Aufreiter, G. Aichinger, B. Nessler
- C06 Upcoming White Paper: Safe and Certifiable AI Systems: Concepts, Challenges, and Lessons Learned**
A. Gruber, B. Brune, B. Nessler
- C07 The Concept of 'AI System' under the New AI Act: Arguing for a Three-Factor Approach**
C. Wendehorst, B. Nessler, A. Aufreiter, G. Aichinger
- C08 FourMind: Dissecting Communication Styles of LLM-powered Chatbots**
S. Bergsmann, M. Lewandowski, B. Nessler

D - Digital Transformation of Animal Science Research

- D01 Lighting Matters: Evaluating the Impact of Variable Illumination on Video-Based Detection of Cattle Brush Use**
H. Muraina, M. Oczak, B. Foris
- D02 Smart Monkey Lab - AI-based facial recognition programme for primatological research**
S. Mustafa, R. Hammer, K.-H. Anders, L. Pflüger, G. Paulus
- D03 Efficient Pose Estimation for Cows via Vision Mamba**
S. Daadouch, K. Zhao, M. Gelautz, P. Roth
- D04 Visual Measurement of Sows during Gestation**
P. Helf, S. Kupfer, C. Pfeiffer, S. Gorr, J. Baumgartner, M. Oczak, P. Roth
- D05 An IoT Platform for Animal Monitoring in High Alpine Areas**
P. Lederer
- D06 Optimization of Young Cattle Housing Based on Accelerometer Measurements of Lying Behaviour**
E. Ofner-Schröck, T. Guggenberger, G. Huber, H. Rohrer, J. Schoiswohl

- D07 Evaluation of a Bolus Sensor for Measuring Lying Duration in Dairy Cows**
J. Schoiswohl, M. Waldauer, G. Huber, C. Fasching
- D08 Influence of a Continuous-grazing or Intensive Paddock Grazing on Lying and Ruminating Behaviour of Dairy Cows**
A. Steinwiddler, E. Ofner-Schröck, W. Starz, H. Rohrer, G. Huber, C. Fasching, J. Schoiswohl
- D09 Comparison of Lying Behaviour During Freestall-housing or Continuous Grazing Period of Dairy Cows**
A. Steinwiddler, W. Starz, H. Rohrer, C. Fasching, J. Schoiswohl
- D10 Making Cow Behaviour Measurable: Complementary Use of External and Internal Sensors**
J. Schoiswohl, A. Steinwiddler, E. Ofner-Schröck, W. Starz, T. Guggenberger, H. Rohrer, G. Huber, M. Waldauer, C. Fasching
- D11 Effects of social environments and reward contingencies on dogs' tail kinematics**
C. Canori
- D12 Deep Learning for Advancing Animal Breeding – A Study on Austrian Fleckvieh Cattle**
J. Ganitzer
- D13 Model-free Segmentation for Re-identification of Salamanders**
C. Walter, K. Szydlík, C. Dittrich, B. Rojas, P. Roth
- D14 On the (limited) use of touchscreen-based behavioural and cognitive research with dogs: a critical appraisal and case-study**
C. Menne, S. Yang, C. Canori, D. Rivas-Blanco, O. Green, F. Range, T. Monteiro
- D15 Pet Scan – App, a possible way to use optical AI in combination with XPS for preliminary diagnostic**
J. Meleschnig, M. Gastinger, A. Leitner, P. Roth

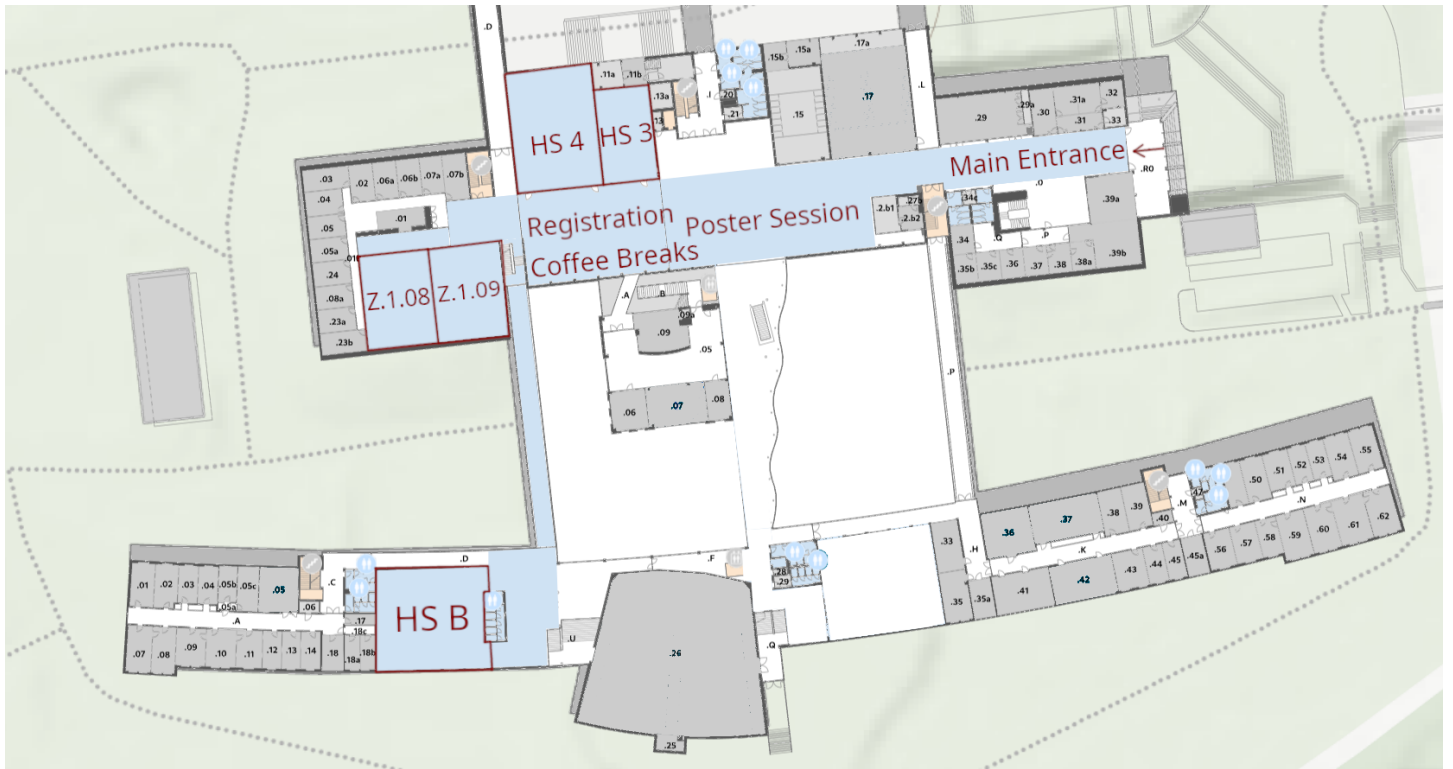
E - Spiking Neural Networks

- E01 Self-Supervised Predictive Learning in Recurrent Spiking Neural Networks**
J. Kubik, R. Legenstein
- E02 On the Effectiveness of Label Smoothing in Spiking Neural Networks**
S. Higuchi, S. Otte
- E03 AntiLIF - A Spiking Neuron Reacting on Inactivity**
M. Lunglmayr, D. Windhager, B. Moser
- E04 Surrogate Gradient Calculus**
S. Otte, B. Moser
- E05 Sequence Learning with Multi-Compartment Neurons on Neuromorphic Digital Hardware**
M. Siegl
- E06 Learning Sparse Population Encodings**
G. Kasenbacher, S. Otte

P - BILAI Summer School

- P01** **MTIM: Maximal Temporal Invariant Mining**
Y. Koroglu, F. Wotawa
- P02** **A surprising link between cognitive maps, successor-relation based reinforcement learning, and BTSP**
Y. Yang
- P03** **Effective Diffusion-free Score Matching for Exact Conditional Sampling**
T. Wedenig, R. Peharz
- P04** **Using Qualitative Simulation Models for Monitoring and Diagnosis**
A. Das, R. Koitz-Hristov, F. Wotawa
- P05** **Investigating the Grounding Bottleneck for a Large-Scale Configuration Problem: Existing Tools and Constraint-Aware Guessing**
V. Semmelrock, G. Friedrich
- P06** **A Channel Attention-based Denoising Autoencoder U-Net and Classifier (UNADAE) for Signal Identification under Challenging SNR Conditions**
I. Ebo, I. Ajayi, L. Mroueh, Y. Ziade, S. Azarian
- P07** **Einstein Fields: A neural perspective to computational general relativity**
S. Cranganore
- P08** **Quality Assessment of Deep Representations in Neural Networks**
A. Prock, F. J. Ekaputra, M. Sabou
- P09** **AI in Research: Love Means Never Having to Say You're Sorry**
D. Dobriy
- P10** **Enhancing Constraint Programming with Large Language Model-Generated Streamliners**
F. Voboril
- P11** **What Makes Thinking Work? Exploring Intelligence Through the ARC Challenge**
N. Pande, R. Peharz
- P12** **Reclaiming Local Identity in Music Recommendation through Logic Tensor Networks**
H. Eckert, M. Schedl

AIRoV Room Plan



Path from Main Entrance to Mensa for Lunch

