

Summary

Incoming MSc Autonomous Systems student at DTU with a background in software engineering, machine learning, and applied AI. I have worked on research and projects involving large language models, agentic systems, model evaluation, and data-driven solutions. Broadly interested in robotics and intelligent systems that connect perception, reasoning, decision-making, and action in real-world environments. Seeking to deepen my expertise in deep learning and reinforcement learning while exploring new areas of intelligent systems.

Education

- 2026– **MSc Autonomous Systems**, *Technical University of Denmark (DTU)*, Denmark, *incoming, September 2026*
- 2023–2026 **BSc in Engineering, Software Engineering**, *University of Southern Denmark, Sønderborg, Denmark*, *graduated June 2026*
Project-oriented programme with semester projects developed around real company cases and data. Bachelor thesis completed in cooperation with Danfoss, **named Best Bachelor Thesis in the SDU Software Engineering programme and nominated for the 2026 Best TEK Bachelor Thesis award.**
- Fall 2025 **Exchange Semester**, *Hong Kong University of Science and Technology (HKUST)*, Hong Kong SAR
Selected coursework: Machine Learning; Large Language Models; Data Analysis for Smart Transportation Systems.
- 2022 **German Abitur**, *Gymnasium Kaiser-Friedrich-Ufer*, Hamburg, Germany, *final grade: 1.5*

Research Publications

- 2026 **T. L. Adam**, P. M. Konrad, R. Terrenzi, F. G. Lukas, R. Yilmaz, K. Sierszecki, S. Ayvaz. *CAKE: Cloud Architecture Knowledge Evaluation of Large Language Models*. Accepted at the KDA-AI Workshop, IEEE ICSA 2026. [PDF]
Developed and evaluated a 188-question, expert-validated benchmark spanning four cognitive levels and five cloud-native topics across 22 LLM configurations.
- 2026 P. M. Konrad, **T. L. Adam**, R. Terrenzi, S. Ayvaz. *Architecture Without Architects: How AI Coding Agents Shape Software Architecture*. Accepted at the SAGAI Workshop, IEEE ICSA 2026. [PDF]
Examines implicit architectural decisions made by AI coding agents and proposes prompt–architecture coupling patterns and governance practices.
- 2026 R. Terrenzi, P. M. Konrad, **T. L. Adam**, S. Ayvaz. *A Reference Architecture for Agentic Hybrid Retrieval in Dataset Search*. Accepted at the SAML Workshop, IEEE ICSA 2026. [PDF]
Proposes an auditable architecture combining BM25, dense retrieval, reciprocal-rank fusion, LLM orchestration, and metadata augmentation.
- 2026 P. M. Konrad, **T. L. Adam**, A. C. H. Merrild, R. Terrenzi, R. De Rosa, T. Tanyel, S. Ayvaz. *The Open-Box Fallacy: Why AI Deployment Needs a Calibrated Verification Regime*. Preprint, arXiv:2605.10601. [arXiv]
Proposes calibrated verification and a six-component Verification Coverage standard for governing AI deployment in sensitive domains.

Experience

2026– **Research Collaborator**, *SDU Data & Intelligence Lab*, Sønderborg, Denmark

Collaborate on applied AI and machine-learning projects, contributing to problem formulation, experimental design, implementation, analysis, and writing.

2024–2026 **Student Ambassador**, *University of Southern Denmark*, Sønderborg, Denmark

Represented and promoted the university at national and international education fairs, engaging prospective students and communicating the student experience at SDU.

2024–2025 **Student Assistant, IT Service**, *University of Southern Denmark*, Sønderborg, Denmark

Worked from August 2024 to August 2025, supporting students and staff with day-to-day IT service requests and technical issues.

Selected Research & Projects

2026 **Bachelor Thesis**, *In cooperation with Danfoss*

Heimdall: Only the Safe Shall Pass: A Conformal Verifier Between Autonomous Bidders and the Nordic Electricity Balancing Market. Co-developed an end-to-end system combining probabilistic forecasting, conformal prediction, and LLM-based bidding agents to make electricity-market bids safer and auditable.

Spring 2025 **Automated Tag and Summary Generation for Audio/Video Content**

In cooperation with SpeedAdmin

Developed a locally deployed AI pipeline to transcribe, summarize, and categorize educational audio and video content.

Fall 2025 **Data Analysis for Transportation Systems**, *Hong Kong University of Science and Technology (HKUST)*

Analysed smart-card transportation data using queueing models and machine learning to identify travel patterns and factors affecting waiting and transfer times.

Research Interests

LLMs Scaling behaviour and limitations; small and locally deployed language models; fine-tuning and model evaluation.

Agents Tool-using and multi-agent systems, observable decision processes, hybrid retrieval, and AI coding agents.

Applied AI Forecasting, reinforcement learning, energy markets, and data-driven systems.

Technical Skills

Research Experimental design, controlled interventions, ablations, model training and evaluation, segmentation, conformal prediction, reproducibility.

ML Python, PyTorch, Hugging Face Transformers, scikit-learn, pandas, NumPy, Weights & Biases.

Code & tools Git, GitHub, Google Colab, Java, JavaScript, SQL, LaTeX.

Languages

German Native

English Fluent (C2)

Danish Basic