Kiarash Rezaei

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Research Interests

Statistical Foundations of Trustworthy Machine Learning; Uncertainty Quantification and Reliability Guarantees; Generalization under Distribution Shift and Dependence; Robust and Continual Learning in Autonomous Networked Systems.

Education

2025 – Present **Chalmers University of Technology, Department of Electrical Engineering** – Gothenburg, Sweden
PhD in Electrical Engineering
Supervisor: Prof. Paolo Monti, Co-supervisor: Dr. Carlos Natalino

2021 – 2024 **Polytechnic University of Milan (PoliMi), Department of Electronics, Information and Bioengineering** – Milan, Italy
MSc in Telecommunication Engineering (Track: Signal and Data Analysis)
Thesis: *Continuous IMU-MEMS Self-Calibration Process by Means of Tiny Neural Networks*
Supervisor: Prof. Luca Barletta
GPA: 106/110

2014 – 2020 **Kharazmi University of Tehran (KhU), Department of Mathematics and Computer Science** – Tehran, Iran
BSc in Computer Science
Thesis: *Automatic Architecture Design of CNNs using Genetic Algorithm and Reinforcement Learning (MetaQNN)*
Supervisor: Prof. Keivan Borna

Research experience

Feb 2025 – Present **Chalmers University of Technology, Communication, Antennas and Optical Networks (CAOS) Division** – Gothenburg, Sweden
Research Assistant
- Working on Trustworthy AI algorithms for Autonomous Networks.

Nov 2023 – Jul 2024 **STMicroelectronics** – Milan, Italy
AI Researcher
- Designed and developed a scalable, end-to-end pipeline for continuous self-calibration of next-generation MEMS inertial measurement sensors, integrating intelligent sensor processing units to enhance performance and reliability.
- Implemented a deep learning-based module utilizing Edge AI and Quantization-Aware Training (QAT), achieving a significant 70% reduction in calibration loss, enabling efficient sensor operation in resource-constrained environments.
- Published 3 scientific papers detailing the innovative methods and results derived from this work.

Oct 2023 – Nov 2023 **Envision** – Hague, Netherlands
Computer Vision Intern
- Conducted evaluation of multi-modal models trained on ego-centric datasets, benchmarking performance across diverse metrics.

Apr 2022 – Jul 2023 **PoliMi Data Science Association (PMDS)** – Milan, Italy
Machine Learning Researcher
- Collaborated with Sares Miramondi Co. on a project of Anomaly Detection for production lines.
- Analyzed the results of the sentiment analysis to identify trends and insights related to public sentiment toward COVID-19.

Publications

2026 **Policy-driven Conformal Prediction for Trustworthy QoT Estimation**
Rezaei, K., Ayoub, Monti, P., Natalino, C.
- Accepted for oral presentation, *OFC 2026.*

2025 **Generative Explainability for Next-Generation Networks: LLM-Augmented XAI with Mutual Feature Interactions**
Rezaei, K., Ayoub, O., Troia, S., Lelli, F., Monti, P., Natalino, C.
- Presented, *GenXNet Workshop at IEEE WiMob 2025.*

2024 **IMU Self-Calibration by Means of Quantization-Aware and Memory-Parsimonious Neural-Networks**
Cardoni, M., Pau, D. P., Rezaei, K., & Mura, C.
- Published, *Journal of Electronics.*

2024 **IMU User Transparent Tiny Neural Self-Calibration**
Cardoni, M., Pau, D. P., Rezaei, K.
- Presented, *IEEE RTSI 2024.*

2024 **Continuous MEMS Self-Calibration Process by Means of Tiny Neural Networks**
Cardoni, M., Pau, D. P., Rezaei, K.
- Presented at *STMicroelectronics TechWeek 2024*.
- Submitted as an innovation proposal.

2019 **An Introduction to Convolutional Neural Networks & Applications**
Rezaei, K., Zamani, S.
Presented, *CICIS 2019*.

Industry Experience

Oct 2024 – Jan 2025 **AGap2 - Rina** – Milan, Italy
Generative AI Engineer
- Collaborated with Rina to develop LLM-based systems for automated assessment of inspection report completeness and coherence.
- Integrated models into the digital reporting platform, accelerating deployment and delivering a functional MVP within three months.

Feb 2023 – Feb 2024 **DataLobster** – Paris, France
Data Scientist
- Optimized signal processing and ML algorithms for streaming data, boosting performance by 20% and lowering latency.
- Developed anomaly detection models with explainable AI, enabling insightful root-cause analysis.

Teaching and Supervision Experience

Aug 2025 – Present **Teaching Assistant, EEN060/EEN065: Applied Object-Oriented Programming (Chalmers University of Technology)**
- Designing examinations and leading exercise and laboratory sessions in Python, guiding students in mastering object-oriented programming concepts and practical implementation.

Jan 2026 – Present **Supervisor, EENX16**
- Superving a bachelor's thesis on autonomous AI systems: "Autonomous Knowledge Agent: From Query to Report without Human Guidance" (EENX16).

Professional memberships

2025 – Present IEEE Student Member