Marius Boda

+358 45 78384488 | marius.boda@aalto.fi | linkedin.com/in/marius-boda/ | github.com/MariusBoda

EDUCATION

Aalto University **Jun 2024 - May 2026**
Master of Science, Computer Science
Major - Machine Learning, Data Science, and Artificial Intelligence
Thesis - Noise Reduction limits in Nonlinear Dynamical Systems (See Professional Experience)

Aalto University **Sep 2021 - May 2024**
Bachelor of Science, Quantum Technology

PROFESSIONAL EXPERIENCE

Aalto University **Espoo, Finland**
Graduate Research Assistant (Machine Learning & Nonlinear Dynamics) *Jan 2025 - Present*
- Investigating noise reduction limits in nonlinear dynamical systems, developing mathematical formulations to estimate theoretical signal recovery bounds in stochastic environments
- Designing system identification algorithms to forecast the behavior of coupled networks under heavy noise, creating a physics-informed baseline to evaluate deep learning approaches for large-scale dynamics
- Simulating synchronization dynamics to model noise propagation in complex networks, establishing foundational methods for identifying signal limitations in non-linear control systems

Amazon **Tampere, Finland**
Systems Development Engineer Intern (Ring IQ FW Team) *Jun 2025 - Aug 2025*
- Formulated a novel hierarchical spatiotemporal machine learning network that integrates geometric alignment (STN) with a temporal attention mechanism, mathematically constraining the aggregation of frames to effectively mitigate stochastic sensor noise and motion blur
- Integrated a region-of-interest detector to guide the enhancement pipeline, utilizing transfer learning on data augmented with device-specific noise profiles to robustly adapt the model to the target sensor's unique degradation characteristics
- Researched and prototyped inverse ISP processes and novel video enhancement techniques, including movement flow analysis, Gated Enhancement Units (GEUs), UNets, and custom data generation pipelines
- Delivered a live demo of the POC to Amazon Ring Founder Jaimie Siminoff

Oyla AI **San Carlos, CA, USA**
Computer Vision Intern *Jun 2022 - Aug 2022*
- Developed Linux scripts to enhance image capture, parameter optimization, and calibration for Raspberry Pi cameras
- Collected time-series 3D video, thermal, and eRGB data, along with LiDAR and video integration

SKILLS

Programming Languages & Tools: Python, R, Java, Scala, Bash/Shell Scripting, Git, Pandas, NumPy
Machine Learning & AI: PyTorch, Deep Learning, MetaFlow, TensorFlow, Transformers, Computer Vision, Image Signal Processing (ISP), Deep Generative Models
Mathematics & Theoretical Knowledge: Data Structures & Algorithms, Stochastic Processes, Markov Chains, Linear Algebra, Dynamical Systems, Physics-based Modeling
Languages: Finnish, English
Interests: Puzzles, Self-Directed Stocks Trading, Strategic Video Games, Rock Climbing