

Esko Ilmari Vahteristo

Computer Vision & Machine Learning Engineer | Helsinki, Finland

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SUMMARY

Computer vision and ML engineer who builds perception systems for the real-world: cameras, LiDAR, radar and lasers on edge hardware, in factories and heavy industry. At a seven-person startup, built four systems that are now deployed, working directly with customers. Alongside work: a first-author and a sole-author paper, over 3,000 current records on spherical-codes.org, and success in hackathons and ML competitions.

EXPERIENCE

Software Engineer, ML / Computer Vision - *Virelabs* · 05/2025 – 08/2026

Seven-person industrial sensing startup. Built edge perception software and worked directly with customers. All four systems below are deployed:

- 1) **Multi-camera tracking**: object detection and tracking across several cameras, through occlusions - 5 cm accuracy at 6 m.
- 2) **3D reconstruction of moving vehicles**: line cameras, LiDAR and radar, compensating for vehicle acceleration/rotation at 40 mm accuracy (MSc thesis).
- 3) **Veneer quality control**: laser triangulation - 0.5 mm accuracy from over 1 m away.
- 4) **Industrial OCR**: reading low-quality packaging print with majority voting - 99.9 % accuracy.

Research Assistant - *LUT University* · 04/2024 – 08/2024

- Limited-angle CT reconstruction from only 12 training samples using deep priors & regularization. First author; presented at SCIA 2025 (Springer LNCS).

Freelance Data Scientist - *Tmi Ilmari Vahteristo* · 01/2024 – 04/2025

- Predicted restaurant customer volume from menus to reduce food waste.

PUBLICATIONS

- **New spherical codes by tuning an annealing solver**. arXiv, 2026. Over 3,000 current records. [paper](#)
- **Data-efficient limited-angle CT using deep priors and regularization**. SCIA 2025, Springer LNCS. [paper](#)
- **Stationary LiDAR, moving target: pure LiDAR solution for motion estimation and 3D reconstruction**. MSc thesis, LUT University and Virelabs, 2025. [pdf](#)
- **Man vs machine: beating humans in a multiplayer card game without lookahead**. BSc thesis, LUT University, 2023. Developed further into an AI benchmark, and an online website. [pdf](#), moska.eu

COMPETITIONS

- Won ElevenLabs challenge at Junction 2025 ([demo](#)) and Junction 2024 Top 5% in peer-reviews.
- Kaggle LLM 20-Questions (Gold, 7th/800); top 1% competitive rank.
- IndySCC Supercomputing (3rd/10 university teams); Visma Coding (1st/20 teams).

LEADERSHIP

- **Project Manager**, Lateksii (2021–22): Led team of 4 + volunteers for events up to 900 people.
- **Peacekeeper**, UNIFIL (2020–21): Squad co-lead, promoted to part-time team co-lead.

EDUCATION

- **MSc (Tech), Computer Vision & Pattern Recognition** - LUT University (08/2025). GPA 4.2/5. Exchange in applied math, IST Lisbon.
- **MSc, Robotics & Automation** (part-time) - Aalto University (expected 09/2029).

SKILLS

- **Perception**: cameras, line cameras, LiDAR, radar, laser triangulation, IMU, 3D reconstruction, multi-object tracking, sensor fusion, OCR
- **ML & Optimization**: deep learning, PyTorch, TensorFlow, ONNX, OpenCV, numerical optimization, LLM & agentic tooling
- **Systems**: Python, C, Linux, Docker, Git, edge devices, PLC, parallel and supercomputing
- **Languages**: Finnish (native), English (fluent)