

# Andreas Hovaldt Hørrup

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## About Me and Motivation

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I am passionate and dedicated about learning new technical skills and concepts and have a deep interest in modern technology. Currently I am pursuing a master's degree in computer engineering, with a focus on AI, vision, and sound, and have a bachelor's degree in Robotics. I am seeking new and exciting opportunities to apply my technical skills and knowledge to solve problems and make meaningful contributions to innovative projects, and most of all, learn from these experiences.

My native language is Danish, but I am fluent in English as well, having courses, done projects and worked with English speaking supervisors and team members for multiple semesters.

## Education

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**Master's degree in Computer Engineering**      *Aalborg University*      Sep. 2024 - Jun. 2026

*Specialization: Artificial Intelligence, Vision, and Sound*

A focused study on computer vision, including image recognition, visual scene analysis, and object tracking, alongside sound processing and acoustics. The program integrates machine learning and deep learning techniques to analyse images and videos, with applications in sound generation, transmission, and perception.

*Projects:*

- 1<sup>st</sup> semester: 3D Gaussian Splatting for Synthetic LiDAR Data Generation in 3D Semantic Segmentation (Collaboration with AGCO).

**Bachelor's degree in Robotics**      *Aalborg University*      Sep. 2021 - Jun. 2024

Specialized in integrating mechanics, electronics, IT, and health technology, with a focus on manipulators, actuators, and sensors. Semester projects emphasized teamwork in small study groups and focused on solving real-world problems. **Average grade: 10.0**

*Projects:*

- 2<sup>nd</sup> semester: Kinematic modelling and trajectory generation for a collaborative robotic manipulator assisting individuals with impairments.
- 3<sup>rd</sup> semester: Robot-to-Human handover using a UR10 manipulator and a Kinect V2 camera.
- 4<sup>th</sup> semester: Position control of a Crazyflie drone using a Vicon motion capture system.
- 5<sup>th</sup> semester: Bimanual manipulation using two Kuka IIWA 7 manipulators, controlled via natural language by utilizing an LLM in combination with AI agents for adaptive task execution.
- 6<sup>th</sup> semester: Examining analytical and deep-learning based visual servoing techniques for vertical farming environments (Collaboration with Seasony).

## Technical Skills

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**Programming Languages:** Python (Advanced), MATLAB (Intermediate), C++/Arduino (Basics), React/JavaScript (Basics)

**AI/ML Tools:** PyTorch, TensorFlow, Keras, Gymnasium, Scikit-learn, Slurm, OpenAI API

**Additional Libraries:** Numpy, Scipy, Sympy, OpenCV, Pillow, Open3D, Matplotlib, Pandas, FastAPI

**Development Environments:** Linux (Ubuntu/NixOS), ROS, ROS2, NVIDIA Omniverse, NVIDIA Isaac Sim

**Networking:** WireGuard, Caddy, NGINX

**Virtualization & containerization:** Proxmox, LXC, Docker, Singularity, NixOS

## Working Methods

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**Structured & Methodical:** Approach problems systematically to ensure high-quality solutions.

**Automation Enthusiast:** Advocate for scripting and automation to enhance productivity.

**Adaptable:** Love learning new technologies and frameworks as needed.

**Collaborative:** Comfortable in team environments and enjoy knowledge sharing.

**Project Organization:** Experienced in organizing tasks and coordinating team efforts, especially through larger, collaborative, semester projects at Aalborg University.

**Independent Problem-Solver:** Enjoy working solo and immersing myself in specific challenges to achieve deep insights.

## Work Experience

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### Danish Postal Service Worker

*PostNord Denmark*

Feb. 2019 - Nov. 2023

In my sabbatical year I worked full-time for PostNord Hjørring. When I started at Aalborg University, I transitioned to part-time at PostNord Aalborg while studying.

- Served as Assistant Coordinator for weekend parcel deliveries across Hjørring, Frederikshavn, Læsø, and Brønderslev municipalities.
- Contributed to improving customer service and reducing delivery issues within the North Jutland division.
- Adapted to variable challenges and dynamic work environments by planning and structuring delivery routes throughout North Jutland.

## Spare Time

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In my spare time I still have an interest in tech and automation, and I like to keep up to date with the latest trends in AI, automation and IT. I have done a couple of small Arduino and Raspberry PI projects at home, including a small 3D printed self-driving car and a simple home-monitoring system. Currently I am exploring self-hosting multiple containerized services, like a personal website, an automated media-server, and game server hosting, from a home server running Proxmox VE. Additionally, when I am not at the computer, I enjoy going for my weekly runs, hiking, or spending time with friends.

## References

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Available upon request.