Max Kivits

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The Netherlands

Summary

I am a dedicated robotics engineer with a passion for working in diverse teams that foster a growth mindset. My goal is to further my expertise in robotics, embedded systems, control theory, and software engineering, contributing to innovative and impactful projects.

Work Experience

Embedded Software Engineer
Engineero
October 2022 - April 2024

- Developed a C# GUI desktop application and C firmware for laser power supplies.
- Seconded to R&D Nefit Bosch, Deventer for 13 months.
  - Worked on C++ firmware for Boiler Control Units running EmbOS.
  - Developed hardware drivers, communication stacks, business logic.
  - Improved error handling and contributed to an x86 Windows firmware simulator.

Robotics Developer
Teqram
January 2022 - September 2022

- Developed algorithms for ABB IRB 7600 to pick metal parts using magnetic grippers, utilizing C++ and Lua.
- Created a C++/Lua UDP server for tracking products through a factory.
- Built a Java-based Android app to interface with the server.
- Extended legacy C++ CRM, quoting, and management software using the QT4 framework.

Control Engineer Intern
Corvus Drones
2020

- Worked on the landing procedure of a greenhouse monitoring UAV and its pathfinding using IMU and VIO.
- Utilized C++ and ROS1 for development.

Education

Master of Science in Electrical Engineering
University of Twente
2019 - 2022

- **Specialisation**: Robotics and Mechatronics
- **Thesis**: Researched and developed a Nonlinear Model Predictive Controller to control a group of heterogeneous UAVs to collaboratively estimate the state of a target object. The controller is built on the Genome framework in C++ and Python. The controller uses a model that captures the full nonlinear dynamics of the UAVs and outputs low-level actuator inputs for each of the UAV rotors. RAL Publication
- **Subjects**: Modern Robotics, Optimal, Robust & Nonlinear Control Theory, Machine Learning and Computer Vision, Python & C++ Programming

Bachelor of Science in Electrical Engineering
University of Twente
2014 - 2018

- **Thesis**: Machine Learning - CNN for early stage melanoma detection using data augmentation and transfer learning, built in MATLAB
- **Subjects**: Circuit Analysis, Signal Processing, Control Theory

Skills

Technical Skills:

- Robotics Software Development
- Robot Operating System (ROS)
- C++, Python, Rust, MATLAB
- Linux, Embedded Systems
- Bare Metal & RTOS Embedded Software Development
- Machine Learning, Artificial Intelligence
- Computer Vision, Sensor Integration
- Path Planning, Motion Control
- Kinematics, Dynamics, Control Systems
- Real-Time Systems, Object-Oriented Programming (OOP)
- Git, Continuous Integration/Continuous Deployment (CI/CD)
- Agile Methodologies, Scrum

Tools and Frameworks:

- Gazebo, OpenCV
- LIN, CAN Bus, I2C, SPI, UART, TCP/IP
- CMake, Nix

Professional Skills:

- Problem Solving, Analytical Thinking
- Team Collaboration
- Technical Documentation
- Project Management
- Research and Development