Max Kivits

Robotics engineer with expertise in embedded systems, control theory and software engineering. Passionate about collaborative, growth-oriented teams and developing innovative solutions to problems that matter. Enthusiastic about leveraging modern tools like Rust and Nix.

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Work Experience

2022 - 2024 **Embedded Software Engineer** - Nefit Bosch

- Developed C++17 firmware for Cortex-M4 hardware (STM, Renesas) using EmbOS RTOS.
- Built and maintained drivers for GPIO, ADC, UART, SPI, I2C, and the LIN and CAN stacks.
- Designed firmware and hardware for integration testing on a Jenkins-based CI/CD server
- Contributed to a Windows firmware simulator using a x86 EmbOS simulation library.
- Reconciled git forks and promoted code quality through reviews and pair programming.
- Expanded the Linux/WSL dev tooling and CMake build scripts

2022 **Embedded Software Consultant** - SFC Energy

- Built a C# library for custom serial communication with industrial power supplies.
- Worked on a .NET MAUI app to reduce power supply configuration time in production.

2022 - 2024 **Embedded Software Engineer** - Engineero

- Presented the advantages of using modern C++ for more maintainable and safe firmware

2022 **Robotics Developer** - Teqram

- Developed and maintained software for an ABB IRB 7600 to automate metal part handling using a structured light camera and custom magnetic grippers, utilizing C++ and Lua.
- Improved operational efficiency by developing a Java Android app that enables barcode scanners to communicate with a C++/Lua UDP server to track inventory.
- Enhanced and maintained C++ software for CRM, quoting, and management tools using the QT4 framework, ensuring compatibility and functionality of legacy systems.

2020 **Control Engineer Internship** - Corvus Drones

- Developed autonomous landing procedures for a greenhouse UAV using Visual-Inertial-Odometry (VIO) with C++ and ROS 1.
- Implemented pathfinding and sensor fusion algorithms to enhance UAV navigation.

Education

2019 - 2022 **Msc Electrical Engineering** - University of Twente

- Specialisation: Robotics and Mechatronics
- Thesis: Researched and developed a state-of-the-art Nonlinear Model Predictive Controller (NMPC) to control a heterogeneous UAV fleet to collaboratively measure the state of a target object using various sensors and a cooperative Kalman filter. The controller is built on the Genome framework in Python and C++. The controller uses a model that captures the full nonlinear dynamics of the UAVs and outputs low-level actuator inputs for the UAV rotors. Click here for open access and related RA-L publication
- Subjects: Modern Robotics, Optimal, Robust & Nonlinear Control Theory, Machine Learning, Computer Vision, C++, Python

2014 - 2018 **Bsc Electrical Engineering** - University of Twente

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