Max Kivits

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

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Work Experience

(2022-2024) Embedded Software Engineer - Nefit Bosch Deventer

• Developed C++17 firmware (STM, Renesas) for Cortex-M4 hardware 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 Almelo

• Developed a C# library implementing a custom serial communication protocol to interface with industrial power supply units
• Worked on a C#11 .NET MAUI GUI application which uses above library to greatly reduce power supply configuration time in production

(2022-2024) Embedded Software Engineer - Engineero

• Presented the advantages of using modern C++ over C for firmware development

(2022) Robotics Developer - Teqram

• Developed and maintained software for an ABB IRB 7600 to automate metal part handling with magnetic grippers, utilizing C++ and Lua.
• Improved factory inventory tracking by building a Java Android app for barcode scanners that communicate with C++/Lua UDP server.
• Extended legacy C++ CRM, quoting, and management software using the QT4 framework.

(2020) Control Engineer Internship - Corvus Drones

• Developed the landing procedure for an autonomous greenhouse monitoring UAV using VIO.
• Worked on the path finding and sensor fusion software using C++ and ROS 1.

Education

(2019-2022) Msc Electrical Engineering - University of Twente

• *Specialisation*: Robotics and Mechatronics
• *Thesis*: Researched and worked on a state of the art Nonlinear Model Predictive Controller to control a group of heterogeneous UAVs to collaboratively measure the state of a target object using an Extended 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 each of the UAV rotors. **RAL Publication**

• *Subjects*: Modern Robotics, Optimal, Robust & Nonlinear Control Theory, Machine Learning, Computer Vision, C++, Python

(2014-2018) Bachelor of Science in Electrical Engineering - University of Twente
• *Thesis*: Machine Learning - CNN for melanoma detection using data augmentation and transfer learning, built in MATLAB
• *Subjects*: Circuit Analysis, Signal Processing, Control Theory