Nikolaus Fischmeister

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Education

University of Toronto — Toronto, ON
*Bachelor of Applied Science in Computer Engineering + **PEY Co-op*** — *Sep. 2025 – May 2030*

Experience

Embedded System Engineer — July 2025 – July 2025
Fronius International — *Thalheim bei Wels, Austria*

- Built a Python wrapper for the **PicoScope 4262** and automated harmonic analysis using Fourier methods
- Designed a **closed-loop harmonic-cancellation algorithm** controlling a **Siglent SDG2042X** to inject compensating signals
- Implemented a **coarse-to-fine phase search** to minimize harmonic amplitude, significantly reducing unwanted overtones in measured signals

Manager — Oct. 2021 – June 2025
Fischventures Inc. — *Waterloo, ON*

- Helped with storing items and made sure storage was organized
- Made sure customer requests were set, answered questions, and negotiated when needed
- Helped troubleshoot and repair technical issues when presented efficiently

Research Volunteer — July 2023 – Aug. 2023
University of Waterloo — *Waterloo, ON*

- Used **CARLA** (autonomous vehicle simulator) to build and test realistic vehicle dynamics
- Compiled and ran **CARLA Linux simulation environment** with Unreal Engine on Ubuntu 20.04
- Created custom car model in **Blender** and integrated it into CARLA

Projects

Boat Dynamics & Environment Simulator | ***Processing (Java), OOP, GUI (G4P), Simulation***

- Built a real-time **physics simulation** in **Processing (Java)** with a continuous update/render loop.
- Designed modular **OOP** structure (**Boat**, **Force**, **Wave**) and modeled motion using propulsion + drag (incl. **Crouch's formula**).
- Implemented configurable **wind & wave forces** (wavelength/attack/strength) and a runtime **GUI (G4P)** for parameter tuning.
- Added **save/load** to persist simulation settings to a local file for repeatable runs.

Autonomous Maze-Solving Firefighter | *Traxmaker, GCBasic, PCB Design* — Sep. 2024 – Jan. 2025

- Designed the custom PCB in **TraxMaker**, assembled full circuit onto the chassis of the robot
- Developed my own **maze-solving algorithim firmware** using a **PIC16F887 microcontroller** and **GCBASIC**
- Developed sensing system using a **QSD123 infrared phototransistors** for line and flame detection, and **GP2D12 analog distance sensors** for wall detection
- Tested and refined the algorithm and robot with multiple test runs throughout the maze

Technical Skills

Languages: Python, C/C++, HTML/CSS, Java, Processing, GCBASIC, LaTeX
Embedded Systems: Arduino, ESP8266, PicoScope, PCBs
Developer Tools: VSCode, Git, PyCharm, Processing IDE, Windows, Linux, Traxmaker, PicoSDK, Blender
Libraries: Scipy, NumPy, Matplotlib, Sockets, Flask, MCreator Link, discord.py