Yujie Yang

Embedded & AI Engineer • M.Sc. Electrical and Computer Engineering @ TUM

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PROFILE

ECE M.Sc. student at TUM with four years of appliance prototyping at Midea and a Formula Student season in vehicle telemetry. I take sensor data from hardware into software, from MCU firmware and CAN networks to spiking neural networks on a neuromorphic chip. Open to working-student and internship roles in embedded systems, sensor software, robotics and applied AI.

SELECTED PROJECTS

SofiNNa – From Trained SNN to Verified Chip Execution Oct 2026

NeuroTUM Hackathon • Innatera Pulsar C1 • three-person team repository

- Matched the integer reference on **all 1,451 hardware test windows**, spike for spike, by fixing weight import, encoder scaling and recurrent-weight orientation.
- Built a concurrent Python real-time inference pipeline (threads, subprocesses, queues, JSON IPC) reaching **74.3% per-window accuracy** live on the board.
- Enabled board-free regression testing with **63 automated tests**, a bit-exact chip simulator and a failure-injecting worker; wrote a custom C/SPI kernel for an OLED display.

ReDance – Wearable Sensors to Interactive Movement Feedback Apr – Jul 2026

TUM Human-Centered Neuroengineering Project Lab • five-person team

- Integrated **four IMUs** into a live Python rehab game with invalid-frame guards; eight sessions recorded a **median 33 ms** inter-sample interval.
- Implemented the **MuJoCo live mode**, a humanoid avatar mirroring the patient's movements, and paired logs that made 11 team integration sessions reviewable.

ENGINEERING EXPERIENCE

Midea Group – Working Student, Electrical Engineering Jul 2021 – Oct 2025

Stuttgart

- Built disinfection-device prototypes **end to end** on an Arduino Mega: chose the sensors, added UV lights, flashed the firmware, designed and soldered the harness.
- Delivered a complete sensor-system prototype to a **successful internal showcase**; also prototyped smart robot bins (Python, basic ROS 2) and a Raspberry Pi control panel.

Rennteam Uni Stuttgart – Team Member, Low-Voltage Electrics & Telemetry Nov 2023 – Sep 2024

Formula Student • competed at FS Austria and FS Germany

- Co-designed the season's **live-telemetry concept**: a redundant WiFi + LTE uplink from the car's CAN-to-Ethernet gateway to the trackside server.
- Set up the STM32 toolchain, worked through the gateway firmware in C (CAN, lwIP) and debugged it over **ST-Link**; analysed CAN traffic in Vector CANoe and Wireshark.
- Investigated **overheating-related communication drops** on the Ethernet-switch PCB and proposed cooling or a commercial switch; crimped connectors for the harness.

EDUCATION

Technical University of Munich – M.Sc. Electrical and Computer Engineering Apr 2026 – present

Automation & Robotics • Robotics; Optimal Control; Machine Learning and Optimization

University of Stuttgart – B.Sc. Electrical Engineering & Information Technology Oct 2019 – Dec 2025

Thesis: IR-photodiode vs. Time-of-Flight sensing for vertical position detection

- Designed **two PCBs in KiCad** (OP07 receiver simulated in LTspice) and benchmarked the IR sensor against two ToF sensors: **about 19 µs** response but nonlinear; ToF more linear, slower.

SKILLS

Programming	Python (NumPy, PyQt6, threading/IPC), C, MATLAB
Embedded	STM32 (ST-Link, CubeIDE), Arduino, Raspberry Pi, BeagleBone; CAN/DBC, Vector CANoe/CANape, Wireshark
AI & testing	SNN deployment (Talamo SDK), MFCC, MuJoCo, ROS 2 (basic); HIL tests, bit-exact simulators
Hardware	oscilloscope, logic analyzer; soldering, crimping, harnesses; KiCad, Altium, LTspice
Tools	Git, Docker, Linux, VS Code, CLion/CMake
Languages	Chinese (native), German (C1), English (C1)