

Tobias Wejbora

Eindhoven, Netherlands

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EDUCATION

- **Technische Universiteit Eindhoven** Eindhoven, Netherlands
M.Sc. Mechanical Engineering – Control Systems & Technology Sep. 2025 – Present
 - **Coursework:** Control Engineering, Advanced Motion Control, Multibody & Non-linear Dynamics, Optimal Control & Reinforcement Learning
- **Technische Universiteit Eindhoven** Eindhoven, Netherlands
B.Sc. Mechanical Engineering – Thesis Grade: 8.0/10 Sep. 2022 – Jul. 2025
 - **Coursework:** Signals & Systems, Dynamics & Control of Robotic Systems, Mechatronic Design, Model-Based Systems Engineering, Computer Aided Engineering, Autonomous Vehicles (DBL)

EXPERIENCE

- **Technische Universiteit Eindhoven** Eindhoven, Netherlands
CBL Sustainable Fuels Tutor Nov. 2025 – Jan. 2026
 - Guided second-year students in applying thermodynamics and fluid dynamics to analyze combustion engine mechanics.
 - Instructed practical sessions on system abstraction, mathematical modeling, and MATLAB programming.
 - Mentored students through experimentation and data processing, facilitating discussions on fuel efficiency and emission mitigation.
- **Technische Universiteit Eindhoven** Eindhoven, Netherlands
CBL Truss Structures Tutor Sep. 2025 – Nov. 2025
 - Coached biweekly sessions for first-year mechanical engineering students on materials, dynamics, and fluid mechanics.
 - Provided feedback and grading on challenge-based learning projects involving truss structure design, construction, and testing.
- **KSW – Elektro- und Industrieanlagenbau GmbH** Austria
Engineering Intern Jun. 2023 – Aug. 2024
 - Performed electrical wiring, distribution board assembly, soldering of microcontrollers, and component testing/validation.
 - Conducted air compression engine assembly, disassembly, maintenance, and refurbishment (sandblasting, paint coating).
 - Gained hands-on welding & fabrication experience: capacitor discharge stud welding, thread machining, and MAG welding.
- **Everprint (TU/e Startup)** Eindhoven, Netherlands
3D Printer Maintenance Technician 2023 – 2024
 - Provided on-request support, diagnostics, and repair of 3D printers for a startup company at TU/e.

PROJECTS & TECHNICAL ACTIVITIES

- **B.Sc. Thesis: Shared Human-Robot Control of Soccer Robots** Sep. 2024 – Jul. 2025
Tech United, Technische Universiteit Eindhoven Eindhoven, Netherlands
 - Designed and implemented a shared human-robot control (SHRC) framework for Tech United's autonomous soccer robots (TURTLES), enabling a single operator to control up to 5 robots simultaneously as a research testbed for learning by demonstration.
 - Developed shared control logic in Python using pyRTDB for real-time inter-module communication, architecturally decoupled from the existing autonomous system via RTDB channels.
 - Implemented field boundary impedance (kinematic-based velocity limiting), automatic ball intercept, and assisted passing/shooting with corrective aim using PD controllers with adaptive gain scheduling and derivative filtering.

- Validated the framework in both simulation and on physical robots, demonstrating reduced operator cognitive workload and smooth multi-agent human-robot collaboration during gameplay.

- **Tech United Soccer Robotics** Eindhoven, Netherlands
Team Member – RoboCup Middle Size League (MSL) 2024 – 2025
 - Continued implementation and integration of the shared control framework onto the physical wheeled soccer robots within the Tech United research team.
 - Contributed to a multidisciplinary university team competing in the RoboCup MSL, working on real-time control and human-robot interaction.
- **FIRST Robotics Competition** Grand Cayman, Cayman Islands
Robotics Club Member 2020 – 2022
 - Built two robots from scratch, competing in local and global FIRST Robotics competitions. Responsible for CAD design, 3D printing, and system integration.
- **B&R Beurs Eindhoven** Eindhoven, Netherlands
Investment Society Member 2024 – Present
 - Active member of TU/e's investment society. Over 5 years of personal experience in financial modeling, valuation methods, and US market analysis using ThinkorSwim and TradingView.

TECHNICAL SKILLS

- **Programming & Tools:** Python, MATLAB (Simulink, Stateflow), Git (GitHub, GitLab), VS Code, L^AT_EX (Overleaf), Arduino
- **CAD & Simulation:** Siemens NX (Modeling, FEM), Fusion 360, Onshape, Marc Mentat, FEMM, Eclipse ESCET / CIF
- **Fabrication:** FDM & SLA 3D printing (Ultimaker Cura, Bambu Studio, Chitubox), Welding (MAG, stud), Soldering
- **Languages:** English (native), German (native), Dutch (B1), Spanish (A2)

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

- **Total Soccer 345** Grand Cayman, Cayman Islands
Assistant Soccer Coach 2019 – 2022
 - Managed technical drills and exercises, accumulating over 200 hours shadowing professional coaches to develop strong leadership and team management skills.
- **ESVV Pusphaira** Eindhoven, Netherlands
Club Member 2022 – Present
 - Active participant in one of the largest student sports associations at TU/e, balancing rigorous Control Systems Technology studies with teamwork and community engagement.

OTHER INTERESTS

- US Market Investing, Competitive Soccer, Volleyball, PC Building, 3D Printing, Drone Cinematography, Piano & Saxophone