

ILYAS SECKIN



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Languages: Turkish (Native), Russian (Native), English (Fluent), German (Fluent), Chinese (HSK 3 Certificate), French (Self-learning, Beginner level)

EDUCATION

- **ETH Zürich, Switzerland**
 - **Mechanical Engineering MSc** **2023 - 2025**
 - Specialization: Robotics, Systems and Control
 - **Mechanical Engineering BSc** **2020 - 2023**
 - Specialization: Robotics, Systems and Control

WORK EXPERIENCE

- **ETH Zürich, Switzerland**
 - **Scientific Assistant (Full-Time) - IDSC** **Oct 2025 - Present**
 - Assisting research in Prof. Christopher Onder's group at the Institute for Dynamic Systems and Control (IDSC). Developing medical hardware, software and control systems within the perfusionX research group. Supporting teaching for the course "Vehicle Propulsion Systems" and student supervision.
 - **Research Assistant - perfusionX** **May 2025 - Oct 2025**
 - Developed a next generation ex vivo perfusion machine designed for various organs such as livers and limbs at IDSC in cooperation with the University Hospital of Zurich (USZ).
 - **Research Assistant - Swiss eBus Plus** **Feb 2024 - Mar 2025**
 - Developed software at IDSC for electric public buses in partnership with the Swiss Federal Office of Energy (BFE), Carrosserie HESS AG, and Zurich Public Transportation (VBZ).
 - **Teaching Assistant - Computer Science** **Feb 2022 - Feb 2024**
 - Conducted exercise sessions and gave feedback on coding assignments on computer science and object-oriented programming (OOP) with C++. Selected by the students to give the Exam Preparation Course.
- **ETH Robotics Club, Switzerland**
 - **Perception Lead, Autonomous Racing Drone Project** **Aug 2025 - Present**
 - Leading a 6-member team developing real-time motion capture (Mo-Cap), visual inertial odometry (VIO), gate detection, and 6-DoF pose estimation.
- **Swissloop Tunneling, Switzerland**
 - **Advisor to the Leadership and Engineering Teams** **Sep 2024 - Present**
 - **Head of Electrical & Software Engineering (Co-Head of Engineering)** **Apr 2024 - Sep 2024**
 - Led the electrical, software, and control systems teams, consisting of ~15 engineers.
 - **Head of Integration (Co-Head of Engineering)** **May 2023 - Apr 2024**
 - **Engineering Operations Lead** **Sep 2022 - May 2023**
 - **Mechanical Design Engineer** **Apr 2022 - Sep 2022**
- **Mettler Toledo, Switzerland**
 - **R&D Intern - Rate Control Optimization** **Sep 2024 - Feb 2025**
 - Developed and tested innovative control software as a part of the Data Science and IoT team to optimize precision and efficiency in advanced automated filling applications, namely IND360rateControl.
- **MetaSuit, Switzerland**
 - **Electrical and Software Engineer** **Oct 2022 - Sep 2023**
 - Developed solutions for sensor data acquisition, logging, and processing (Python); computer vision, image processing (OpenCV), VR (C#).

PROJECTS

- **Machine Learning Based Anomaly Detection for Ex Vivo Perfusion, Master's Thesis (Grade: 6.00/6.00) 2025**
 - Investigated machine learning methods for multivariate time-series anomaly detection during ex vivo perfusion of organs such as livers and limbs. In association with the University Hospital of Zurich (USZ).
 - Supervisor: Prof. Dr. Christopher Onder - IDSC, ETH Zürich
 - Keywords: Medical Devices, Time Series Anomaly Detection, LSTM, Autoencoders, Deep Learning

- **Design and Development of a Quad-Thruster Water Robot**, Semester Project (Grade: 6.00/6.00) **2024**
 - Developed a novel Unmanned Surface Vehicle (USV), including its hardware, software, and control, which is ready for on-water swarm integration.
 - Supervisor: Prof. Dr. Raffaello D'Andrea - IDSC, ETH Zürich
 - Keywords: Mobile Robots, ROS, Linux, Raspberry Pi, Kalman Filter, SOLIDWORKS
- **Investigation of Resampling Methods for the RPDG Optimizer**, Bachelor's Thesis (Grade: 5.75/6.00) **2023**
 - Investigated novel optimizers for a resampling-based non-linear MPC optimizer (Resampling Parallel Gradient Descent Optimizer) used in autonomous driving and racing.
 - Co-Supervisor: Prof. Dr. Emilio Frazzoli - IDSC, ETH Zürich
 - Co-Supervisor: Prof. Dr. Tobias Delbrück, Institute of Neuroinformatics (INI), ETH Zürich and UZH
 - Keywords: Autonomous Vehicles, Model Predictive Control (MPC), LiDAR, Simulation, F1TENTH

AWARDS & HONORS

- **Not-a-Boring Competition**, The Boring Company, Bastrop / TX, USA **Mar 2024**
 - 1st Place Overall, Champion Award (Swissloop Tunneling)
- **Not-a-Boring Competition**, The Boring Company, Bastrop / TX, USA **Apr 2023**
 - 2nd Place Overall, Innovation Award (Swissloop Tunneling)
- **Selected as Excellent Teaching Assistant by Students** **2022, 2023**
 - Teaching Assistant for Computer Science at ETH Zürich
- **International Institute of Engineers and Researchers**, Chicago / USA **Mar 2018**
164th The IIER International Conference on Science, Engineering & Technology
 - IIER Excellent Paper Award
- **49. TÜBİTAK High Schools Project Competition** **Mar 2018**
 - Third Place in Regional Finals

PREVIOUS SCIENTIFIC RESEARCH WORKS AND PUBLICATIONS

- **Speaker at Oyak-Renault Manufacturing Plant R&D Team**, Bursa / Turkey **Oct 2019**
- **Invitee for the Asia Pacific Conference of Young Scientists**, Yakutsk / Russia **Oct 2019**
- **Presenter at Groupe Renault Headquarters**, Boulogne-Billancourt / France **May 2019**
- **Speaker at the 6th World Congress on Physics**, Paris / France **May 2019**
- **Global Scientific Journal**, Volume 7, Issue 1 **Jan 2019**
 - 2 Publications:
 - "Investigation of the Behavior of Electric Current in Human Cells under the Impact of a Pulsating Magnetic Field" ([Link](#))
 - "Reduction of Wear in Vehicle Pistons with Copper Oxide Effect and Extension of Motor Life" ([Link](#))
- **International Institute of Engineers and Researchers**, Chicago / USA **May 2018**
164th The IIER International Conference on Science, Engineering & Technology
 - 1 Publication and Speaker

LEADERSHIP & COMMUNITY INVOLVEMENT PROJECTS

- **AMIV blitz**, Switzerland **Sep 2022 - Mar 2024**
 - **Co-President / Treasurer**
 - Responsible for the accounting, marketing, and sponsorships for the official bi-weekly magazine of ETH Zürich's mechanical and electrical engineering student association. Managed approximately CHF 50'000 in annual revenue.
- **TURQUIA 1912 Association**, Switzerland **Sep 2022 - Apr 2024**
 - **IT Manager**

SKILLS & INTERESTS

- **Programming**: Linux, Java Foundations, Python, C++, C#, SQL, HTML, CSS, Robot Operating System (ROS/ROS2), Azure DevOps, GitHub, GitLab, PyTorch, MATLAB
- **Computer-Aided Design**: Siemens NX, SOLIDWORKS
- **Astrophotography, Astrophysics and Photography**
- **Music**: Piano, Clarinet, Bass Guitar, Singing, Composition, Conducting, DJing. Graduated from the Mimar Sinan Fine Arts University State Conservatory in Istanbul with the subjects Clarinet and Music Theory.