

ECDA EROL

Lead System Engineer, M. Sc.

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🚗 Category B (CH)

✉ Zurich, Switzerland
🇨🇭 C Permit

in ecdaerol
🌐 ecdaerol.com



EXPERIENCE

Founder

X-Tech Studio

📅 Jan 2026 – Present

📍 Zurich, Switzerland

- Defined the product vision, roadmap, and requirements for **AXIOM**, a multi-variant 6-axis force/torque sensor line for collaborative, industrial, and humanoid robotics.
- Own prioritisation across mechanical, electronics, and software workstreams, balancing performance, cost-of-goods, and time-to-market.
- Drive rapid prototyping cycles and iterative design; coordinate test planning and industrialisation with external partners.
- Engage early customers and pilot partners to validate product-market fit and shape the backlog.

Lead System Engineer

lino Biotech AG (ETH Spin-off), a Miltenyi Biotec Company

📅 Sep 2023 – Present

📍 Zurich, Switzerland

- Lead cross-functional development of the **MACS Matchmaker** biosensor and **MACS Sampler** autosampler, coordinating daily across optics, mechanics, fluidics, electronics, and firmware.
- Shipped two complex instruments from concept to market within 12 months through sprint-based design reviews, active risk tracking, and cross-discipline blocker resolution.
- Manage a >1 M CHF R&D budget, leading supplier engagement, feasibility trade-offs, and design-transfer decisions.

Mechanical Design Engineer

Bota Systems AG (ETH Spin-off)

📅 Nov 2021 – Aug 2023

📍 Zurich, Switzerland

- Primary mechanical engineer across the full 6-axis force/torque sensor portfolio. Launched **MiniONE**, **MiniONE Pro**, **MegaONE**, **LaxONE**, **SensONE T80**, and multiple custom OEM variants; iterated on **SensONE**, **Medusa**, and **Rokubi**.
- Owned 20+ SKUs end-to-end for deployment on collaborative, industrial, and surgical robots (Universal Robots, Stäubli, and others).
- Built a sim-to-real methodology linking FEA and test data, improving sensor accuracy by ~400% and becoming standard practice across the product line.
- Established PLM workflows (SolidWorks PDM, ERP) for change management (ECO/ECR) and design transfer to manufacturing.

Research Assistant

Floating Robotics AG (ETH Spin-off)

📅 Jun 2021 – Oct 2021

📍 Zurich, Switzerland

- Designed a compliant gripper and a two-DOF cutter-gripper mechanism for the Kinova Jaco arm; validated structural integrity and safe interaction with FEA.

Mechanical Engineering Intern

Antefil Composite Tech AG (ETH Spin-off)

📅 Oct 2020 – Feb 2021

📍 Zurich, Switzerland

- Designed and scaled fibre-spinning plant components using parametric modelling; optimised airflow via CFD/FEA to improve thermal uniformity in production.

Research Intern

Max Planck Institute for Intelligent Systems – Haptic Intelligence

📅 Jun 2018 – Aug 2018

📍 Stuttgart, Germany

- Improved actuation performance of the 'Digital VerroTouch' haptic feedback system by ~250%, delivering more realistic tool-vibration feedback to surgeons.
- Designed voice-coil actuator brackets and 3D-printed prototype assemblies for fast iteration.

EDUCATION

M. Sc. in Mechanical Engineering

ETH Zurich

📅 Sep 2019 – Oct 2021 🎓 GPA: 5.74/6.00

- **Specialization:** Robotics, Design & Optimization.
- **Thesis:** "Design and Engineering of a Cable-driven Floating Robot with Actuator Coupling" 📺 – **Grade:** 6.0/6.0

B. Sc. in Mechanical Engineering

Bogazici University

📅 Sep 2015 – Jun 2019 🎓 GPA: 3.75/4.00

- **Specialization:** Mechanical Structures & Systems.
- **Thesis:** "Design and Development of a Force Sensor for Colonoscopy Operations" – **Grade:** 4.0/4.0

Abitur & High School Diploma

Istanbul Lisesi (Deutsche Auslandsschule)

📅 Sep 2009 – Jun 2014 🎓 GPA: 90.5/100

- MINT-EC certified STEM education in German; ranked top 0.06% in national entrance exams.

AWARDS & ACHIEVEMENTS



Merit Scholarship

ETH Zurich. Awarded for outstanding academic performance during M.Sc. studies (2019–2021).



Salutatorian of Class (2019)

Bogazici University. Graduated with High Honors (2019).



National University Entrance Exam

Ranked in the top 0.07% among more than 2 million candidates (2014).



Outstanding Success Scholarship

Awarded by the Turkish Educational Foundation (TEV) for sustained academic excellence (2015–2019).

PUBLICATIONS



Articles

- Y. Gong, H. M. Husin, E. Erol, V. Ortenzi, and K. J. Kuchenbecker, "Airotouch: Enhancing telerobotic assembly through naturalistic haptic feedback of tool vibrations," *Frontiers in Robotics and AI, section Haptics*, 2024.
- F. Dinc, B. C. Akdeniz, E. Erol, et al., "Analytical derivation of the impulse response for the bounded 2-d diffusion channel," *Physics Letters A*, vol. 383, no. 14, pp. 1589–1600, 2019.

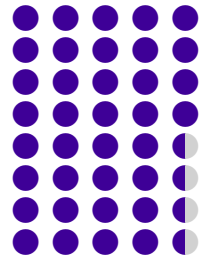


Thesis

- E. Erol, "Design and engineering of a cable-driven floating robot with actuator coupling method," Master Thesis, ETH Zurich, Zurich, 2021-11-24. DOI: 10.3929/ethz-b-000670547.

SKILLS

Product Strategy & Roadmap
Cross-functional Team Leadership
Systems Engineering
Requirements Engineering
Stakeholder & Supplier Management
Risk Management & Design Reviews
Agile / Scrum (Sprint Planning)
Hardware/Software Integration

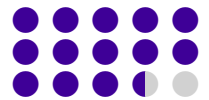


TOOLS

CAD SolidWorks, SolidEdge, Inventor
PLM SolidWorks PDM, PRO.FILE
Simulation ANSYS, ABAQUS, COMSOL
Dev Python, MATLAB, ROS/ROS 2, Git, CI/CD
Product Jira, Confluence, Adobe Suite

LANGUAGES

Turkish (Native)
English (C1/C2)
German (B2/C1)



REFERENCES

Prof. Dr. Marco Hutter

📍 ETH Zurich – Robotic Systems Lab
@ mahutter@ethz.ch

Prof. Dr. Katherine J. Kuchenbecker

📍 Max Planck Institute (Haptic Intelligence)
@ kjk@is.mpg.de

Dr. Salman Faraji

📍 Founder, Floating Robotics AG
@ salman.faraji@gmail.com

Additional references available upon request.