ALEJO RESTREPO

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EDUCATION

ETH Zürich *Sep 2024 – Expected Jun 2027*
BSc. Electrical Engineering GPA: **5.51/6.0** (current) - ***top 5%***

MNG Rämibühl, Zürich *Sep 2021 - Jul 2024*
Matura, Mathematics & Physics, accepted without entry exam due to national math olympiad placement
Thesis graded **6.0/6.0** - *Best in Canton of Zürich*

EXPERIENCE

MicroAGI *Feb 2026 - Jun 2026*
Hardware Internship
- Designed and prototyped the hardware and circuit board of a mass-producible egocentric video recording device for embodied AI data collection, scaling production in Germany to **100k+ units** to fulfill orders from top-tier US robotics labs

ETH Robotics Club *Aug 2025 – Present*
Founding Member and Robot Learning Team Lead (25 members)
- Founding member of the ETH Robotics Club, growing it from inception in 10 months to be the largest in Europe, raising **1M+ CHF** in sponsorships to enable **300+ members** to pursue robotics projects.
- Led a **25 member team** developing a VLA-powered bimanual robotic setup for dexterous manipulation. Designed and 3D-printed custom parallel-jaw grippers and leader arms integrated into a full teleoperation stack

ETH Zürich *Aug 2025 – Present*
Teaching Assistant, Digitaltechnik (HS25) Netzwerke und Schaltungen II (FS26) incoming Analysis III (HS26)
- Teaching circuits and networks laboratory *(Netzwerke und Schaltungen II, FS26)*
- Teaching Assistant for Digital Circuits *(Digitaltechnik, HS25)*
- Offered Incoming Teaching Assistant for Calculus III *(Analysis III, HS26)*

Ascento Robotics *Jul 2025 – Jan 2026*
Robotics Internship
- Responsible for customer deployment uptime, maintaining a **fleet of 60 autonomous security robots** 24/7, diagnosed and resolved software faults using ROS and Python and established the incident playbooks for the operation.
- Performed PCB assembly, oscilloscope-based electronics testing, and 3D printing to help scale production to **100+ units**

PROJECTS

6-DoF Stepper-Driven Robot Arm *2025*
C++, Python, STM32, CAD, 3D Printing
- Built a fully 3D-printed 6-DoF arm driven by stepper motors; implemented Madgwick sensor fusion on an STM32 to use onboard IMU tilt as a joint controller; developed Python UART interface and real-time pygame visualizer.
- Presented at ETHZ (Dr. Philipp Mayer, PBL Laboratory) and as an invited speaker at MNG Rämibühl.

4-DoF Servo Robot Arm with D-H Kinematics *2024*
C++, Python, CAD, 3D Printing
- Redesigned actuator joint housing, which led to eliminating **90%** of backlash under max load; programmed forward/inverse kinematics using Denavit-Hartenberg parameters and homogeneous matrix transformations.

Matura Thesis: Low-Cost Robotic Manipulator *2024*
C++, Robot Kinematics, Research
- Designed and built a 4-DoF balsa-wood robotic arm; derived kinematics via both trigonometric and derivative-based methods; achieved 1.5 cm repeatability.
- Awarded 6.0/6.0 — displayed at Canton Zürich Matura Exhibition.

SKILLS & LANGUAGES

Programming: C++, C, Python, JavaScript
Hardware & Tools: KiCAD / Altium (PCB Design), Fusion 360 / Solidworks (CAD Design), ROS, ESP32, Arduino, Docker, 3D Printing, Oscilloscopes
Languages: English, Spanish (Native), German/Swiss-German (Fluent), French, Italian (Proficient)

HONORS & AWARDS

- National Mathematics Olympiad, Colombia — 1st (2018, 2019 Gold Medal), IMO placement (39th worldwide)
- National Mathematics Olympiad, Colombia — 3rd (2017, Bronze Medal)