

Mateo Mamaladze

Student engineer — hardware, product and research. Co-founder of OpenPulse.

Location	Born	Background
Munich, Germany	11 May 2009	German-Georgian
Email	Code	Designs
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PROFILE

Seventeen-year-old engineer working across hardware, software and research. I co-founded **OpenPulse**, a modular biosensor platform that took **first place for Europe** in the 2026 Blue Ocean competition and **first place in its category** at STARTUP TEENS. I have research experience in materials testing at a neutron source, I run my school's robotics course, and I published eight 3D-printable designs — now past 5,300 downloads — before I turned fifteen. My work has a consistent bias: I build systems that can be opened, understood and repaired by the people who use them.

SELECTED RESULTS

1st place, Europe — Blue Ocean 2026

Student Entrepreneur Competition, with OpenPulse. Regional first place for Europe.

23,000+ students · 9,000+ schools · 173 countries

Top 14 nationally — JUGEND GRÜNDET 2026

Invited to pitch at the IHK Munich; among the national top 14 with OpenPulse.

34 of 1,461 teams invited to pitch

1st prize twice — Känguru der Mathematik

Consecutive first prizes in grades 9 and 10.

First prize ≈ top 0.85% of a year group

1st place, Health & Lifestyle — STARTUP TEENS 2026

One of seven national category winners. €10,000 prize, decided at the Berlin final.

1,482+ projects · 6,621 students

Special prize, Bavarian state round — Jugend forscht 2026

For BeGreifbar, a VR chemistry laboratory, after winning the regional round in München-Süd.

State round: 87 participants · 59 projects

8 published designs before age 15

Original 3D-printable models on Printables, led by an anti-gravity bottle stand.

5,343 downloads · 1,593 likes (19 Jul 2026)

EDUCATION

2019 – 2027 expected	Abitur — Maria-Theresia-Gymnasium, Munich Gifted-track class · Physics as advanced course Skipped one school year; youngest student in my cohort. Currently Q12, with the Bavarian Abitur expected in 2027. Seminar paper on guest-worker migration in Munich's Westend.
Jun – Jul 2026	Engineering summer programme — Cambridge, United Kingdom Two-week intensive engineering programme.

RESEARCH EXPERIENCE

Apr – May 2024
2 months

Research intern — FRM II research reactor

Technische Universität München · Garching bei München, on site

Mechanical characterisation of an experimental boron-filled 3D-printing filament. Boron absorbs neutrons, so printing with it would let the facility produce neutron-shielding and beam-shaping components in arbitrary geometries rather than machining them — but the printed material's load behaviour was uncharacterised.

- Printed and prepared tensile specimens across material and print-orientation configurations, three specimens per configuration.
- Ran tensile tests to failure on a universal testing machine; recorded and compared results against reference materials.
- Worked to the facility's measurement and documentation standards.

2024 – 2026

BeGreifbar — VR learning research (Jugend forscht, chemistry)

With Juan Rivera Chopinaud and Roman Daugavet

Investigated whether an immersive VR environment improves comprehension of abstract chemistry representations. Built the system (Meta Quest 3, Unity, iPad control surface, web dashboard; ~31,000 lines of code), then ran an initial study. Results were directional rather than conclusive; a larger sample and interview round are the planned next step.

- Regional round München-Süd, then the Bavarian state competition (13-15 April 2026), where the project received a special prize.

VENTURES AND WORK

2025 – present

Co-founder — OpenPulse

Hardware architecture and product · with Juan Rivera Chopinaud and Roman Daugavet

A modular biosensor platform: interchangeable sensor "pucks" on a shared body, with the wearer retaining access to raw data instead of a closed subscription ecosystem. Positioned for research, workplace safety and specialised monitoring.

- Responsible for hardware architecture, enclosure design and product direction; first PCB batch manufactured and a development prototype running on an nRF52840 with PPG, temperature, environmental and IMU sensing over BLE.
- Openly documented, including fabrication records for the current board revisions.
- Actively developed prototype — not a clinically validated or certified medical device.

2024 – present

Founder — vintage watch trading

Registered business (Gewerbe) since age 16

Sourcing, valuation, negotiation, restoration coordination, customer relations and bookkeeping for mechanical vintage watches.

Turnover in excess of €17,000 to date (turnover, not profit)

2025 – present

Co-founder — Munich Scholar Mentors

munichscholarmentors.de

A live tutoring platform matching high-performing student tutors with learners, including profiles, matching, booking and parent-facing views. I am also listed as a tutor for physics, computer science, mathematics and biology.

TEACHING AND INSTITUTION-BUILDING

Sep 2024 – present	Course leader — humanoid robotics course Maria-Theresia-Gymnasium, Munich Lead a weekly course for younger students building a humanoid robot, coordinating mechanical assembly, electronics and control software. Wrote the servo-control and calibration interface the group uses (Flask, Socket.IO, pose management, emergency stop, mock mode).
2026 – present	Co-founder — MTG forscht. School research programme · with Roman Daugavet Founded a repeatable structure that helps younger students start and develop their own Jugend-forscht projects: proposed it to school leadership, secured funding from the Förderverein and a supervising teacher, recruited across year groups, and produced the recruiting material. First meeting held 14 July 2026.

ENGINEERING AND SOFTWARE PORTFOLIO

30 public repositories. Grouped by what they are, rather than counted.

Hardware & physical systems	OpenPulse — modular biosensor hardware, firmware and dashboard · MAGMA — rover for the DLR Vulcano Summer School challenge, with gear-driven expanding wheels and environmental sensing, built with Juan and Roman · PibUi — humanoid robot control and calibration interface · GCodeBending — Python tool that deforms sliced G-code along a spline for non-planar printing · Glow Timer — Arduino and printed productivity timer · Sundial — location- and season-aware bracelet sundial calibration tool.
Learning tools	BeGreifbar — immersive VR laboratory for chemistry, physics and mathematics · SkyLab — interactive EASA principles-of-flight course with eleven units, simulations and exam mode · deinwettbewerb — matching engine over ~300 youth competitions with explainable fit and deadline logic · EduVids and EduSlides — AI pipelines that plan, critique and revise teaching videos and slide decks · Iphigenie e-reader — annotated interactive edition of Goethe's play · Stundenplan — timetable viewer.
Organisation & AI	Stufenportal — progressive web app for year-group organisation: events, polls, cash transparency, notifications · Threadmap — local-first graph of tasks, projects, habits and goals with natural-language capture · Athena — personal planning dashboard · Safeguard — content-scoring and parental-control layer for YouTube · Maestro — zero-dependency multi-model agent orchestrator with planning, routing, verification and cost tracking.

COMPETITIONS AND SELECTIONS

WHEN	COMPETITION AND RESULT	SCOPE
May 2026	Blue Ocean Student Entrepreneur Competition — first place for Europe, with OpenPulse	23,000+ students, 173 countries
Jun 2026	STARTUP TEENS Challenge — first place, Health & Lifestyle category; €10,000	1,482+ projects; 1 of 7 categories
Mar 2026	JUGEND GRÜNDET — national top 14; pitched at IHK Munich	34 of 1,461 teams pitched
Apr 2026	Jugend forscht, Bavarian state round — special prize (chemistry, BeGreifbar)	87 participants, 59 projects
Feb 2026	Jugend forscht, regional round München-Süd — advanced to the state competition	Regional
2026	DLR Vulcano Summer School challenge — designed and built the MAGMA rover for the volcanic-terrain brief	National challenge

WHEN	COMPETITION AND RESULT	SCOPE
Nov 2025	German Physics Olympiad (IPhO selection) — participant, second round	759 entrants nationally
2025	Känguru der Mathematik — first prize (grade 10)	≈ top 0.85% of year group
2024	Känguru der Mathematik — first prize (grade 9)	≈ top 0.85% of year group
–	Mathematik-Olympiade — reached the Bavarian state round	State round

PUBLIC ENGAGEMENT AND MEDIA

14 Feb 2026	Munich Security Conference side event — Prinz-Carl-Palais, Munich Attended as part of a school delegation to a discussion on deterrence and the role of land forces in Euro-Atlantic security, and put a question to the panel from the floor. Panel included Lieutenant General Dr Christian Freuding (Inspector of the German Army), General Christopher Donahue (Commanding General, US Army Europe and Africa) and Bavarian State Minister Dr Florian Herrmann, moderated by Prof Dr Carlo Masala.
2026	Talk on societal resilience — with the Consul General of Lithuania in Munich Short joint talk to an adult audience on strengthening societal resilience.
–	Bavarian television and radio — on artificial intelligence in schools
Ongoing	Civic participation Political simulation exercises at the Amerikahaus Munich; repeated visits to and discussions at the Bavarian Landtag; a panel discussion with former members of the US Congress. Rhetoric and public-speaking training since September 2025.

SKILLS AND TOOLS

HARDWARE

PCB design and bring-up · sensor integration (PPG, IMU, environmental) · BLE / nRF52840 · enclosure design in CAD, including parametric CadQuery · 3D printing and design for manufacture · soldering and prototype assembly

MEASUREMENT

Tensile testing on a universal testing machine · specimen preparation and configuration series · comparison against reference materials · lab documentation standards

SOFTWARE

Python · JavaScript and TypeScript · React and Next.js · Flask and Socket.IO · Unity and C# · Firebase, SQLite · Git

RESEARCH & PRODUCT

Study design and user testing · scientific writing and poster preparation · business modelling · pitching to juries and investors · teaching and mentoring

LANGUAGES

German — native · **English** — fluent · **Georgian** — family language

OUTSIDE WORK

Regular attendance at Munich's theatres and opera houses (eleven productions, Dec 2024 – Jul 2026) · sailing on the Ammersee, co-owner of a small cabin boat · road cycling and running · Georgian cooking · mechanical watches

Verification. Blue Ocean winners – blueoceancompetition.org/2025-2026-winners · STARTUP TEENS results – startupteens.de · JUGEND GRÜNDET pitch teams – jugend-gruendet.de/pitch-events-2026 · Jugend forscht Bayern project listing – jugend-forscht-bayern.de · Physics Olympiad round-two report – scienceolympiaden.de · Munich Security Conference side event – mtg.musin.de · Code – github.com/mateo-gepard · Designs – printables.com/@Matrix/models · Munich Scholar Mentors – munichscholarmentors.de
Notes. Printables metrics are a snapshot of 19 July 2026 and continue to change. OpenPulse is an actively developed prototype without clinical validation or certification. Watch-trading figures are turnover, not profit. Full site and project documentation: mateo-gepard.github.io/the-ascent