Zurab Mujirishvili

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Experience

Chair of Automatic Control, FAU Erlangen-Nuremberg — *Erlangen, Germany*

Doctoral Researcher — *Sep. 2026 – Present*

Researching methods for designing reliable and safe hierarchical task and motion planning systems with AI reasoning components.

Ozorix Ltd — *Remote*

Lead Software Developer — *May 2025 – Aug. 2026*

Led a team of 5 engineers to build the data product platform of WPP, a global advertising group, with a first-class agentic interface.

Senior Software Developer — *Oct. 2022 – May 2025*

Led a cross-functional team (3 engineers, QA, PM, PO) through code reviews, pair-programming and mentoring. Also promoted and provided mentoring for using AI coding tools across the company (about 25 engineers).

Software Developer — *Apr. 2022 – Sep. 2022*

Took over a stalled project for a sustainability tool in AdTech and delivered the MVP in 6 months with a team of 3 engineers.

Exactpro Systems Ltd — *Remote*

Junior Software Developer — *Feb. 2021 – Mar. 2022*

Designed and developed Kotlin libraries for building TH2 microservices for test automation of financial market infrastructure, and a testing library with a comprehensive DSL in Python.

Education

Friedrich-Alexander University of Erlangen-Nuremberg — *Erlangen, Germany*

Master of Science in Computational Engineering (BGCE Elite Program) — *Oct. 2023 – May 2026*

fau.de | Grade: 1.1 | Top 3% among 600+ students | Graduated with Honors and Distinction

Thesis: A Comparative Analysis of Risk Metrics for Risk-Aware Motion Planning | gitlab.com/risk-metrics/experiments

Free University of Tbilisi — *Tbilisi, Georgia*

Bachelor of Engineering in Electrical and Computer Engineering — *Sep. 2018 – Aug. 2022*

freeuni.edu.ge | GPA: 3.73 / 4.0 | Ranked 1st in cohort

Thesis: A 32-bit pipelined MIPS processor in SystemVerilog for an FPGA, with a custom assembler | gitlab.com/zurabm/fpga-mips-cpu

Publications

Enhancing System Self-Awareness and Trust of AI: A Case Study in Trajectory Prediction and Planning

Lars Ullrich, **Zurab Mujirishvili**, and Knut Graichen

2025 IEEE Intelligent Vehicles Symposium (IV) | DOI: 10.1109/IV64158.2025.11097712

Awards

2023	**Scholarship Holder for Master's Studies in Germany**, DAAD (German Academic Exchange Service)	*Tbilisi, Georgia*
2023	**329/340**, GRE (Graduate Record Examination)	*Tbilisi, Georgia*
2018	**Scholarship Holder for 1st Year of Bachelor's Studies**, Free University of Tbilisi	*Tbilisi, Georgia*
2017	**Finalist in the Field of Engineering**, EUCYS 2017 (European Union Contest for Young Scientists)	*Tallinn, Estonia*

Teaching

Friedrich-Alexander University of Erlangen-Nuremberg — *Erlangen, Germany*

Tutor for “Deep Learning” — *Jun. 2025 – Oct. 2025*

Held regular sessions to help students understand the course material, and reviewed homework assignments to fill gaps in their knowledge.

Tutor for “Machine Learning for Control Systems” — *Oct. 2024 – Feb. 2025*

Designed computer exercises that visualize core ideas of ML methods and demonstrate their applications, and moderated exercise sessions.

Free University of Tbilisi — *Tbilisi, Georgia*

Section Leader for “Programming Methodologies” — *Oct. 2020 – Jan. 2021*

Graded assignments and held weekly support sessions for a course in software engineering fundamentals.

UG-Limes Ltd — *Tbilisi, Georgia*

Teaching Assistant — *Sep. 2018 – Feb. 2019*

Assisted in an introductory course in microcontroller programming and electronics.

Languages

English - **C2** (IELTS 8.5) **German** - **C1** **Georgian** - **Native**

Projects

Faran *2025*

gitlab.com/risk-metrics/faran | risk-metrics.gitlab.io/faran

A modular trajectory planning library for robotics with support for GPU acceleration.

RisKit *2025*

gitlab.com/risk-metrics/riskit | risk-metrics.gitlab.io/riskit

A general-purpose risk computation library for risk-aware trajectory planning, with GPU acceleration, a declarative DSL and in-browser support via Pyodide.

Gloop *2026*

gitlab.com/zurabm/gloop | zurabm.gitlab.io/gloop

A modular library for simulating particle swarms in the browser, with WebGPU-based acceleration.

Sierpe *2026*

gitlab.com/risk-metrics/sierpe | risk-metrics.gitlab.io/sierpe

A lightweight browser-based simulator for snake-like robot locomotion.

Needy *2026*

gitlab.com/pytooling/needy | pytooling.gitlab.io/needy

A testing library for Python projects with optional dependencies, verifying behavior across environments with packages missing or present.

NumTypes *2025*

gitlab.com/zurabm/numtypes

Shape-aware static type hints for NumPy arrays.

Robot Snake *2024*

gitlab.com/zurabm/robot-snake

A library for symbolic and numeric robotics computations (e.g. forward and inverse kinematics) and their visualization.

CG Solver *2024*

gitlab.com/zurabm/cg-solver-optimization-for-2d-heat-equation

A parallel conjugate gradient solver for a 2D heat equation, optimized for ccNUMA and benchmarked at NHR@FAU.

FAU Chatbot *2024*

gitlab.com/zurabm/fau-chatbot

Research on building a safe digital assistant with open-source LLMs and parameter-efficient fine-tuning.

Cytorch *2024*

gitlab.com/zurabm/cytorch

A neural network library in C++ with a declarative DSL.

FPGA MIPS CPU *2022*

gitlab.com/zurabm/fpga-mips-cpu | gitlab.com/zurabm/mips-assembler

A 32-bit pipelined MIPS processor in SystemVerilog for the Zybo Z7-20 board, with a custom assembler.

FDTD Simulations *2022*

gitlab.com/zurabm/fdtd-simulations-with-matlab

A 1D and 2D finite-difference time-domain simulator for an antenna made of an array of dielectric rods.

STM Logic Analyzer *2021*

gitlab.com/zurabm/stm-logic-analyzer

A digital logic analyzer built on an STM32 microcontroller, with a desktop application as the interface.

Digital Multimeter *2020*

github.com/zurabmu/digital-multimeter

An Arduino multimeter with no mechanical moving parts, measuring 8 electrical and environmental quantities.