

Mateusz Juszczak

B.Eng. in Computer Science | Focused on HPC, ML Systems & Processing-in-Memory

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EDUCATION

Poznan University of Technology

2021 – February 2026

B.Eng. in Computer Science

Final Grade: 5.0/5.0 (Summa Cum Laude)

Coursework GPA: 4.82/5.0 | Final Diploma Grade: 5.0/5.0

Adam Mickiewicz University (POMOST Extracurricular Program)

2025

Completed rigorous mathematics coursework beyond the engineering curriculum: **Linear Algebra 2**, **Mathematical Analysis with Applications 2**.

Erasmus @ University of Zagreb (FER)

Autumn 2024

Master's-level coursework in machine learning and data science: **Machine Learning 1**, **Deep Learning 1**, **Introduction to Data Science**.

RESEARCH EXPERIENCE & THESIS

Research Assistant – Neurosymbolic AI Group

March 2026 – present

Supervisor: Prof. Krzysztof Krawiec | Institute of Computing Science, PUT

- Contributing to research on neurosymbolic scene decomposition based on the DVP/ASR architecture family.
- Extending the framework to a new data modality, adapting primitive representations and differentiable rendering pipelines.

Engineering Thesis: Hardware Acceleration of MMseqs2 on UPMEM DPUs

[\[Repository\]](#)

Supervisor: prof. P.T. Wojciechowski | Grade: 5.0

- Project Scope:** Extended the MMseqs2 sequence alignment workflow with a hardware acceleration layer, demonstrating feasibility of offloading memory-bound prefiltering workloads from the host CPU to DRAM (UPMEM DPUs).
- My Contribution:** Led project conception, PIM feasibility research, implementation of the gapped alignment kernel, and conducted comprehensive hardware benchmarking to evaluate architectural trade-offs within a four-person team.

SELECTED ACADEMIC PROJECTS

HPC & Evolutionary Algorithms: Heterogeneous Optimization

[\[Repository\]](#)

Project for “Combinatorial Optimization” | Technologies: C++, OpenMP, CUDA

- Implemented multi-paradigm solvers behind a unified CLI interface to enable direct algorithmic benchmarking.
- Utilized OpenMP for fine-grained parallelism and implemented a CUDA-accelerated fitness evaluation kernel to exploit data-parallel workload structure.

Distributed Systems: Distributed Critical Section

[\[Repository\]](#)

Project for “Distributed Programming” | Technologies: C++, OpenMPI

- Implemented a modified Ricart–Agrawala algorithm for distributed mutual exclusion using MPI message passing.
- Combined distributed message passing with local C++17 multi-threading primitives (mutexes, atomics) to ensure thread-safe state management.

PROFESSIONAL ENGINEERING EXPERIENCE

LST-Soft Sp. z o.o.

January 2024 – February 2026

Software Engineer (.NET / DevOps) – Part-time (20h/week) alongside full-time studies

- Led a major modernization of a legacy production backend in C# for Poland's largest electronics e-commerce retailer, independently refactoring and reducing the core codebase from 15,000 to 12,000 lines to eliminate technical debt.
- Migrated deployment infrastructure from legacy system schedulers to a Kubernetes-based containerized environment, writing custom YAML manifests to streamline release cycles and configuration management.
- Architected an automated VRPTW pipeline for enterprise field services, replacing heuristic approximations with exact routing by integrating VROOM and OSRM into the core system.
- Deployed a scalable geo-services stack (OSRM, VROOM, Photon) on Kubernetes and engineered internal CI/CD tooling for automated software compilation.

HONORS & ACHIEVEMENTS

- ISCA 2026 uArch Travel Grant:** Awarded a highly competitive full travel grant (~15% global acceptance rate) to attend the International Symposium on Computer Architecture (ISCA). Subsequently invited by Prof. Onur Mutlu (ETH Zurich) to present thesis findings at his Memory-Centric Computing Systems (MCCS) workshop.
- Rector's Scholarship for the Best Students:** Awarded every semester (2021–2026) for placing in the top 10% of the Computer Science cohort at Poznan University of Technology.

- **Competitive Programming (AMPPZ Finalist 2023):** Represented PUT at the regional Polish Collegiate Programming Contest (ICPC format) after securing 1st place in university-wide qualifiers as team leader.

TECHNICAL SKILLS

- **Technical Profile:** Python, C/C++, C#, CUDA, OpenMP, OpenMPI, Linux, Docker, Kubernetes, Git.
- **Languages:** Polish (native), English (C1), German (B1).