Mateusz Kasprzak

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EDUCATION

University of Warsaw Warsaw, Poland
B.Sc. in Computer Science Oct 2023 – Present

- Currently in my 3rd year.
- Focus on Algorithms, Systems, and Theoretical Computer Science.

RESEARCH EXPERIENCE

Abstract Algebra Benchmark for LLMs *B.Sc. Thesis*
Research Collaboration with Google DeepMind, MIT, and University of Toronto Oct 2025 – Present

- Collaborating with researchers to develop a rigorous mathematical benchmark for Large Language Models.
- Aiming to advance the capabilities of AI systems in genuine scientific discovery and formal reasoning.
- Focus on abstract algebra and formal verification within AI contexts.

EXPERIENCE

Kalepa Remote
Backend Software Engineering Intern Jul 2025 – Sep 2025

- Engineered automation and data-processing pipelines for an insurance-tech startup involving unstructured data.
- Developed and optimized internal tools to support large-scale information handling and analysis.
- Utilized Python and cloud infrastructure (AWS) to enhance backend system reliability.

SELECTED PROJECTS

High-Performance Concurrent Solver – *C* *Concurrent Programming*

- Developed a highly optimized solution for a complex algorithmic problem, utilizing low-level memory management to minimize synchronization overhead.
- Achieved near-linear scalability with thread count while maintaining performance parity with the sequential baseline on single-thread execution.
- Ranked among the top solutions in the cohort for execution speed and efficiency.

Boolean Evaluator – *Java* *Concurrent Programming*

- Designed a thread-safe Boolean-expression parser and evaluator supporting high-throughput batch processing.
- Implemented rigorous unit testing and ensured concurrency safety using mutexes and atomic operations.

NAND Logic Simulator – *C* *Computer Architecture*

- Built a low-level logic simulator to model combinational circuits starting from NAND gates.
- Verified complex truth tables and circuit designs, demonstrating deep understanding of digital logic.

Full project portfolio available at: github.com/matikasp/University_Projects

SKILLS

- **Programming:** C, C++, Java, Python, NASM x86 Assembly.
- **Tools & Cloud:** Git, Linux, AWS, Flask, OpenAI API.
- **Core Concepts:** Algorithms & Data Structures, OS, Concurrency, Computer Architecture, Automata Theory.
- **Languages:** Polish (Native), English (Advanced/C1).