

# ADAM DERYŁO

☎ +48 698 608 344 ✉ [a.m.derylo@gmail.com](mailto:a.m.derylo@gmail.com) 🔗 [linkedin.com/in/adamderylo](https://linkedin.com/in/adamderylo) 🐙 [github.com/aderylo](https://github.com/aderylo)

## EDUCATION

### Technical University of Munich

*Masters of Informatics*

- Best technical university in Germany according to the QS rating.

**Oct. 2024 – Ongoing**

*Munich, Germany*

### Warsaw University

*Double degree: BSc in Computer Science & BSc in Cognitive Science*

- Top rated CS undergraduate program in Poland according to QS ranking.
- 1st-year modules: Functional Programming, OOP, C, Introduction to AI, Linear Algebra.
- 2nd-year modules: Adv. Algorithms, Databases, Computer networks, Web Apps, Statistics, NLP.
- 3rd-year modules: Distributed systems, Concurrency theory, Security of computer systems.
- Rector's scholarship for academic achievements.

**Oct. 2020 – Jul. 2024**

*Warsaw, Poland*

### 2SLO High School

*Computer Science, Mathematics & Philosophy profile*

- Top-4 rated high school in Poland according to Perspektywy ranking.
- Laureate of the 2018 Polish Olympiad in Philosophy for high school students.
- Scholarship for outstanding academic achievements.

**Sep. 2017 – May. 2020**

*Warsaw, Poland*

## EXPERIENCE

### Amazon

*SWE Intern*

- NintAI applied science team responsible for ML models facilitating image search at Amazon.
- Added several features to the ML inference platform as well as developed Web App for it.
- Built and deployed the UI infrastructure from scratch using AWS CodePipeline and CodeBuild, ensuring seamless integration with SIGV4 authentication and resolving CORS issues.
- Implemented end-to-end tests using NightwatchJS and Selenium Grid, and integrated them into the CI/CD pipeline, establishing cross-account VPC connectivity between test workers and build services.
- Utilized AWS CDK for infrastructure as code, alongside AWS services such as API Gateway, CloudWatch, S3, DynamoDB, Lambda, and many more to deploy and monitor the platform.

**Jun. 2024 - Sep. 2024**

*Madrid, Spain*

### Taiwan Semiconductor Manufacturing Company

*Software Engineering Intern — Pytorch, Huggingface, Scikit-learn, Python*

- AI Application and Platform Development Team responsible for the automation of fab processes.
- Developed custom BLIP2 based model for photomask defect classification and dataset bootstrapping.
- Prototyped the application of Stable Diffusion models for rapidly bootstrapping rare photomask defect data.
- Ranked in the top 8 out of 80+ Interns in the final competition.

**Jul. 2023 - Sep. 2023**

*Hsinchu, Taiwan*

### Goldman Sachs

*Summer Analyst | Redis, Java, Procmon, Golang*

- Global reconciliations team, daily processing of 80+ mln trade & position data entries.
- Collaborated on optimizing caching performance and reliability of data loading processes.
- Worked on extending database performance limits with intelligent cache priming based on Change Data Capture.
- Developed Redis cache monitoring tool suite to speed up emergency debug and development cycle.

**Jun. 2022 - Aug. 2022**

*Stockholm, Sweden*

### ReSpo.Vision

*Software Engineer Intern | Python, Postgre, Git, SQL, Pytorch*

- 40+ sprints under the Scrum development framework in a rapidly growing team.
- Worked on a back-end implementation of a betting hints generator that withstood 100k API calls daily.
- Created a deep learning NLP module using architectures such as BERT.
- NLP module tackled the problem of context-dependent noun declination in Slavic languages.

**Jul. 2021 - May. 2022**

*Warsaw, Poland*

### Bain & Company

*Spring Intern | Nielsen, Ipsos, Bain's overlay for MS Office*

- Supported a consulting team in the area of wood market data analysis.
- Collaborated on a business case under the supervision of a dedicated mentor.

**Mar. 2021 - Apr. 2021**

*Warsaw, Poland*

**Bachelor thesis at Nencki Institute** | *Python, Pytorch, Tianshou***Nov. 2023 - Oct. 2024**

- Collaborated on computational neuroscience research at the Nencki Institute of Experimental Biology.
- Enhanced a novel reinforcement learning model of the dopaminergic circuit.
- Developed and optimized learning rules for Spiking Neural Networks, improving convergence of SNN based agents.
- Contributed to extensive literature review done by the research team.

**Bachelor thesis at NVIDIA** | *C++, CUDA, CMake, Python***Oct. 2022 - Jun. 2023**

- Worked with NVIDIA DALI team on accelerating image decompression in ML astronomy workflows.
- Contributed module to the open-source DALI library, improving the performance of the FITS decoder.
- Devised a testing & profiling pipeline to allow for benchmarking various CUDA kernel optimizations.
- Showcased the result by rewriting NASA Coronal Hole Semantic Segmentation pipeline and achieving 70% speedup.

**ELF Binary Reconstruction Tool** | *C++, Assembly, ELF Format, Reverse Engineering***Feb. 2024 - Apr. 2024**

- Developed a program to reconstruct relocation tables and symbols from stripped ELF executables.
- Implemented heuristic algorithms for function boundary detection and instruction classification.
- Designed solution for i386 architecture binaries compiled for Intel Quark microcontrollers.
- Such reconstruction allows for modifying parts of compiled code without hassels of full decompilation.

**Hearts Game Server** | *C, TCP/IP, Multithreading, Protocol Design***Apr. 2024 - May 2024**

- Implemented a TCP server for Hearts game, directly using system calls for networking needs .
- Developed robust serialization and deserialization of socket data with timeout mechanics.
- Created a flexible game engine capable of handling various Hearts rule variations.
- Applied concepts from Beej's Guide to optimize server performance.

**Deep Neural Networks** | *Python, Pytorch, Tensorboard***Nov. 2023 - Jan. 2024**

- Recreated implementations of 4 breakthrough ML papers from scratch.
- Implemented following papers from scratch:
  - "The Reversible Residual Network: Backpropagation Without Storing Activations"
  - "PaDiM: a Patch Distribution Modeling Framework for Anomaly Detection and Localization"
  - "Attention is all you need"
  - "Bigger, Better, Faster: Human-level Atari with human-level efficiency"
- Scored highest mark awarded to the best 5% of course participants.

**C interpreter** | *Haskell, GHC, Cabal, BNFC***Apr. - Jun 2023**

- Created an interpreter for a C-like language, called Latte.
- Implemented support for scoping, functions, multidimensional arrays, classes and many more.
- Utilized monad transformers to create various features such as garabage collection mechanism for the language.

**Minix OS** | *C, Qemu, Bash, rsync***Apr. - Jun. 2023**

- Developed various custom features for the Minix OS, including modifying the kernel.
- Implemented theoretically optimal scheduler, improving the performance of the system.
- Devised an add-on for the virtual file system which introduced file exclusivity mechanism.

**BEST hacking league** | *React, Python, OpenAI Playground***Apr. 2023**

- Earned 2nd place in a hackathon organized by the Board of European Students of Technology.
- Developed a voice assistant for Warehouse 4.0 workers.
- Extended LLM knowledge base by leveraging a NoSQL database, improving query handling for warehouse layout.
- Devised intelligent prompting for a voice assistant, improving context awareness and user experience.

<b>Distributed alerting system</b>   <i>Grpc, Google Cloud Platform, Python</i> <ul style="list-style-type: none"> <li>Developed scalable microservice system for monitoring services and running complex alerting routines.</li> <li>Utilized GRPC, PubSub queues, Cloud SQL and other tools to satisfy SLO requirements for 10k services.</li> <li>Project supervised by Google employees.</li> </ul>	<b>Nov. 2022 - Jan. 2023</b>
<b>Goldman Sachs EMEA 2022 Hackathon</b>   <i>Python, Flask, Git</i> <ul style="list-style-type: none"> <li>Achieved first place during a challenging 24-hour hackathon.</li> <li>Designed and implemented a web portal aimed at enhancing Goldman Sachs' recruitment efforts.</li> <li>Implemented a stock market simulation game as one of the features.</li> <li>Contributed to the development of a 3D render for a physical token with a link to the portal.</li> </ul>	<b>Nov. 2022</b>
<b>N-dimensional labyrinth solver</b>   <i>C, Valgrind, Cmake, Git</i> <ul style="list-style-type: none"> <li>Developed a high-performance traverser for multidimensional mazes/large graphs.</li> <li>Utilized most memory efficient solution by incorporating 2-bit BFS algorithm.</li> <li>Implemented arbitrary large integer type to facilitate enormous labyrinths and showcase memory efficiency.</li> </ul>	<b>Jun. 2022</b>
<b>Concurrent Unix-like directory</b>   <i>C, Pthreads, Helgrind, Cmake, Git</i> <ul style="list-style-type: none"> <li>Implemented add-ons to the file system, which allowed for concurrent creation, deletion and movement of files.</li> <li>Utilized tailored-made readers-writers lock with Latest Common Ancestor writer locking.</li> </ul>	<b>Jan. 2022</b>
<b>Enhancing Splay Tree for pattern search</b>   <i>C++, Catch2, Cmake, Bash, Git</i> <ul style="list-style-type: none"> <li>Developed an algorithm for efficient search of patterns in DNA sequence.</li> <li>Utilized a splay tree data structure enhanced with attributes updated through lazy propagation.</li> </ul>	<b>Dec. 2021</b>
<b>EXTRACURRICULAR</b> <hr/> <b>Member</b> , Bain & Company Champions Class 2023 <b>2nd Place</b> , PSDC 2020 debating championship, preliminary stage to World Schools Debating Championship. <b>Laureate</b> , 8/1000+ in the 31st National Philosophy Olympiad	
<b>SKILLS</b> <hr/> <b>Programming Languages:</b> Python, Java, C/C++, JavaScript, R, Ocaml, Go, SQL <b>Technologies:</b> Git, Fedora/Ubuntu/Debian, Jira, Redis, Docker, Pydantic, React, Cloud Run <b>Natural languages:</b> English (C2), Polish (Native), Spanish (B1)	