Miklós Hamar

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Summary

AI R&D Engineer with expertise in Reinforcement Learning, Information Retrieval, and ML frameworks. Recently completed MSc in Artificial Intelligence with first-ever open-source reproduction of AlphaDev. Published researcher with proven track record of developing production-grade AI solutions and bridging theory-to-practice gaps in complex engineering environments.

Education

University of Amsterdam — Amsterdam, Netherlands
Master of Science in Artificial Intelligence *GPA:* 7.75 — *Sep. 2023 – Jul. 2025*

- Thesis: **AlphaDev-Open** – First open-source reproduction of a breakthrough model by Google-DeepMind
- Coursework: GenAI pipelines, Semantic Retrieval, Synthetic Data Generation, Computer Vision for Medicine, Parameter-Efficient Fine-Tuning
- Research: Published in TMLR 2024 (explainable AI), paper under review at SIGIR 2025 (synthetic data generation)

University of Warwick — Coventry, United Kingdom
Bachelor of Science in Computer Science *GPA:* 6.7 — *Sep. 2019 – Jul. 2022*

- Focus: Theoretical foundations, computational logic, discrete mathematics, machine learning
- Practical experience with both embedded and high-level software design. Expertise with both functional and object-oriented languages.

Experience

Full-Stack Software Developer Intern — Aug. 2024 – Present
ASML — *Veldhoven, Netherlands*

- Develop a comprehensive platform to formalize and automate the day-to-day activities of the procurement team within the company.
- Built end-to-end solution using Mendix platform and Azure cloud, handling front-end, back-end, database design and deployment
- Application serves 200+ employees daily with proven efficiency improvements and enhanced data integrity
- Acted as primary technical liaison with stakeholders, translating requirements into actionable features with clear timelines

Consultant Software Developer — Aug. 2022 – Sep. 2023
Sigma Technologies / Flex Ltd — *Budapest, Hungary*

- Led architecture and implementation of customized testing frameworks using Python and embedded C++
- Developed automation solutions with high autonomy, streamlining processes across multiple engineering teams
- Delivered end-to-end project ownership from requirements gathering to deployment and maintenance

Key Projects & Publications

AlphaDev-Open: Open-Source RL Reproduction | *Python, JAX, Reinforcement Learning* — 2024 – 2025

- First open-source implementation of AlphaDev method with scalable, parallelizable training pipeline
- Re-implemented Asynchronous Policy-Value Monte-Carlo Tree Search (APV-MCTS) algorithm from scratch
- Achieved comparable parallelism levels to original DeepMind paper through efficient Python implementation

Explainable AI for Temporal Graphs | *PyTorch, Graph Neural Networks* — 2024

- Published in TMLR 2024 Reproducibility track: reproduced and extended Explorer-Navigator framework
- Enhanced AI model transparency for safety-critical applications through improved explainability methods

Synthetic Data Generation for Information Retrieval | *LLMs, Information Retrieval* — 2024

- Extended LLM-based synthetic query generation pipeline, paper under review at SIGIR 2025
- Achieved improved training data efficiency without human-annotated relevance judgments

AI-Assisted CV Scoring System | *RAG, LLMs, Information Retrieval* — 2025

- Developing orchestrated system of retrieval and language models for automated candidate matching
- Implementing efficient document processing pipeline for large-scale CV databases

Technical Skills

AI/ML Frameworks: PyTorch, TensorFlow, JAX, scikit-learn, DSPy, Hugging Face Transformers
Programming Languages: Python, C/C++, SQL, JavaScript, Haskell
Specializations: Reinforcement Learning, Information Retrieval, Deep Learning, NLP, Computer Vision, Neuro-symbolic AI, Academic Research
Tools & Platforms: Git, Docker, Azure Cloud, Mendix, Linux, Jupyter, Kubernetes