GERGELY PAPP

MACHINE LEARNING RESEARCHER

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SKILLS

Deep Learning | Deployment | Machine learning | TensorFlow | PyTorch | Python | Docker | Cloud | LLMs | MLOps | Spark | Azure | Databricks | Adaptibility | Initiative | Problem Solving | Teamwork | Communication | Teaching

LANGUAGES

- Hungarian
- English
- French

HOBBIES

Gym | Board games | Piano | Pool billiard | Video games

EDUCATION

Master of Artificial Intelligence
University of Amsterdam
Grade: 8.1 (Cum Laude) *2024*

Bachelor of Computer Science
University of Manchester
Grade: Second-Upper Class *2017*

WORK EXPERIENCE

Asura Technologies Ltd. 10/2020 - 07/2024
Machine Learning Consultant *(part time)*

- **Achievements**
  - Boosted object detection accuracy from 75% to 93%
- **Responsibilities**
  - **Guided a group of ML developers** on computer vision projects
  - Advised on technology & implementations to streamline workflows
- **Technologies**
  - Python, TensorFlow, Keras, Scikit-Learn, OpenCV, Git

Machine Learning Engineer 10/2018 - 10/2020

- **Achievements**
  - **Drove startup growth from 12 to 100+ members** with innovative, scalable AI solutions
  - Engineered an in-house license plate recognition solution from scratch that outperformed competitors both in speed and accuracy
- **Responsibilities**
  - Design, train and serve real-time **object detection** models, including firearm, car or license plate detection
  - Create and maintain an **ALPR** and **OCR** engine, as well as an automated parking system that tracks cars in a parking lot
  - Prune and distill neural networks for inference
  - Deliver state-of-the-art PoC models for new customers
- **Technologies**
  - Python, TensorFlow, Keras, Scikit-Learn, OpenCV, Djanjo, Flask, Cloud, REST API, C#, Docker, Git

Alfréd Rényi Institute of Mathematics 10/2020 -07/ 2024
Deep Learning Researcher
10/20 - 09/22 full-time
09/22 - 07/24 part-time

- **Achievements**
  - Published the first **NeurIPS** paper from a Hungarian institute
- **Responsibilities**
  - Literature review and writing **conference papers**
  - Research design & development, executing ideas in code
  - Build scalable training pipelines for model training and evaluation
- **Technologies**
  - Python, PyTorch, Pandas, Docker, Git, Self-supervised image classification, RAG, Cloud, GAN, VAE, Transformers, Huggingface

EXT. STUDIES

Coursera courses

- Mathematics for Machine Learning: Linear Algebra
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Neural Networks and Deep Learning

Summer schools

2018 - Cluj - DeepMind - Machine Learning Summer School

PUBLICATIONS

2023 - **Neural Networks** - Mode combinability: Exploring convex combinations of permutation aligned models

2023 - **ReScience** - Reproducibility study of "Label-Free Explainability for Unsupervised Models"

2018 - **AITP** - Ordering Subgoals in a Backward Chaining Prover

2018 - **NeurIPS** - Similarity and Matching of Neural Network Representations

HACKATHONS

2015 MLH - Manchester, UK
2016 MLH - Sheffield, UK
2016 Ultrahack - Helsinki, FI
2018 HackPrague - Prague, CZ
2019 LikeABosch - Budapest, HU

NOSTALGIC

Pool billiard
European Champion, 2010

High School
Fazekas Mihaly High School
Specialized in Mathematics

National Secondary School Academic Competition
27. place in Mathematics
24. place in Programming

University of Amsterdam — 10/2024 - 12/2024

Teaching Assistant (Part Time)

- **Achievements**
  - Successfully helped students to understand the fundamentals of deep learning and different neural architectures
  - Corrected bugs and ambiguities that confused students for years
- **Responsibilities**
  - Teach and design curriculum for AI master students.
  - Enhance course quality through program evaluation
  - Mark students by carefully designed unit tests
  - Hold tutorials and Q&A sessions for students
- **Technologies**
  - Python, SLURM, PyTorch, NumPy

Morgan Stanley — 08/2017 - 05/2018

Risk Analyst (AI team)

- **Achievements**
  - Automated data processing workflows, saving 100hrs / week.
- **Responsibilities**
  - Save working hours by automating quick-decision processes
  - Develop clustering and forecasting models on tabular data
  - Learn about the banking industry while being an expert of coding
  - Train light-weight traditional ML algorithms on big data
- **Technologies**
  - Python, SKlearn, Pandas, Spark, SQL, Q, Excel

PROJECTS

- **Prisma (Present):** Extracting psychological data, resilience and player communication statistics from e-sport footage, with the goal on enhancing player performance. [Python, Huggingface, Docker, Pygame, Databricks]
- **OSChat (Present):** A bash terminal that distinguishes English prompts from bash prompts. It is an AI Agent for a UNIX operating system. [PyTorch, Huggingface, Docker, Azure, JavaScript, Flask]
- **Stitch-BERT (2024):** Analyzed how NLP transformers fine-tuned for different languages and tasks relate geometrically and functionally, revealing potential for cross-task insights. [PyTorch, Python]
- **RAG (2024):** As a developer I participated in a RAG project involving vector databases, knowledge graphs and text generation with LLMs. [Python, Huggingface, PyTorch]
- **Gaming Bot (2024):** Developed a rule-based AI in NodeJS for automating gameplay for a browser game. The bot timed attacks, reacted to attack reports, and logged summaries to an HTML dashboard, saving significant time. [NodeJS, HTML, Angular, JavaScript]
- **MSc Thesis (2023):** Investigated Vision Transformers' ability to generalize across object properties (shape, texture, color, count) on CLEVR-4. This project involved the use of vision transformers. [Python, Huggingface]
- **Self-Supervised Learning Toolkit (2022):** Created a pip-package standardizing ImageNet evaluation pipelines for self-supervised learning models, enabling consistent community benchmarking. [PyTorch, Python]
- **Watermeter Reader (2020):** Built an OCR-based Python application to clean, rotate, and detect characters from watermeter images for automated reading. Utilized object detection algorithms. [Python, TensorFlow, Docker]
- **AlphaZero (2018):** Reimplemented AlphaZero to explore temporal difference learning vs. Monte Carlo methods. The study revealed unique in-game strategies made with Reinforcement Learning. [Python, Keras]
- **Chess Engine (2017):** Designed a Java-based neural chess engine from scratch without the use of tree search, achieving entry-level play [Java, GraphViz]