

# GERGELY PAPP

## MACHINE LEARNING RESEARCHER

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Gergely 0.98



## SKILLS



Deep Learning

Deployment

Machine learning

TensorFlow

PyTorch

Python

Docker

Cloud

LLMs

MLOps

Spark

Azure

Databricks

Adaptability

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)

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



## WORK EXPERIENCE

### Asura Technologies Ltd.

2020 - 2024

#### *Machine Learning Consultant (Part time)*

- **Achievements**
  - Boosted object detection accuracy by a large margin
- **Responsibilities**
  - **Guide a group of ML developers** on computer vision projects
  - Advise on technology & implementations to streamline workflows
- **Technologies**
  - Python, TensorFlow, Keras, Scikit-Learn, OpenCV, Git

#### *Machine Learning Engineer*

2018 - 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
- **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, Django, Flask, Cloud, REST API, C#, Docker, Git

### Alfréd Rényi Institute of Mathematics

2020 - 2024

#### *Deep Learning Researcher*

- **Achievements**
  - Published the first **NeurIPS** paper from a Hungarian institute
- **Responsibilities**
  - Literature review and writing **conference papers**
  - Research design & development, executing ideas in code
  - Advise on AI for industrial partners
- **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 *Teaching Assistant (Part Time)*

2024 - 2024

- **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

2017 - 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]