

Milena Kaprálová

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I like AI and quantum computing.

EDUCATION

SELECTION OF COURSES FROM THE MSC QUANTUM COMPUTER SCIENCE (2024-2025)

UNIVERSITY OF AMSTERDAM
GPA: 7.0/10.0

MSC ARTIFICIAL INTELLIGENCE (2022-2025)

UNIVERSITY OF AMSTERDAM
GPA: 8.23/10.0

BSC PSYCHOLOGY (2019-2022)

UNIVERSITY OF AMSTERDAM
FOCUS: RESEARCH METHODS
GPA: 9.04/10.0 (Honours)

ACHIEVEMENTS

Published a journal track paper '[Re]: FairCal: Fairness Calibration for Face Verification' that was presented at the NeurIPS conference | 2023

Presented an affinity workshop paper 'LightGCN: Evaluated and Enhanced' at the New in ML workshop of the NeurIPS conference | 2023

Participated in the **Winter School on Foundation Models** organised by the Ellis Unit Amsterdam | Mar 2024

Participated in the **Training in Quantum Machine Learning** by the Quantum Software Consortium | Jun 2024

Finalist (top 10% of all teams) in the **Blaise Pascal Quantum Challenge** on quantum ML applications by Pasqal | Feb 2025

SKILLS

PROGRAMMING LANGUAGES

- Python, QuTip, R, SQL, JavaScript

SOFTWARE & LIBRARIES

- Python ML tools: Pytorch, Tensorflow, Pandas, Numpy, Scipy, SK-Learn, FastAI
- Version control: Git, Sourcetree
- Dev: Pycharm, VS Code, Jupyterlab
- HTML, CSS, BeautifulSoup, LaTeX
- Docker, MS Office Suite

OTHER INTERESTS

Best coding practices: PEP8, docstrings
Journaling: Spiegeloo's ex-editor-in-chief

PROJECTS

CAUSALITY WITHIN SOCIAL NETWORKS | Nov 2023 – DEC 2023

Dr. Sara Magliacane | University of Amsterdam | [Github](#)

- Performed causal discovery and inference using DoWhy and Networkx

USING CT DATA TO DETECT RIB FRACTURES | SEP 2023 – OCT 2023

Caroline Magg | University of Amsterdam | [Github](#)

- Developed both a U-Net and a nn-U-Net model to perform 3D instance segmentation to detect rib fractures as part of a RibFrac Challenge

RECOMMENDER GRAPH NEURAL NETS | JUN 2023 – JUL 2023

Songgaojun Deng | University of Amsterdam | [Github](#) | [Paper](#)

- Reproduced the results from the original paper, adding datasets and metrics, applied attention aggregation and improved the model with graph diffusion

SOCRATIC MULTIMODAL LEARNING | APR 2023 – MAY 2023

Mohammad Mahdi Derakshani | University of Amsterdam | [Github](#)

- Made Socratic image captioning and visual question answering more accessible by querying the open-source models CLIP, Flan-T5, GIT and BLIP

ROBOTIC VISION SCENE UNDERSTANDING | APR 2023 - MAY 2023

Dr. Arnoud Visser | University of Amsterdam | [Github](#)

- Applied 3D semantic mapping to a semantic SLAM task by generating point clouds and performing iterative and fast global registration and object detection

FAIRNESS IN FACE VERIFICATION | JAN 2023 – FEB 2023

Carlo Bretti | University of Amsterdam | [Github](#) | [Paper](#)

- Reproduced the results from the original paper and improved the post processing-based face verification algorithm using Gaussian mixture models

LEARNED HELPLESSNESS IN HUMANS | Nov 2021 – JAN 2022

Jill de Ron | University of Amsterdam (BSc Thesis) | [Github](#)

- Programmed an interactive app in R Shiny and analysed the data in R and JASP

WORK EXPERIENCE

QUANTUM APPLICATIONS INTERN | TNO | APR 2025 – NOV 2025

- Using deep RL for initial mapping and routing in quantum compilation

TECHNICAL LEAD (AI) | APPLIED COMPLEXITY | JAN 2024 – PRESENT

- Generating causal loop diagrams from speech for Applied Complexity using Transformer and MoE architectures, quantization, fine-tuning, RAG, LanChain and LangGraph, and making a website for visualisation with HTML, CSS, JS, Python

TEACHER ASSISTANT | UVA | SEP 2022 – DEC 2023, SEP - NOV 2024

- TA of Reinforcement learning (MSc AI), Computer vision 1 (MSc AI), and Python, SQL, CSS and HTML for the courses Scientific Programming (Head TA) and Digital Expertise (CSSci)
- Refactored and extended autograding scripts and expanded the scope of the assignments for the MSc AI course Information Retrieval 1 (Python)

CLINICAL RESEARCH ASSISTANT | UMC | JAN 2022 – MAR 2022

- Extracted data on predictors of MDD, anxiety and substance use disorders from scientific publications as part of a meta-analysis

DEVELOPMENTAL RESEARCH INTERN | UVA | MAR 2021 – AUG 2021

- Cleaned and analysed data using R for a language learning Study