LUCA PANTEA

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EDUCATION

University of Amsterdam *Sept. 2022 - July 2024*
M.S. in Artificial Intelligence
Teaching Assistant: Computer Vision 1, Fundamentals of Data Science; *GPA: 8.5/10*

Delft University of Technology *Sept. 2019 - July 2022*
B.S. in Computer Science & Engineering
Thesis: Dynamic User Preferences in Recommendation Systems via Deep Reinforcement Learning; *Grade: 9*

WORK EXPERIENCE

Yes!Delft Impact Lab *Feb. - July 2022*
System Integration Engineer (SPOT Mobility Team)

- Developed a real-time image processing pipeline using Python and OpenCV for vision-based indoor inspections, achieving a 30% faster processing time compared to previous methods.
- Deployed the pipeline on the Boston Dynamics SPOT Core Payload to capture and process data in the field.
- Implemented an iterative alignment algorithm (ICP) to compare LiDAR point clouds and Building Information Models (BIMs), in Python to match LiDAR clouds with BIMs.

Dream Team Epoch *Aug. 2021 - Feb. 2022*
Chief AI Engineer

- Lead the team through the AWS Deepracer RL Challenge, and **ranked 10th** from 300+ participants.
- Implemented an NLP pipeline to automate preprocessing, model fine-tuning (RoBERTa and XLNet), ensemble and validation. This helped the engineers **double** their work in the same timeframe.
- Actively helped define the competition strategies and KPIs alongside the other Chief Engineers.

PricewaterhouseCoopers *April - July 2021*
Software Engineering Intern (Deal Analytics Team)

- Developed a Python Flask + React application to automate matching company names to their respective legal entity names. A **40% speedup** was achieved through the automation.
- Integrated external business APIs and clustering algorithms to create a recommendation system predicting the optimal legal entity name for a given company.

RESEARCH PROJECTS

Graph Convolution Networks for Recommendation *June - July 2023*
Extended the LightGCN framework across various datasets and metrics, introducing attention pooling and diffusion propagation for enhanced recommendations and faster convergence. Optimized negative sampling in C++ with pybind11, achieving a **3x speedup** in the sampling process.

Enhanced GNNs through Topology and Geometry *April - June 2023*
Developed ToGePi, a Graph Neural Network that combines topological and geometrical information to better analyze and represent data in networks. This method is especially helpful when dealing with complex networks that aren't fully connected, making it a versatile and efficient solution.

Fairness-Enhanced Node Representational Learning *January - February 2023*
Studied and enhanced CrossWalk, introducing *Soft Self-Avoiding CrossWalk*, which yielded significant improvement in fairness and representation. The work was accepted for the 2022 Machine Learning Reproducibility Challenge and published in ReScience C journal and was **awarded a $10,000 grant from Kaggle**.

TECHNICAL STRENGTHS

Programming Languages	Python, Scala, Java, Spark, C/C++, Haskell, JavaScript, MATLAB
Libraries & Frameworks	PyTorch, Tensorflow, JAX, OpenCV, NLTK, Graph Nets, CUDA
Databases	MySQL, PostgreSQL, Neo4j
Tools	Git, Docker, Kubernetes, Colab, SLURM cluster computing