

SIMONA KOCOUR

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EDUCATION

Czech Technical University 2024 – ongoing
PhD in Computer Science, Computer Vision Prague, Czech Republic
Research topic: 3D scene representation and understanding
Supervisor: Dr. Torsten Sattler

ELLIS PhD program 2024 – ongoing
PhD candidate in pan-European AI network of excellence
Co-supervisor: Prof. Dr. Siyu Tang (ETH Zurich)

Masaryk University 2017 – 2019
Master of Mathematics Brno, Czech Republic
Thesis: Matrices and their application in statistics

Masaryk University 2014 – 2017
Bachelor of Mathematics Brno, Czech Republic
Thesis: The bootstrap and related methods

WORK EXPERIENCE

Czech Institute of Informatics, Robotics and Cybernetics Apr 2024 - ongoing
Researcher Prague, Czech Republic

- member of Spatial Intelligence Group led by Dr. Torsten Sattler
- research objective: Novel 3D scene representation with ability to control the level of detail
- implementing neural 3D rendering and reconstruction (NeRF, Gaussian Splatting)
- using 3D geometry
- end-to-end model training (i.e. semantic 3D scene understanding)
- working with foundation models
- building evaluation pipelines
- Python, PyTorch

Emplifi Nov 2020 - Mar 2024
Machine Learning Researcher Prague, Czech Republic

- followed high impact papers and apply the methods into our company's product
- worked with large data sets from social media using PySpark, AWS, and Databricks
- lead, and managed my projects, followed by presenting results to C-level
- NLP - BERT, RoBERTa, DeepPavlov - built pipeline and fine-tuned models for classification tasks
- LLM - built summarization and short text generation pipelines using GPT
- behaviour scoring in time - built classification model with loss function emphasising customer behaviour with reflection on time

Aures Holdings Aug 2019 - Oct 2020
Data Scientist Prague, Czech Republic

- solved business tasks using ML algorithms in Python and SQL
- algorithmic pricing - built model for pricing goods automatically using general regression from Scikit-Learn
- behavioural scoring - built classification model using XGBoost

TECHNICAL SKILLS

Machine Learning:	3D Computer Vision, Neural Rendering, Neural Reconstruction, NLP PyTorch, TensorFlow
Software & Tools:	Python, R, Unix, Linux Docker, Git End-to-End Development, Software Prototyping
Data Processing:	AWS, Databricks, ElasticSearch, Presto PySpark, SQL
Languages:	Slovak (native) English, Czech (full professional proficiency) German (intermediate)

EXTRA-CURRICULAR

- Presented my most successful project Behavioural Scoring in Time, with developed loss function, at the VUT University in Brno.
- Organised internal ML hackathon with over 30 participants at Emplifi. Prepared all materials, data, guidance, validation statistics, and testing pipeline.
- Regularly present ML topics in front of local ML community.