Susu Hu

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WORK EXPERIENCE

Doctoral Candidate **Jun 2023 - Now**

National Center for Tumour Disease, Dresden, Germany

- Geometry machine learning for surgical outcome prediction

3D Deep Learning, Research Assistant **Oct 2022 - May 2023**

National Center for Tumour Disease, Dresden, Germany

- **Master thesis**: Leveraging Deep Neural Fields for Navigation of Middle Ear Diagnostics **GPA** 1.3
  - Successfully learnt descriptive yet compact latent space for implicit 3D shape representation
  - Conducted meaningful latent space PCA decomposition for 3D shape manipulation
  - Achieved geometry change with hierarchical mesh differentiation and good non-rigid registration results
- Assistant job: Implemented weakly supervised medical image segmentation on internal pancreas dataset, dice score improved by 10%

2D/3D Signal Processing, Research Assistant **Apr 2022 - Sep 2022**

Fraunhofer IPA, Stuttgart, Germany

- Automated 3D data acquisition and measurement from sensors with C/C++ scripts, 60 times speed-up in workflow
- Quantified the advantages of diverse sampling over uncertainty sampling in active learning for image labelling, and qualitatively evaluated different one-shot object tracking methods, guiding the next step in reducing human effort

Neural Network Quantization, Research Assistant **Aug 2021 - Feb 2022**

Fraunhofer IPMS, Dresden, Germany

- Experimented with an intra-layer mixed quantization training technique for both weights and activations in neural networks, explored layer sensitivities
- Achieved 2/8 times memory reduction and 2/30 times number of MAC operation reduction compared to the 8bit/FP32 counterparts while sacrificing virtually no accuracy against 8bit and around 2% against the FP32 model

Software Developer, Working Student **Jun 2021 - Feb 2022**

Robotron Datenbank, Dresden, Germany

- Implemented and trained computer vision models for real-time multi-object tracking using TensorFlow and PyTorch for industrial quality control
- Benchmarked models performance and contributed to the successful product delivery to customers

EDUCATION

Master of Science in Computational Modelling and Simulation **2019 - 2023**

Dresden University of Technology, Germany

- **Relevant coursework**: machine learning, computer vision, stochastic and probabilities, statistics, data visualisation
- **Scholarship**: granted with SECAI scholarship for excellent students in artificial intelligence

Bachelor of Science in Logistics Engineering **2009 - 2013**

Nanjing Agricultural University, China

- **Relevant coursework**: computer science basics, natural science and engineering basics
- **Scholarship**: granted with merit student scholarship

SKILLS

Python: PyTorch, OpenCV, open3D, Pandas, Keras, TensorFlow, scikit-learn, Huggingface, FastAPI, JAX etc.

DevOps: Git, Linux, Docker, Microsoft Azure, SLURM

Others: C/C++, blender, R, SQL

LANGUAGES

English - C1, German - A2, Chinese - native speaker