Susu Hu

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WORK EXPERIENCE

AI for Health, Research Assistant   Oct 2022 - Now

National Center for Tumour Disease, Dresden, Germany

- Implemented weakly supervised medical image segmentation on internal pancreas dataset, dice score improved by 10%
- **Master thesis**: neural fields learning for 3D reconstruction and non-rigid registration (submission in May 2023)

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, saving work time for creative tasks
- 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   GPA 2.1

- **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   GPA 2.2

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

PROJECTS

Gaussian processes and neural networks   Sep 2020 - Mar 2021

Dresden University of Technology

- Studied Gaussian processes mathematical theories and implemented convolutional and non-convolutional Gaussian processes on image classification tasks
- Experimented with second derivative and first derivative optimization methods. Approximated posterior distribution via variational inference method (minimising KL-divergence) and exploited sparse Gaussian processes to improve computation efficiency

Tractography scientific visualisation   Apr 2020 - Sep 2020

Dresden University of Technology

- Studied techniques of tractography and implemented scalar and spherical colour mapping on brain fiber tracts based on diffusion measurement of free water in the brain

PUBLICATIONS

Layer Sensitivity Aware CNN Quantization for CIM Architectures

2022 International Conference on Soft Computing & Machine Intelligence

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