Haobin Tan

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Education

Karlsruhe Institute of Technology (KIT) *Karlsruhe, Germany*

M.Sc. in Computer Science *Apr. 2019 - Sep. 2022*

- **Specialization**: Artificial Intelligence
- **Relevant Coursework**: Machine Learning, Pattern Recognition, Computer Vision for Human-Computer Interaction, Deep Learning and Neural Networks, Deep Learning for Computer Vision, Nonlinear Optimization
- **Master Thesis**: "Real World Crowd Pose Estimation with Transformers" (Grade: 1.0/1.0, German Grading System)

Karlsruhe Institute of Technology (KIT) *Karlsruhe, Germany*

B.Sc. in Computer Science *Oct. 2014 - Apr. 2019*

- **Specializations**: Robotics and Automation, Software Engineering

Work Experience

abas Software GmbH *Karlsruhe, Germany*

Working Student *Jun. 2018 - Jan. 2020*

- Development of cloud-based Document Management System (DMS) using Polymer, Vue.js, TypeScript, JavaScript, and Amazon Web Services
- Creation of automated tests with Jest and Cypress
- Close collaboration in an internationally distributed Scrum team

Practical Experience

KIT, CV:HCI Lab *Karlsruhe, Germany*

Walkable Path Discovery Utilizing Drones *Apr. 2021 - Aug. 2021*

- Development of "flying guide dog" prototype for visually impaired assistance based on DJI drones and semantic segmentation using Python
- Training of segmentation models and traffic lights classification models using PyTorch
- Design of drone self-control algorithm
- Creation of "Pedestrian and Vehicle Traffic Lights (PVTL)" dataset for traffic lights recognition
- Design and organization of experiments and NASA Task Load Index (NASA-TLX) user study

KIT, Interactive Systems Lab (ISL) *Karlsruhe, Germany*

Hand Gesture Recognition *Nov. 2020 - Mar. 2021*

- Development of hand gesture recognition application using Python
- Building and training of neural networks using PyTorch
- Dataset preprocessing and data augmentation using Albumentations

KIT, Vision and Fusion Laboratory *Karlsruhe, Germany*

Real-World Person Detection on Jetson GPU *Nov. 2020 - Feb. 2021*

- Training of Single-Stage Detectors (YOLO, RetinaNet, SSD)
- Deployment of end-to-end person detection pipeline on Nvidia Jetson devices
- Performance analysis and optimization using Nvidia Nsight

Publications

Flying Guide Dog: Walkable Path Discovery for the Visually Impaired Utilizing Drones and Transformer-based Semantic Segmentation

2021 IEEE International Conference on Robotics and Biomimetics *2021*

Haobin Tan, Chang Chen, Xinyu Luo, Jiaming Zhang, Constantin Seibold, Kailun Yang, Rainer Stiefelhagen

Accomplishments

2021	**"AiTalents 2020" Entrepreneur Education Program,** TechQuartier	*Remote*
2018	**Winner of "Industry 4.0 & AR"-Challenge,** Continental #Fiction2Science Hackathon	*Mainz, Germany*

Skills

Programming	Python, Java, JavaScript, TypeScript, C#, C, LaTex, Markdown, Linux
Artificial Intelligence	PyTorch, MMCV, OpenCV, NumPy, Pandas, Matplotlib, Plotly
Tools	VS Code, Git, Jupyter, Docker
Languages	Chinese (Native), Cantonese (Native), English (Proficient), German (Proficient)