



Atharva Vaidya

Computer Vision Engineer

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in atharva-vaidya-rwth

🏠 Munich, Germany

SKILLS

Computer Vision	3 yrs
Synthetic Data	2 yrs
Generative AI	1 yr
Machine Learning	1 yr
Natural Language Understanding	1 yr
Python	4 yrs
C++, C#	1 yr
PyTorch, Keras	2 yrs
OpenCV	2 yrs
Docker	1 yr

LANGUAGES

English	C 1
German	B 2.1

WORK EXPERIENCE

Computer Vision Engineer

May 24 - Present

Carl Zeiss AG, Oberkochen, Germany

- Developed real-time multiview RGB and RGBD-based 3D human pose estimation pipelines for integration into robotic visualization systems
- Developing a digital shadow of a robotic system with integrated camera for testing and synthetic data generation
- Involved in developing a digital twin toolbox based on OpenUSD for opto-robotic simulation and visualization
- Generated high-fidelity synthetic data using Mitsuba 3 for accurate instance segmentation in microscopic images of neuro and ophthalmic surgery
- Implemented ControlNet-based texture synthesis and material parameter learning techniques to achieve realistic rendering of a digital twin of the human eye
- Designed and integrated a conversational language understanding model by Azure AI Language Studio for enabling voice interaction with microscope

Computer Vision Intern/Master Thesis student

Dec 22 - Dec 23

Carl Zeiss AG, Oberkochen, Germany

- Developing solutions for human pose estimation under blanket occlusion using only RGB images
- Enhancing a Docker-based pipeline for generating synthetic data with automatic annotations
- Manipulating synthetic human character models using Blender's Python API
- Domain randomization in the synthetic data for reduction in domain gap and better generalization to the real world
- Developing training pipelines of multiple SOTA models like YOLOv7, YOLOv8, ViTPose for synthetic-to-real transfer learning
- Implementation of domain adaptation with feature distribution matching in YOLOv7 architecture
- Uplifting the 2D keypoint predictions to 3D using multi-view images

EDUCATION

Master of Science (M.Sc.) in Robotic Systems Engg.
RWTH Aachen, Germany

2020 - 2024

Grade: 2.2, Thesis: Utilizing and Adapting Synthetic Data for Pose Estimation of Occluded Humans in Horizontal Positions

Bachelor of Engineering (Hons.) in Mechanical Engg.
BITS Pilani, India

2015 - 2019

Grade: 8/10, Thesis: Design, simulation, and fabrication of a chemical vapor deposition (CVD) setup for graphene synthesis