Yue Chen

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Education

Technical University of Munich — *Munich*

M.Sc. in Robotics, Cognition, Intelligence, Grade 1.8/1.0 — *Oct. 2021 - Nov. 2023*

- Thesis: Neural Scene Decomposition for Accurate Light and Material Reconstruction (Grade 1.7).
- Relevant courses: Machine Learning, Computer Vision, Robotics, Multidisciplinary Design Optimization, Human-Machine Communication.

Technical University of Munich — *Munich*

B.Sc. in Mechanical Engineering, Grade 2.5/1.0 — *Oct. 2017 - Sep. 2021*

- Thesis: Investigation of Graph Neural Network Approaches in Gear Transmission Synthesis (Grade 1.3).
- Relevant courses: Automotive Technology, AI in Automotive Engineering, Machine Elements, Industrial Automation, Automatic Control.

Experience

Visual Computing & Artificial Intelligence Lab, TUM — *Munich*

Research And Development Intern — *Sep. 2021 - Nov. 2023*

- Developed and implemented ***advanced machine learning algorithms***, specializing in computer vision and graphics.
- Optimized software performance and team collaboration using ***Python***, ***C++***, ***PyTorch***, and ***CI/CD*** pipeline.
- ***Led an international research group*** using Agile methodology, coordinating regular meetings and presenting updates to stakeholders.
- ***Streamlined data processing*** for a key project, reducing computational time by 95% and improving results by 30%.

Technical University of Munich — *Munich*

Mathematics Teaching Assistant — *Sep. 2018 - Nov. 2018*

- ***Managed tutoring sessions*** for over 50 students in algebra, geometry, and statistics.
- presentations to reinforce key course concepts and one-on-one tutoring for solving individual problems.

Marine Engine Service Hamburg — *Hamburg*

Manufacturing Intern — *Jun. 2017 - Oct. 2017*

- Acquired hands-on experience in the manufacturing sector and ***quality control***, focusing on engine assembly and component recycling.
- Supported shipping and logistics tasks, organizing and preparing detailed documentation and schedules.

Selected Research Projects

Editable 3D Neural Radiance Field (NeRF) [*Project Page*] — *Munich*

Project Lead — *Apr. 2022 - Nov. 2023*

- Led a three-member research team using Python and C++ to reconstruct the material and lighting from a NeRF scene.
- Proposed and integrated multi-bounce Ray Tracing technique into NeRF for physically-based light transport simulation.
- Achieved a significant time reduction in data processing from 150 hours to 5 minutes with a 30% improvement in quality.
- Technologies: Python, C++, PyTorch, Blender, Mitsuba, Git, Linux, Ray Tracing, Image Synthesis

3D Neural Object Detection based on Linguistic Descriptions — *Munich*

Core Developer — *Sep. 2021 - Mar. 2022*

- Developed a visual grounding model with point cloud data using Python in a team environment.
- Applied GNNs for spatial relationships and Transformers for integrating word embeddings with object features.
- Achieved 8 % of the quality with nearly the same number of parameters.
- Technologies: Python, PyTorch, Git, Linux, Transformer, GNNs, Visual Grounding, NLP

Skills and Hobbies

Programming ***Python*** *(proficient)*, ***C++*** *(intermediate)*, MATLAB *(intermediate)*

Tools ***PyTorch***, ***TensorFlow***, NumPy, Pandas, Git, Linux, Blender, Mitsuba, CATIA, Gurobi, LaTeX, Photoshop

Languages ***German*** *(C1)*, ***English*** *(C1)*, ***Chinese*** *(native)*, Cantonese *(native)*

Hobbies Skiing, Snowboard, Basketball, Photography