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 via Physically-Based Global Illumination Estimation (1.7).
- Relevant courses: Human-Machine Communication, Machine Learning, Deep Learning, Computer Vision, Multidisciplinary Design Optimization.

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 (1.3).
- Relevant courses: Automotive Technology, Modern Information Technology, Automatic Control, Industrial Automation, Machine Elements.

Experience

Visual Computing & Artificial Intelligence Lab, TU Munich   *Munich*

Research Intern   *Sep. 2021 - Nov. 2023*

- Engaged in **diverse machine learning projects**, specializing in computer vision, object detection, and natural language processing.
- Developed innovative algorithms and techniques in real-world machine learning applications.
- **Led international research teams**, organizing weekly strategy sessions for brainstorming, project oversight, and effective **task management**.
- **Presented weekly updates** to supervisors, showcasing research progress and **formulating strategic plans** for upcoming initiatives.
- Contributed to multiple academic writing and publishing, providing critical feedback to peers and improving the quality of submissions.

Technical University of Munich   *Munich*

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

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

Marine Engine Service Hamburg   *Hamburg*

Manufacturing Intern   *Jun. 2017 - Oct. 2017*

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

Selected Research Projects

Neural Image Editing via Ray Tracing [*Project Page*]   *Munich*

Visual Computing & Artificial Intelligence Lab, TUM   *Apr. 2022 - Nov. 2023*

- Led a three-member student research team, focusing on integrating advanced neural network architectures with ray tracing techniques.
- Developed novel methods allowing for dynamic free-viewpoint relighting and on-the-fly material editing of 3D scenes.
- Achieved state-of-the-art results with enhanced shading effects while reducing computation times from 150 hours to 5 minutes.
- Utilized Python for machine learning algorithms and C++ for performance-intensive ray tracing computations.
- Created extensive custom datasets using the Blender API, simulating complex lighting and material properties to evaluate models.

Neural 3D Visual Grounding with GNNs and Attention   *Munich*

Visual Computing & Artificial Intelligence Lab, TUM   *Sep. 2021 - Mar. 2022*

- Developed an innovative 3D visual grounding model that dynamically maps linguistic descriptions to the precise spatial locations of objects.
- Modeled spatial relationships among object proposals using Graph Neural Networks and Transformer-based attention mechanisms.
- Implemented the system in Python, integrating NLP foundation models to enhance the contextual understanding of linguistic inputs.

Skills

Programming	**Python** *(proficient)*, **C++** *(intermediate)*, MATLAB *(intermediate)*
Tools	**PyTorch**, TensorFlow, Blender, Mitsuba, OpenCV, CATIA, Gurobi, LaTeX, Git, Linux, Photoshop, Microsoft Office
Languages	**German** *(C1)*, **English** *(C1)*, Chinese *(native)*, Cantonese *(native)*
Hobbies	Skiing, Snowboard, Basketball, Photography