



Yue Chen

yue-c@hotmail.com

Website: www.yue-c.de

GitHub: github.com/YueChenGithub

LinkedIn: linkedin.com/in/yue-c

SHORT PROFILE

Inventive research-oriented computer science graduate with over three years of project experience in machine learning, data science, and computer vision. Experienced in leading multinational student research teams to achieve state-of-the-art results in machine learning challenges.

EDUCATION

Oct 2021 – Apr 2024

M.Sc. in Computer Science (Robotics, Cognition, Intelligence)

Technical University of Munich (TUM), Germany

- Specialization: Machine Learning, Computer Vision, Data Science
- Master thesis: *Neural Scene Decomposition for Accurate Light and Material Reconstruction via Physically-Based Global Illumination Estimation* (grade: 1,7)
- Final grade: 1,8

Oct 2017 – Sep 2021

B.Sc. in Mechanical Engineering

Technical University of Munich (TUM), Germany

- Specialization: AI, Automotive Technology, Automatic Control
- Bachelor thesis: *Investigation of Graph Neural Network Approaches in Gear Transmission Synthesis* (grade: 1,3)

RESEARCH & PROJECTS

Feb 2023 – Dec 2023

Neural Scene Decomposition for Accurate Light and Material Reconstruction via Physically-Based Global Illumination Estimation

Master Thesis Student, Visual Computing & AI Lab, TUM

Project page: www.yue-c.de/neural-inverse-rendering/

- Research and development of 3D deep learning models using PyTorch to reconstruct accurate, consistent object materials and environmental lighting from RGB images
- Integration of neural networks into a modern Monte-Carlo path tracing rendering pipeline to achieve neural inverse path tracing
- Construction of a synthetic dataset with over 2000 samples using Blender API
- Incorporation of Tiny CUDA Neural Network and Mitsuba Renderer, producing photorealistic relight images with a remarkable 45% quality improvement

Apr 2022 – Nov 2022

Neural Factorization of Shape, Material, and Lighting under Unknown Illumination

Project Lead, Visual Computing & AI Lab, TUM

- Leadership and coordination of a three-member international research team using Agile methodology for efficient project management
- Organization of regular group meetings for progress tracking and management of presentations to stakeholders
- Incorporation of ray tracing technique to efficiently factorize neural radiance field (NeRFs), dramatically reducing data processing time by 95% and significantly improving relight image quality by 30%

Sep 2021 – Mar 2022

Neural 3D Visual Grounding with GNNs and Attention

Algorithm Developer, Visual Computing & AI Lab, TUM

- Collaboration on the development of an advanced deep learning model for precise object localization from point cloud scans and linguistic descriptions
- Research and incorporation of a robust instance segmentation model to enhance the accuracy of object proposal identification
- Integration of Graph Neural Networks (GNNs) and Transformers to effectively learn the spatial relations of object proposals, achieving up to 70% accuracy

Apr 2021 – Sep 2021

Investigation of Graph Neural Network Approaches in Gear Transmission Synthesis

Bachelor Thesis Student, Institute of Machine Elements, TUM

- Identification of use cases for the application of GNNs in innovative gearbox design
- Generation of a comprehensive gearbox dataset using an internal software API and standardization of a unified graph format for gearbox data
- Development recommendation system with GNNs for optimal component selection

Oct 2020 – Feb 2021

Physics-Informed Machine Learning for Rogue Wave Prediction

Algorithm Developer, Thermo-Fluid Dynamics Group, TUM

- Design and implementation of advanced machine learning algorithms to predict the formation of rogue waves, incorporating fundamental physical laws in fluid dynamics
- Comparative analysis of physics-informed ml algorithms against numerical solvers
- Project management and driving innovative research in an interdisciplinary team

PRACTICAL EXPERIENCE

Sep 2018 – Nov 2018

Mathematics Teaching Assistant

Technical University of Munich

- Management of tutoring sessions for over 50 students
- Performance of central presentations and individual tutoring

Jun 2017 – Oct 2017

Manufacturing Intern

Marine Engine Service Hamburg

- Responsibility for quality control with a focus on recycling cylinder heads
- Supported the assembling, logistics, and schedule planning

SKILLS & INTERESTS

ML Frameworks

- Extensive usage of PyTorch in multiple machine learning projects
- Highly skilled in OpenCV, NumPy, Pandas, Matplotlib, scikit-learn, TensorFlow
- Experience in SVM, PCA, CNN, Transformer, PointNet++, NeRF, tiny-cuda-nn

General IT Skills

- Proficiency in Python and LaTeX, competent skills in C++ and MATLAB
- Working knowledge of CI/CD, Git, SSH, Virtual Machine, Linux (Ubuntu)
- Engineering Software: CATIA V5, Blender, Mitsuba, Gurobi, Photoshop

Languages

- German – C1, formal education in German at TUM
- English – C1, extensively used in machine learning research and teamwork
- Chinese – mother tongues

Interests

- Research and explore the latest AI methods and their applications in industries
- Active outdoor enthusiast: skiing, snowboarding, hiking, basketball, photography