Yue **Chen**

PHD CANDIDATE APPLICANT

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Education

Technical University of Munich   *Munich, Germany*

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

Technical University of Munich   *Munich, Germany*

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

University of Macao   *Macao, China*

B.Sc. in Electromechanical Engineering, Three Semesters GPA 3.6/4.0   *Aug. 2014 - Dec. 2015*

Research Experience

Neural Inverse Rendering   *Technical University of Munich*

Master Thesis by Visual Computing & Artificial Intelligence Lab (Prof. Matthias Nießner)   *Feb.2023 - Nov. 2023*

- Introduce a physically-based neural rendering pipeline that incorporates differentiable multi-bounce Monte Carlo path tracing.
- Achieve joint estimation of PBR materials and illumination, integrating physically-based global illumination estimation for enhanced accuracy.
- Enable free-viewpoint relighting and material editing of a scene given its multi-view images and camera pose
- Attain relighting results comparable to state-of-the-art methods, distinguished by more accurate PBR materials and more realistic secondary shading effects.

Images Relighting and Material Editing   *Technical University of Munich*

Internship by Visual Computing & Artificial Intelligence Lab (Prof. Matthias Nießner)   *Apr. 2022 - Sep. 2022*

- Propose a solution for decomposing scenes into geometry, material, and lighting by leveraging the strengths of both implicit Signed Distance Function and explicit mesh representations.
- Enable free-viewpoint relighting and material editing of a scene given its multi-view images and camera pose
- Significantly decrease computation time for visibility estimation by 99%, while simultaneously improving relighting results.

3D Visual Grounding   *Technical University of Munich*

Project by Visual Computing & Artificial Intelligence Lab (Prof. Matthias Nießner)   *Sep. 2021 - Mar. 2022*

- Address the challenge of visual grounding, which involves localizing objects in a scene based on linguistic descriptions.
- Utilize graph neural networks to enhance object recognition by informing objects about their surroundings.
- Achieve improved accuracy in correctly identifying and localizing objects within diverse scenes.

Graph Neural Networks for Gear Transmission Development   *Technical University of Munich*

Bachelor Thesis by Chair of Machine Elements (Prof. Karsten Stahl)   *Mar. 2021 - Sep. 2021*

- Aim to explore the potential applications of graph neural networks in gear transmission synthesis.
- Create a dataset comprising various types of gear transmissions in graph format.
- Employ graph neural networks to understand and predict the relationships between components of gear transmissions.

Physics-Informed Machine Learning for Rogue Wave Prediction   *Technical University of Munich*

Internship by Associate Professorship of Thermo-Fluid Dynamics (Prof. Wolfgang Polifke)   *Oct. 2020 - Feb. 2021*

- Employ Physics-Informed Neural Networks to offer an alternative approach to traditional numerical solvers.
- Target the resolution of a fluid-dynamic partial differential equation, specifically the non-linear Schrodinger equation.
- Demonstrate the potential of Physics-Informed Neural Networks in solving high-complexity physics problems that are challenging for conventional numerical methods.

Extracurricular Activity

Teaching Assistance   *Technical University of Munich*

Preliminary Course in Higher Mathematics (Prof. Dr. Christian Karpfinger)   *Sep. 2018 - Nov. 2018*

- Organize tutoring courses for students transitioning from high school to university, focusing on mathematics.
- Review key points from lectures, answer student questions, assist students with university tours.

Student Assistance   *Technical University of Munich*

University Open Doors Day   *Oct. 2017*
- Organize and assist visitors during the open day in completing scientific tasks.

Student Leader   *University of Macao*

Shiu Pong College House Association   *Aug. 2015 - Dec. 2015*
- Organize events to inform students about university policies and beneficial programs.
- Invite distinguished alumni to share their experiences and insights with current students.

Skills

Programming	Python, C++, MATLAB, LaTeX
Tools	PyTorch, Blender, Mitsuba, CATIA, Gurobi, Git, Linux
Languages	Chinese (native), English (C1), German (C1)
Hobbies	Skiing, Basketball, Photography