Kin-Chung Chan, Alfred

Ph.D. Candidate · Electrical and Electronic Engineering

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Research Interests

Efficient 3D Scene Representation: Neural spatial computing, Nerual rendering (NeRF, 3DGS).

Dynamic Scene Understanding: Optical flow estimation, SLAM.

3D Face Modeling: Head avatars.

Education

The Hong Kong Polytechnic University *Hong Kong*

Ph.D. Candidate, Department of Electrical and Electronic Engineering *Sept 2021 – Present*

- Supervisor: Prof. Kin-Man Lam.
- Research areas: computer vision and deep learning, with emphasis on efficient 3D scene representation, dynamic scene understanding, and 3D face modeling.

The Hong Kong Polytechnic University *Hong Kong*

M.Sc. in Operational Research and Risk Analysis *Sept 2015 – Apr 2017*

- Department of Applied Mathematics.

Guangzhou University *Guangzhou, China*

B.Sc. in Mathematics and Applied Mathematics *Sept 2008 – June 2012*

- Department of Mathematics and Information Science.

Research & Professional Experience

AI Sense Limited *Hong Kong*

R&D Engineer *Nov 2024 – Present*

- Lead research into deep learning–based object detection methods for automatic recognition of personal protective equipment (PPE) in omnidirectional workplace imagery.
- Design and develop an end-to-end, real-time detection pipeline for multi-class PPE monitoring using omnidirectional cameras in industrial environments.
- Lead a research project applying vision–language models (VLMs) to lifting posture assessment in industrial environments.

The Hong Kong Polytechnic University *Hong Kong*

Project Assistant, Department of Electrical and Electronic Engineering *Aug 2022 – Oct 2024*

- Contributed to a research project on deep learning–based algorithms for old-movie restoration.
- Implemented optical flow and feature matching models to support high-quality restoration of degraded video content in an old-movie restoration pipeline.

The Hong Kong Polytechnic University *Hong Kong*

Research Assistant, Department of Industrial and Systems Engineering *Apr 2022 – Feb 2023*

- Led a research project on algorithms for an interactive simulation platform with multi-axis motion for VR-enhanced bicycle games.
- Led the development of a VR-enhanced bicycle game in Unity, integrating motion control and real-time feedback.

ITTA Technology (H.K.) Ltd *Hong Kong*

Senior Software Engineer *Sept 2019 – Aug 2022*

- Led the design and implementation of industrial nesting algorithms for optimal material usage.

The Hong Kong Polytechnic University *Hong Kong*

Research Assistant, Department of Industrial and Systems Engineering *Jan 2018 – Aug 2019*

- Led a research project on industrial nesting algorithms for optimal material usage.
- Contributed to a research project on an interactive bicycle simulation platform for VR applications.

SAS Software (Beijing) Co. Ltd *Guangzhou, China*

Analytical Consultant *Jan 2017 – Dec 2017*

- Led the development of a simulation model to analyze and visualize supply chain performance.
- Contributed to the development of an optimization model for supply chain improvement using SAS tools.

Publications

Zongqi He, Zhe Xiao, **Kin-Chung Chan**, Yushen Zuo, Jun Xiao, and Kin-Man Lam. 2025. "Enhancing Sparse-View 3D Gaussian Splatting with Local Depth and Semantic Regularization." In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2025)*.

Kin-Chung Chan, Jun Xiao, Hana Lebeta Goshu, and Kin-Man Lam. 2024. "Point Cloud Densification for 3D Gaussian Splatting from Sparse Input Views." In *Proceedings of the 32nd ACM International Conference on Multimedia (ACM MM 2024)*.

Hana Lebeta Goshu, Jun Xiao, **Kin-Chung Chan**, Cong Zhang, Mulugeta Tegegn Gemeda, and Kin-Man Lam. 2024. "NeRF-FCM: Feature Calibration Mechanisms for NeRF-Based 3D Object Detection." In *Proceedings of the Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC 2024)*.

Yushen Zuo, Jun Xiao, **Kin-Chung Chan**, Rongkang Dong, Cuixin Yang, Zongqi He, Hao Xie, and Kin-Man Lam. 2024. "Towards Multi-View Consistent Style Transfer with One-Step Diffusion via Vision Conditioning." In *Proceedings of the European Conference on Computer Vision Workshops (ECCV 2024 Workshops)*.

Kin-Chung Chan and Kin-Man Lam. 2024. "SMART: Stratified Matching and Recurrent Transformer for Optical Flow Estimation." In *Proceedings of the International Workshop on Advanced Imaging Technology (IWAIT 2024)*.

Awards

Mar 2025 **5th Place, NTIRE 2025 Challenge on Night Photography Rendering**, New Trends in Image Restoration and Enhancement (NTIRE) Workshop, CVPR 2025

Presentations

Kin-Chung Chan, Zongqi He, Zhe Xiao, Jun Xiao, and Kin-Man Lam. 2025. "Novel View Synthesis under Sparse-View Constraints: Challenges and Approaches." Hong Kong 3DGS Workshop, Huawei Inc., Hong Kong Science Park, Hong Kong.

Skills

Programming & Tools: Python (PyTorch, TensorFlow), Unity, MATLAB, C++, SAS, etc.

Languages: Mandarin (native), Cantonese (native), English (professional proficiency).