Jiaming Chu

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Education

present | School of Automation and Intelligent Sensing, **Shanghai Jiao Tong University**
Sep 2025 | M.Eng. in Electronic Information

Jul 2025 | School of Instrumentation Science and Engineering, **Harbin Institute of Technology**
Sep 2021 | B.Eng. in IntelliSense Engineering

Research

2026 | **VGGT-Splat: Can VGGT Replace COLMAP for 3DGS Reconstruction** page code

- Problem: 3DGS from phone video first needs camera poses. How many frames do COLMAP and feed-forward VGGT need? Does a VGGT depth prior help with few frames?
- Method (independent project): 6 scenes × 8/16/32/all frames × 3 methods, 72 runs.
- Result 1: **VGGT is more reliable with few frames; COLMAP is better with all frames.** COLMAP fails on 4 of 6 scenes at 8 frames and 3 of 6 at 16, VGGT never; with all frames COLMAP leads by 2.1–4.6 dB on five scenes, likely because VGGT's poses are less precise.
- Result 2: **The depth prior barely improves novel views.** With few frames the error sits in regions no training view sees, which a depth loss cannot reach.

2026 | **PoseGuard-NeRF: When Does Joint Pose Optimization Help NeRF** page code

- Problem: NeRF needs accurate camera poses. Joint pose optimization can correct errors, but when does it help and when does it hurt?
- Method (independent project): Lego scene, 9 pose conditions × 5 methods, 45 vanilla-NeRF runs; Sim(3) alignment separates worse reconstruction from coordinate drift.
- Result 1: **With noisy poses, joint optimization clearly helps.** At 5% translation noise, PSNR rises from 14.1 dB (fixed cameras) to 22.7 dB (with warm-up).
- Result 2: **With accurate poses, it lowers PSNR, mostly through global drift.** Without warm-up PSNR drops 27.1 → 17.9 dB; Sim(3) alignment recovers 5.5 dB.

2026 | **AFVE-Bench: Abandoned-Frame Verbalization** (Under Review) arXiv

- Problem: asked to rewrite under a new frame, an LLM may adopt it yet still expose the abandoned one. Existing benchmarks mainly check the latest target and can miss this.
- Method (first author): 192 bilingual four-turn dialogues across 8 writing domains; 4,204 responses from 11 model configurations, blind double-annotated and adjudicated.
- Result: **Meeting the new target does not stop the old frame from showing.** 25.5% of responses after old-frame turns show it; so do 19.8% of those meeting the target.

Experience

Jul 2023
Jan 2023 | **Captain, Team Lilac 12 (Provincial Second Prize)** @ HIT Smartcar & Innovation Club

- Led **computer vision** support; built ROS packages, tuned navigation (SLAM, path planning) and wrote docs.

Apr 2024
Nov 2023 | **Instrument Design (National Second Prize)** @ HIT

- Center of Ultra-Precision Optoelectronic Instrument Engineering: single-beam 3-DoF ultra-precision laser interferometer, host communication and data visualization.
- Tech stack: image processing, optical principles, programming.

Jan 2024
Dec 2023 | **Mathematical Modeling (Team Lead, ICM Honorable Mention)**

- Built the models, wrote the code and the paper.

Apr 2024
Mar 2024 | **Visiting Student** @ Shanghai Infocrops Science & Technology Co., Ltd.

- Intelligent vision training.

Other Projects

Undergrad

- Qingzhou robot (C/C++, Python, Jetson Nano, STM32): SLAM, navigation, visual recognition.
- Vision-controlled car (Python, Raspberry Pi): drives by recognizing QR codes and hand gestures.
- Smart-home system (Python, Raspberry Pi): real-time sensing, logging, display and RF device control.

Honors & Awards

2024 **Honorable Mention**, Interdisciplinary Contest in Modeling (ICM), COMAP

2024 **Second National Prize**, 7th China (International) Sensor Innovation Contest

2023 **Provincial Second Prize**, 18th National University Students Intelligent Car Race (Aerospace Smart Logistics)

Skills & Languages

Programming Python, C/C++, MATLAB

Frameworks PyTorch, OpenCV, NumPy

3D Vision COLMAP, 3DGS (gsplat), NeRF (Nerfstudio)

Systems Linux, ROS

Dev Tools Git, Conda, uv, LaTeX

Languages Chinese (native), English (CET-6: 465)