Jie-Ying (Jay) Lee 李杰穎

Email: jayinnn.cs10@nycu.edu.tw
Homepage: https://jayinnn.dev/
Mobile: +886-977-122-420
Linkedin: https://www.linkedin.com/in/jayinnn/
Github: https://github.com/jayin92/

Education

- **National Yang Ming Chiao Tung University** — Hsinchu, Taiwan
  B.S. in Computer Science; GPA: 4.22/4.3 (Overall), 4.26/4.3 (Major); Ranking: 11/184 (5.98%) — *Jul. 2021 - Present*
- **ETH Zurich** — Zurich, Switzerland
  Exchange Student in the Department of Computer Science — *Sep. 2024 - Feb. 2025 (expected)*

Experiences

- **Google** — SAM, Research, Knowledge Distillation
  Software Engineering Intern — *Jun. 2024 - Present*
  During my internship with the Pixel Camera Team, I am focused on integrating the Segment Anything Model (SAM) into mobile devices. My work involves a comprehensive review of relevant research papers to identify the best strategies for deploying this heavyweight model on mobile platforms. I am utilizing knowledge distillation to transfer the model's capabilities to a lightweight MobileNetV4, achieving only a 4% performance drop with a latency of 20 ms (8x faster) on a mobile TPU.
- **CompPhoto Lab** — Python, Research, NeRF, 3D Generative AI, Scene Generation
  Research Assistant and System Administrator — *Aug. 2023 - Present*
  Advised by Prof. Yu-Lun Liu. Conduct a research that generate scene-level 3D Gaussian from a series of BEV images.
- **IT Center of Department of Computer Science, NYCU** — Linux, Kubernetes, PHP, Laravel, Vue, CI/CD, GitLab flow
  Teaching Assistant of WWW and System Group — *Jul. 2022 - Present*
  Developed the backend of teaching assistant contact information system using PHP and Laravel. And learned how to design the database schema and write RESTful API, also used OpenAPI to write API document. Also be familiar with the process of software development, including git version control, merge requests and CI/CD.
- **Microsoft** — AzureML, NLP, Address Parsing, C#, Aether, jQuery
  Research & Development Intern at Bing Geocoding — *Sep. 2023 - Jun. 2024*
  Integrated code in backend component, made it able to populate new data format and visualized them in dashboard. Currently focusing on validating the DeepCAL ML model and improving the training pipeline.
- **Appier** — MongoDB, Trino, Argo Workflow, Kubernetes, GCP, BigQuery, Looker Studio, Agile, System Design
  Backend Engineer Summer Intern — *Jul. 2023 - Sep. 2023*
  Developed a novel system to calculate and visualize the cloud service costs for each customer per feature, which replaced the traditional manual estimation. By automatically collecting and calculating cost, it achieving 7200x speedup. Utilized Google Cloud Storage and Looker Studio for visualization. Developed in collaboration with the team's Scrum process. Also engaged with PMs and sales teams to ensure it meets their expectations.

Publications

- **BoostMVSNeRFs: Boosting MVS-based NeRFs to Generalizable View Synthesis in Large-scale Scenes**: Chih-Hai Su*, Chih-Yao Hu*, Shr-Ruei Tsai*, **Jie-Ying Lee***, Chin-Yang Lin, Yu-Lun Liu (* denotes equal contribution)
  ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH), 2024.

  BoostMVSNeRFs aims to enhance the rendering quality of MVS-based NeRFs in large-scale scenes. Our method significantly improves the rendering quality in large-scale scenes and unbounded outdoor scenes.

Projects

- **BEVGaussian: Generate Scene-level 3D Gaussian from BEV image**: In this work, we aim to generate scene-level 3D Gaussians from bird's-eye view (BEV) images, including satellite images, heightmaps, and semantic maps. Existing methods are limited to object-level generation and cannot produce scene-level 3D Gaussians. To address this, we leverage existing object generation techniques to create high-quality 3D Gaussians from BEV images and then integrate these objects into the scene. Our approach is training-free and allows for easy modification of the 3D scenes by using BEV images as input. (Jun. 2024)
- **VAE-pix2pix-terrain-generator**: Used NASA's SRTM 1 Arc-Second dataset to collect altitude maps and MapTiler to collect corresponding satellite images from around the world. The collected images are used to train a VAE-pix2pix model, which is an VAE combined with pix2pix. The model adds realistic details to the heightmap and generates corresponding satellite images. Link (Jul. 2020)
- **C++ Implementation of Root-parallelization MCTS**: Project for theory of computer games. Implemented a root-parallelization multi-thread MCTS algorithm for NoGo game. It can be also applied in various of games, like Go, Hex, etc. Link (Jan. 2023)

Awards

- **Marconix Award of 19th Marconix Science Award**: Top award in Macronix Science Award. The only recipient within ten years.
- **Third Place of the NYCU CS Undergraduate Research Competition**: Awarded for the project "BEVGaussian: Generate Scene-level 3D Gaussian from BEV image."
- **Bronze Award of The 2022 ICPC Asia Taoyuan Regional Programming Contest**: Thirty-second place out of 100 teams. Second place of the bronze award.
- **Academic Achievements Award in 2021 Fall Semester**: Top 5% in the class.
- **Fundamental Course Award of Discrete Mathematics, Digital Circuit Design, Data Structures & Object-oriented Programming and Introduction to Algorithms**: Top 5% of these courses.