Gonglin Chen

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Education

University of Southern California — Los Angeles, California
PhD in Computer Science — *Sep 2024 – Present*

University of Southern California — Los Angeles, California
M.S. in Applied Data Science; ***Cumulative GPA: 3.76/4.00*** — *Jan 2023 – Jun 2024*

University of California, Davis — Davis, California
B.S. in Statistics, Machine Learning; ***Cumulative GPA: 3.73/4.00*** — *Sep 2017 – Jun 2022*

Research Interests

My research focuses on advancing low-level vision and 3D reconstruction techniques, with applications in autonomous systems, augmented reality, and computer graphics. I am particularly interested in developing scalable and robust algorithms for complicated real-world scenarios.

Publications

Zhiyuan Gao, Wenbin Teng, ***Gonglin Chen***, Jinsen Wu, Ningli Xu, Rongjun Qin, Andrew Feng, and Yajie Zhao, "Skyeyes: Ground Roaming using Aerial View Images", in Proceedings of IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2025.

Gonglin Chen, Jinsen Wu, Wenbin Teng, Zhiyuan Gao, Andrew Feng, Rongjun Qin, and Yajie Zhao, "Geometry-aware Feature Matching for Large-Scale Structure from Motion", in Proceedings of the IEEE International Conference on 3D Vision (3DV), 2025 (Oral Presentation).

Zitong Zhao, ***Gonglin Chen***, Reza Vatan Meidanshahi, and Gergely T. Zimányi, "Machine Learning-based defect identification method at the c-Si/a-Si:H interface", in Proceedings of the 50th IEEE Photovoltaic Specialists Conference (PSVC), 2023.

Experiences

Vision & Graphics Lab, USC Institute for Creative Technologies — Los Angeles, California
Research Assistant — *Jun 2023 – Present*

- Led the research project on feature matching for improving the accuracy and robustness of Structure from Motion Reconstruction under challenging scenarios, achieving state of the art performance. Designed and developed a user interface to showcase our method.
- Contributed to cutting-edge research on diffusion models, Neural Radiance Fields (NeRF), and 3D Gaussian splatting, advancing state-of-the-art techniques in 3D reconstruction and rendering.
- Collaborated with engineers across organizations to integrate our research into scalable workflows, significantly improving novel-view synthesis performance in real-world scenarios with different environments.
- Developed Python codebases utilizing ***PyTorch*** for model training and evaluation. Automated data preprocessing pipelines and integrated visualization tools to analyze results effectively.
- Designed and proposed a data collection pipeline using internet videos to generate aerial-to-ground image pairs for over 100 locations around the world, filling a critical gap in datasets for training feature matching models.

Zimanyi Research Group, University of California, Davis — Davis, California
Undergraduate Research Assistant — *Jan 2022 – Jun 2022*

- Designed and trained models using ***TensorFlow*** to predict electronic orbital localization on specific atoms, addressing complex challenges in physics.
- Collaborated with team members across disciplines to align machine learning approaches with domain-specific requirements, ensuring the models effectively addressed key research questions.
- Conducted extensive experiments to evaluate model performance, optimizing hyperparameters and feature engineering processes to achieve reliable and accurate predictions.

- Built a Python codebase for data cleaning, preprocessing, and feature extraction, ensuring high-quality datasets for training and evaluation.
- Provided key insights into applying machine learning techniques to solve physics problems.

Newland Edu, Newland (000997, SZ) Fuzhou, Fujian, China
AI Engineer Intern *Dec 2020 – Mar 2021*

- Collaborated with engineers on multiple object detection projects, contributing to the development and optimization of advanced AI models.
- Implemented Python codebase for evaluation and the model architecture of the output layer, enabling more effective local testing of our models and reducing the time required for fine-tuning.
- Trained and deployed four object detection models using the ***Caffe*** framework for demonstration purposes at the Fourth Digital China Summit.
- Authored detailed documentation for training, evaluation, and deployment processes, adopted as part of the department's Standard Operating Procedures (SOP), enhancing team knowledge sharing and streamlining workflows.

Dalhke Research Lab, University of California, Davis Davis, California
Data Analyst Intern *Dec 2019 – Mar 2020*

- Collected and analyzed 30 years of climate monitoring data from central California to identify and visualize trends related to climate change using R.
- Applied advanced statistical techniques, including the Mann-Kendall Trend Test and Time Series Analysis, to evaluate climate data and uncover underlying patterns.
- Developed clear, informative data visualizations using ggplot2, effectively communicating trends and results to both technical and non-technical audiences.
- Contributed to public education initiatives by interpreting and presenting statistical findings, raising awareness of climate-related issues within the community.

Teaching

DSCI-554 Data Visualization, USC Los Angeles, California
Teaching Assistant *Sep 2024 – Dec 2024*

Skills

Programming Language: Python, Java, MATLAB, R, JavaScript
Frameworks & Tools: TensorFlow, PyTorch, Caffe, Spark, HDFS, MongoDB, Vue, React
Cloud & DevOps: AWS, Docker, Git, Linux
Languages: Mandarin (Native), English (Professional)