SIJIN CHEN

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EDUCATION

The Chinese University of Hong Kong Hong Kong
Bachelor of Science *Sep. 2019 – Present*

- Major in Computer Science; Minor in Mathematics
- Cumulative GPA: **3.87**/4.00, Major GPA: **3.95**/4.00
- Honors and Awards:
  Dean's List, 2019–20 & 20–21
  ELITE Stream Scholarship, 2019–20 & 20–21
  Best Project Award of Summer Research Internship, 2020

RESEARCH INTEREST

Optimization theory: non-convex problems, convergence analysis, first-order methods, spectral methods, semidefinite programming, manifold optimization, machine learning theory

PUBLICATION

1. **Sijin Chen**, Xiwei Cheng, and Anthony Man-Cho So, *Non-Convex Joint Community Detection and Group Synchronization via Generalized Power Method*, 2021. https://arxiv.org/abs/2112.14204

2. Wu Zheng, Weiliang Tang, **Sijin Chen**, Li Jiang, and Chi-Wing Fu, *CIA-SSD: Confident IoU-Aware Single-Stage Object Detector from Point Cloud*, 35th AAAI Conference on Artificial Intelligence, 2021. https://ojs.aaai.org/index.php/AAAI/article/view/16470

RESEARCH EXPERIENCE

Research on iterative methods for non-convex optimization problems
supervised by Prof. Anthony Man-Cho So, the Chinese University of Hong Kong *Jun. 2021 – Present*

- Proposed a generalized power method for the joint optimization of group synchronization and community detection
- Played a major role in mathematically proving the linear convergence guarantee for the algorithm, which sharply outperforms the state-of-the-art semidefinite relaxation method in respect of time complexity
- Utilized mathematical tools including matrix theory, random graph theory, numerical analysis, etc. to develop the results
- Wrote paper [1] to present the results obtained to the academia

Research on 3D computer vision via deep learning
supervised by Prof. Philip Chi-Wing Fu, the Chinese University of Hong Kong *Jun. 2020 – Nov. 2020*

- Cooperated with PhD researchers to design 3D convolutional neural networks with self-attention module and IoU-aware loss function for autonomous driving scenes
- Proposed efficient methods for data augmentation and network structure refinement, contributed substantial codes in Python, PyTorch, and CUDA for implementation and experiments
- Collaborated on the research paper [2] as my first research output
- Won the Best Project Award issued by the Faculty of Engineering

LEADERSHIP

Organizer and student lecturer
at WISE, a knowledge-sharing platform at the Chinese University of Hong Kong *Jan. 2021 – Present*

- Organized biweekly talks by inviting speakers from different disciplines and promoting the activity to the potential audience
- Created and maintained the official website via cooperation on GitHub with front-end and back-end technologies
- Gave two talks on non-convex optimization and basic topology to the audience from engineering background

Academic conference attendance
at the 35-th AAAI Conference on Artificial Intelligence *Feb. 2021*

- Attended as paper author, interacted with outstanding researchers worldwide during presentations and workshops
- Developed my understanding of up-to-date progress and problems of applied and theoretical aspects of AI research

SKILLS

Languages: English (proficient: IELTS 8.0), Mandarin Chinese (native), Cantonese (conversational)
Programming: MATLAB, Python, PyTorch, C/C++, Java, HTML/CSS, LaTeX
Computer: Linux, SSH, Microsoft Office