Li Chen
陳力

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Education

Georgia Institute of Technology, Atlanta, GA, US *Aug 2019 - May 2023 (Expected)*
— Ph.D. in Algorithms, Combinatorics and Optimization (ACO)/ Computer Science
— Advisor: Dr. Richard Peng
— G.P.A. 4.0/4.0

National Taiwan University, Taipei, Taiwan *Sep 2014 - Jul 2018*
— B.S. in Computer Science and Information Engineering (CSIE)
— Overall G.P.A. 4.20/4.30, Major G.P.A. 4.29/4.30, Rank: 2/103

Research Interest

Algorithms and data structures. Specifically, designing fast algorithms for large problem instances.

Publication

- **Li Chen**, Rasmus Kyng, Yang P. Liu, Richard Peng, Maximilian Probst Gutenberg, Sushant Sachdeva. *Maximum Flow and Minimum-Cost Flow in Almost-Linear Time*. FOCS 2022. **Best Paper Award.** (arxiv:2203.00671)
- **Li Chen**, Richard Peng, Di Wang. *ℓ_2-norm Flow Diffusion in Near-Linear Time*. FOCS 2021. (arxiv:2105.14629)
- **Li Chen**, Gramoz Goranci, Monika Henzinger, Richard Peng and Thatchaphol Saranurak. *Fast Dynamic Cuts, Distances and Effective Resistances via Vertex Sparsifiers*. FOCS 2020. (arxiv:2005.02368)

Awards and Honors

2nd place, ICPC North America Championship *2020*
Champion, ICPC Southeast USA Regional *2019*
Fourteenth Place, ACM ICPC World Finals *2018*
Champion, ACM ICPC Asia Hualien Regional *2017*
Champion, National Collegiate Programming Contest of Taiwan *2014-2015, 2017*
Presidential Award (awarded to students ranking top 5%), National Taiwan University *2014-2015*
Bronze Medalist, International Olympiad in Informatics *2013*

Scholarships

Government Scholarship to Study Abroad, Ministry of Education, Taiwan *2020*
IDEaS and TRIAD Research Scholarship, Georgia Tech *2020*

Talks

Maximum Flow and Minimum-Cost Flow in Almost-Linear Time
- Algorithms Seminar, Google *May 2022*
- Graduate Student Seminar, National Taiwan University *Apr 2022*
- Theory Lunch, University of Southern California *Apr 2022*
- Theory Seminar, University of Washington *Apr 2022*
- Theory Seminar, Stanford University *Mar 2022*

ℓ_2-norm Flow Diffusion in Near-Linear Time
- FOCS 2021, Virtual *Feb 2022*
- ACO Student Seminar, Georgia Tech *Nov 2021*

Experience

Research Intern, Core Data Science, *Meta, Menlo Park, CA* *May 2022 - Aug 2022*
- Worked in the Economics, Algorithms, and Optimization team.

Software Engineering Intern, *Google, Kirkland, WA* *Jul 2018 - Sep 2018*
- Worked on Search Ads 360 data pipeline.

Research Assistant, *National Taiwan University, Taipei, Taiwan*, *Jun 2017 - Jan 2019*
- Studying various 1st order methods for large-scale logistic regression. Focusing on their competitive performance on CTR (Click-Through-Rate) prediction task.
- Advisor: Prof. Chih-Jen Lin

Research Assistant, *National Taiwan University, Taipei, Taiwan*, *Jul 2016 - Jul 2018*
- Worked on various fundamental problems on *planar graph*s, such as minimum *st* cut and shortest non-crossing paths.
- Obtained an $O(n \log\log n)$-time algorithm for the shortest non-crossing paths problem on planar graphs. This improves over the $O(n \log n)$-bound obtained 2 decades ago. A similar result was obtained independently in Alex Steiger's master's thesis. (link: `https://www.ideals.illinois.edu/handle/2142/98345`).
- Advisor: Prof. Hsueh-I Lu

Software Engineering Intern, *Mixerbox, Taipei, Taiwan* *Apr 2017 - Jul 2017, Sep 2017 - Feb 2018*
- Worked on content generation of the landing page and artist pages of the music app Mixerbox by machine learning tools. Since the app has an enormous number of users (over *100 million* downloads and *1 million* daily active users), we designed efficient methods to do the job.

Quantitative Research Intern, *WorldQuant, Taipei, Taiwan* *Aug 2017 - Sep 2017*
- Developed quantitative financial models using a stock market simulation system (WebSim).

Software Engineering Intern, *Google, Taipei, Taiwan* *Jul 2016 - Sep 2016*
- Worked on Android's boot loader. Speed up an essential procedure to gather hardware information in boot loader. More details: `https://source.android.com/devices/architecture/dto/optimize`

Network Management Group, *National Taiwan University, Taipei, Taiwan* *Feb 2015 - Aug 2017*
- Assisted in managing and improving the network environment of CSIE department in NTU which has hundreds of users per day.
- Advisor: Prof. Hsin-Mu Tsai

Teaching Experience

Teaching Assistant, *Advanced Algorithms (CS 4540)*, Georgia Tech *Fall 2020*

Teaching Assistant, *Automata and Complexity Theory (CS 4510)*, Georgia Tech *Spring 2020*

Teaching Assistant, *Algorithm Design and Analysis*, National Taiwan University *Fall 2018*

Teaching Assistant, *Data Structure and Algorithm*, National Taiwan University *Spring 2018*
- Held and designed educational activities for students to familiarize with course material.

Lecturer, *IOIcamp*, National Taiwan University *Winter 2016, 2017*
- A training camp for high school and college students on competitive programming.
- Taught advanced data structures and efficient polynomial operations.

Lecturer, *Sprout*, National Taiwan University *Spring 2015, 2016*
- A long-term program teaching talented high school students computer science.
- Taught basic C/C++ and Python programming.

Synergistic Activity

Judging the ICPC Taipei Regional Contest, National Taiwan University *Fall 2018*

Organizing a stand for LIBSVM at Future Tech Exhibition, Taipei World Trade Center *Winter 2017*

Judging the Taiwanese team selection contest for International Olympiad in Informatics *Spring 2015*

Proficient Skills

Programming Languages

* C/C++, Java, Python, Haskell, Javascript, LaTeX