

# Li Chen 陳力

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## Education

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- 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

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

## Publication

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- **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. (arxiv:2203.00671)
  - **Li Chen**, Richard Peng, Di Wang.  *$\ell_2$ -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

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- 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

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

## Talks

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- 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*  
 *$\ell_2$ -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 graphs*, 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

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- 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

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- 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

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### Programming Languages

\* C/C++, Java, Python, Haskell, Javascript, L<sup>A</sup>T<sub>E</sub>X