Li Chen

lichenntu@gmail.com +1 (404)384-5451 (mobile)

Education

Georgia Institute of Technology, Atlanta, GA *Aug 2019 - Aug 2023*
Ph.D. in Computer Science/Algorithms, Combinatorics and Optimization (ACO)
Advisor: Richard Peng

National Taiwan University, Taipei, Taiwan *Sep 2014 - Jul 2018*
B.S. in Computer Science and Information Engineering (CSIE)

Employment

Carnegie Mellon University, Pittsburgh, PA *Oct 2023 - current*
Post Doctoral Fellow, Computer Science Department

Awards and Honors

Frontiers of Science Award, International Congress of Basic Science *2023*
Best Paper Award, IEEE Symposium on Foundations of Computer Science (FOCS) *2022*
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*
Bronze Medalist, International Olympiad in Informatics *2013*

Publications

Results in Theoretical Computer Science are often published at conferences. FOCS, STOC, and SODA are the three top conferences in our field according to the CORE Ranking and the Google Scholar Ranking.

- *Almost-Linear Time Algorithms for Incremental Graphs: Cycle Detection, SCCs, s-t Shortest Path, and Minimum-Cost Flow.* (arxiv:2311.18295)
  Li Chen, Rasmus Kyng, Yang P. Liu, Simon Meierhans, Maximilian Probst Gutenberg.
  ACM Symposium on Theory of Computing (STOC 2024).
- *Incremental Approximate Maximum Flow on Undirected Graphs in Subpolynomial Update Time.* (arxiv:2311.03174)
  Jan van den Brand, **Li Chen**, Rasmus Kyng, Yang P. Liu, Richard Peng, Maximilian Probst Gutenberg, Sushant Sachdeva, Aaron Sidford.
  ACM-SIAM Symposium on Discrete Algorithms (SODA 2024).
- *A Deterministic Almost-Linear Time Algorithm for Minimum-Cost Flow.* (arxiv:2309.16629)
  Jan van den Brand, **Li Chen**, Rasmus Kyng, Yang P. Liu, Richard Peng, Maximilian Probst Gutenberg, Sushant Sachdeva, Aaron Sidford.
  IEEE Symposium on Foundations of Computer Science (FOCS 2023).
- *Exponential Convergence of Sinkhorn Under Regularization Scheduling.* (arxiv:2207.00736)
  Jingbang Chen, **Li Chen**, Yang P. Liu, Richard Peng, Arvind Ramaswami.
  SIAM Conference on Applied and Computational Discrete Algorithms (ACDA 2023)
- *A Simple Framework for Finding Balanced Sparse Cuts via APSP.* (arxiv:2209.08845)
  Li Chen, Rasmus Kyng, Maximilian Probst Gutenberg, Sushant Sachdeva.
  SIAM Symposium on Simplicity in Algorithms (SOSA 2023)
- *Maximum Flow and Minimum-Cost Flow in Almost-Linear Time.* (arxiv:2203.00671)
  Li Chen, Rasmus Kyng, Yang P. Liu, Richard Peng, Maximilian Probst Gutenberg, Sushant Sachdeva.
  IEEE Symposium on Foundations of Computer Science (FOCS 2022). **Best Paper Award.**

- *ℓ_2-norm Flow Diffusion in Near-Linear Time.* (arxiv:2105.14629)
  Li Chen, Richard Peng, Di Wang.
  IEEE Symposium on Foundations of Computer Science (FOCS 2021).
- *Fast Dynamic Cuts, Distances and Effective Resistances via Vertex Sparsifiers.* (arxiv:2005.02368)
  Li Chen, Gramoz Goranci, Monika Henzinger, Richard Peng, Thatchaphol Saranurak.
  IEEE Symposium on Foundations of Computer Science (FOCS 2020).

Talks

Incremental Approximate Maximum Flow on Undirected Graphs in Subpolynomial Update Time
- SODA 2024, Alexandria, VA *Jan 2024*

A Deterministic Almost-Linear Time Algorithm for Minimum-Cost Flow
- FOCS 2023, Santa Cruz, CA *Nov 2023*

A Simple Framework for Finding Balanced Sparse Cuts via APSP
- SOSA 2023, Florence, Italy *Jan 2023*

Maximum Flow and Minimum-Cost Flow in Almost-Linear Time
- Chicago Junior Theorists Workshop, TTIC *Jan 2023*
- Plenary Session, FOCS, Denver, CO *Nov 2022*
- Graduate Student Seminar, National Taiwan Normal University *Sep 2022*
- Theory Seminar, Academia Sinica *Sep 2022*
- Optimization Meeting, Meta *July 2022*
- 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*

Professional Experience

Research Intern, Core Data Science, *Meta, Menlo Park, CA* *May 2022 - Aug 2022*
Worked in the Economics, Algorithms, and Optimization team with Dr. Sergey Pupyrev. Developed algorithms for code generation via Profile-Guided Optimization (PGO) and graph arrangement. Improved binary performance across major tasks in data centers.

Software Engineering Intern, *Google, Kirkland, WA* *Jul 2018 - Sep 2018*
Worked on Search Ads 360 data pipeline with Mr. Lu Han. Developed a new feature for integrating third-party data (Adobe Analytics) automatically.

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

Software Engineering Intern, *Mixerbox, Taipei, Taiwan* *Apr 2017 - Jul 2017, Sep 2017 - Feb 2018*
Worked on the recommendation system used by the music app Mixerbox for content generation in a large scale setting (over *100 million* downloads and *1 million* daily active users).

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`

Service

Subreviewer for STOC 2024, SODA 2024, ESA 2023, FOCS 2023, SODA 2023, ACDA 2023, ESA 2022, ICALP 2022, STOC 2022, ISAAC 2020