# Jiale Chen

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## EDUCATION

**School of Electronics Engineering and Computer Science (EECS), Peking University,** Beijing, China
*Major in Computer Science and Technology* Sep 2018 – Jun 2022(expected)
Turing Class - an elite class founded by Prof. John E. Hopcroft; 60 students selected
Major GPA: 3.94/4.0 Overall GPA: 3.90/4.0 (top 1%)
**National School of Development (NSD), Peking University,** Beijing, China
*Double-major in Economics* Sep 2020 – Jun 2022(expected)

## SKILLS

**Programming**
C/C++, Python, LaTeX

## CORE CURRICULA

| Curriculum | Score |
|---|---|
| Mathematical Analysis I, II, III | 96.5 in average |
| Advanced Algebra I, II | 93 in average |
| Discrete Mathematics and Structures I, II | 99.25 in average |
| Algebraic Structure and Combinatorial Mathematics | 96 |
| Mathematical Foundations for the Information Age | 98 |
| Probability Theory and Statistics | 97 |
| Introduction to the Theory of Computation | 98.5 |
| Machine Learning | 95 |
| Algorithm Design and Analysis(Honor Track) | 95 |
| Selected Topics in Social Computing | 99 |
| Data Structure and Algorithms(A)(Honor Track) | 97 |
| Principles of Economics | 91.5 |

## RESEARCH INTERESTS

Theoretical computer science and especially the topics that lie in the intersection with Economics
Data structures and algorithms

## MANUSCRIPTS

**CONFERENCES (UNDER REVIEW)**

**Tiny Adaptive Code: A Generic Technique for Counting in Sliding Windows**
Zheng Zhong*, **Jiale Chen***, Shiqi Jiang, Yutong Hu, Tong Yang, Steve Uhlig
submitted to ACM SIGMOD International Conference on Management of Data 2021 (***SIGMOD 2021***).
(*:Equal Contribution)

**HoppingTimer: A Near-optimal Framework for Basic Estimation of Data Streams in Hopping Windows**
Kaicheng Yang, Jianyu Wu, Pu Yi, **Jiale Chen**, Cheng Chen, Tong Yang, Bin Cui
submitted to 2021 IEEE 37th International Conference on Data Engineering (***ICDE 2021***).

## RESEARCH EXPERIENCE (BY TOPIC)

**Information elicitation**
*Subjectivity evaluation through reported answers and predictions* Oct 2020-Present
Advisor: Dr. Yuqing Kong Peking University

- Collaboratively developing a new method for evaluating the informativeness of a subjective question in a group of people using self-reported answers and predictions of other people's responses.
- Responsible for conducting surveys, dealing with raw data, and adjusting the mathematical model.
- Proposed the appropriate model of uninformative people and currently verifying the proposed model by survey data and numerical experiments.

**Data structures and algorithms design in network**
*An algorithmic framework for estimating data streams in sliding window models* Mar 2020-Present
Advisor: Prof. Tong Yang Peking University

- Collaboratively developed an algorithmic framework, the Tiny Adaptive Code (*TAC*), which can adapt fixed-window algorithms to time-based and count-based sliding windows by using a two-dimensional quantization method, *i.e.*, a time quantization to replace timestamps and a coding method to unbiasedly estimate the frequency.
- Responsible for constructing the first version of the algorithm, idea refinement and the entire experimental work.

- Performed extensive algorithm refinement, and showed that the developed algorithm outperforms the state-of-the-arts on three tasks in both accuracy and speed.
- Contributed a first-authored paper that has been submitted to **SIGMOD 2021.**

*An algorithmic framework for tasks in hopping windows* Mar 2020-Jun 2020
Advisor: Prof. Tong Yang Peking University

- Collaboratively developed a generic and near-optimal framework that can adapt fixed-window algorithms to time-based and count-based hopping windows for basic tasks, using hopping timestamps and local cleaning to clean outdated items.
- Responsible for the theoretical validation of the algorithm's additional error as a framework and completed a comprehensive mathematical proof of the error bound brought by hopping timestamps and local cleaning, respectively.
- Explained that our algorithm saves space at a small cost using my theoretical proof.
- Contributed a co-authored paper that has been submitted to **ICDE 2021.**

## AWARDS & SCHOLARSHIPS

ICPC Regional Contest Gold Medal 2018, 2019
4 Gold Medals (rank 1, 1, 3, 8)

Pacemaker to Merit Student, Peking University 2019
Top 2.5% in Peking University, awarded to one student in each class

POSCO Scholarship for Asian Universities 2019
Top 2.5% in Peking University, awarded to at most one student in each class

Merit Student, Peking University 2020
Top 5% in Peking University

May 4th Scholarship, Peking University 2020
Highest award possible for students, more selective than National Scholarship.
Top 0.5% in Peking University, Top 1/60 in Turing Class