Jiachen Liu

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EDUCATION

University of Michigan — Ann Arbor, MI

Ph.D. in Computer Science — Sep 2020 - Present
- Advisors: Prof. Mosharaf Chowdhury

B.S.E. in Data Science — Sep 2018 - May 2020
- **GPA:**3.82/4.00, Minor in Mathematics
- **Honors/Awards:** Dean's List (2018), Dean's List (2019), 2019 University Honors

Shanghai Jiao Tong University — Shanghai, China

B.S. in Electrical Computer Engineering — Sep 2016 - Aug 2020
- **Honors/Awards:** Best Technology Award in Design Expo (2017), Distinguished Academic Achievement Award, Dean's List (Top 5, 2017-2018), Undergraduate Scholarship (Top 30%, 2016-2018), Excellent Student Union Member (2017), Champion of the Freshman Cup of women's basketball in SJTU (2016)

Massachusetts Institute of Technology — Cambridge, MA

Visiting researcher in EECS CSAIL — May 2019 - Jan 2020

PUBLICATION

Peifeng Yu, **Jiachen Liu** Mosharaf Chowdhury. FluidExec: A Generic Resource-aware Hyperparameter Tuning Execution Engine. In *Proceedings of the 4th Conference on Machine Learning and Systems.* (Equal contribution)

RESEARCH EXPERIENCES

Generic resource-aware hyperparameter tuning execution engine

Advisor: Prof. Mosharaf Chowdhury, Umich — May 2019 - Jan 2020
- Designed the first generalized hyperparameter tuning execution engine, which abstracts hyperparameter tuning algorithms as TrialGroup and model the TrialGroup scheduling as a strip bin packing problem.
- Proposed efficient heuristics with theoretical guarantees to solve the packing problem and it applies elastic training and GPU multiplexing to enforce the solutions
- Boosted the performance of various hyperparameter tuning algorithms with higher utilization and shorter end-to-end time.

High-dimensional Data Index: Adaptive Product Quantization Supporting Data Streaming

Advisor: Prof. Samuel Madden, MIT — May 2019 - Jan 2020
- Proposed an ANN (appropriate nearest neighbor) search model based on product quantization (PQ) to support fast ANN searches in high dimensional scalable dynamic databases with high query speed and high accuracy simultaneously.
- Implemented the proposed algorithm and state-of-the-art algorithms (LSH, HNSW, PQ) for ANN search tasks, with experiment results showing that our proposed model is 2 - 3.6 times faster than the baseline, while keeping high accuracy.

Machine Learning Based Route Recommendation System

Advisor: Prof. Siqian Shen, Umich. Sponsored by Didi Chuxing — Feb 2019 - May 2019, May 2020 - Aug 2020
- Investigated machine learning and robust optimization to build a route recommendation system to predict a customized route choice for ride-sharing.
- Proposed Mean-Field reinforcement learning with grid-based simulator to do order dispatching and driver repositioning under large environment dynamics.

EXTRACURRICULAR EXPERIENCES

University of Michigan, EECS — Sep 2019 - Jul 2020

Instructional Aide EECS484 Database System — Ann Arbor, MI
- Lead the weekly recitation classes and hold the office hours.
- Work as part of the Center for Learning and Teaching to support students' in the learning processes.

Student Union of Joint Institute in Shanghai Jiaotong University — Jun 2017 - Aug 2018

Vice President — Shanghai, China
- Coordinated the work of the various departments under Student Union to ensure the division of labor and cooperation.
- Communicated with all departments' directors weekly to ensure reliable operation.

COMPUTER SKILLS

C++ (Proficient), Python (Proficient), SQL (Proficient), R (Proficient), C, Matlab (Proficient)