Haotian (Jack) Gong

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Education

- **University of Michigan** — Ann Arbor, United States
  PhD Student – Advisors: Lin Ma, Barzan Mozafari — *September 2024 -*
- **The University of British Columbia** — Vancouver, Canada
  B.Sc. (Honors) in Computer Science; GPA: 91.4/100 — *September 2019 - June 2024*

  Courses: Tradeoffs in Designing Computer Systems(Graduate), OS Design and Implementation(Graduate), Compiler Construction, Advanced Machine Learning

  Thesis: Less is More: Designing a Flexible Graph Store with Key-values

Publication

Li, Jialong, Haotian Gong, Federico De Marchi, Aoyu Gong, Yiming Lei, Wei Bai, and Yiting Xia. "Uniform-Cost Multi-Path Routing for Reconfigurable Data Center Networks." *In Proceedings of the ACM SIGCOMM 2024 Conference*, pp. 433-448. 2024.

Experience

- **Max Planck Institute for Informatics** — Saarbrücken, Germany
  Research Intern - Prof. Yiting Xia — *May 2023 - September 2023*
  - Participated in the design of a novel routing algorithm on top of reconfigurable optical data center networks, implemented the algorithm in the *htsim* network simulator with C++, reduced flow completion time by up to 51% while improving the bandwidth efficiency by 38% compared to the state-of-the-art.
- **Systopia Lab, The University of British Columbia** — Vancouver, Canada
  Research Intern - Prof. Margo Seltzer — *May 2022 - April 2023*
  - Contributed C++ code to the "Flexograph" graph processing system; leveraged the iterator programming model and the OpenMP parallel programming framework to speed up graph algorithms by up to 14× with multi-threaded execution. Resulting work in preperation for submission to VLDB. [Code]
  - Independently explored 2 paradigms of memory - storage interactions in graph processing systems. Presented findings through written and verbal reports in graduate seminar course. [Report]
- **Digital Health Innovation Lab, BC Hospitals** — Vancouver, Canada
  Software Developer — *May 2021 - August 2021*
  - Built a Python pipeline that modularizes and automates patient data ingestion into the i2b2 data warehouse, reduced size of legacy SQL codebase by 95%.
- **Philips Lifeline** — Vancouver, Canada
  DevOps Engineer Intern — *January 2021 - April 2021*
  - Prototyped Slack chatbot using a full serverless architecture that pushes AWS CloudWatch alerts to Slack channels, eliminating manual monitoring effort for the DevOps team.
- **The University of British Columbia** — Vancouver, Canada
  Teaching Assistant
  - Took on teaching assistantships for Models of Computation (2020W1, W2), Introduction to Computer Systems(2021W1, W2), Computer Hardware and Operating Systems (2022W2), Definition of Programming Languages (2023W1).
  - Led tutorial sections and office hours, averaged 87% student favourable rating.

Technical Projects

- **UBC AgroBot** Design team member 2019-2023. Built image detection framework for agriculture robot capable of fully-autonomous fertilization, targeted weeding, and data collection.
- **ED Forecast** Selected student project for Borealis AI "Let's Solve it" challenge. Implemented and compared ML models that forecast patient arrival patterns for emergency departments in hospitals around Canada. [Code]
- **Course Copilot** Worked in a team of three to develop chatbot application that resolves course material related questions. Investigated 3 major context extraction methods that ground large language models with factual truth, mitigating LLM "hallucinations". [Code, Report]

Skills Summary

- **Languages:** C++, C, Python, Java, Racket, SQL
- **Tools & Frameworks:** Perf, OpenMP, WiredTiger, Kubernetes, Django, PyTorch
- **Certificates:** AWS Certified Solutions Architect – Associate

Honors and Awards

- Universtiy of Michigan First Year PhD Fellowship — *2024*
- UBC Dean of Science Scholarship — *2023*
- UBC Science Undergraduate Research Experience Award — *2022*
- UBC Trek Excellence Scholarship, awarded to top 5% in faculty by sessional GPA — *2020, 2021, 2022*
- UBC Basketball Intramurals Champions — *2022*