Yuchong Pan

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EDUCATION

Massachusetts Institute of Technology — Cambridge, MA
Ph.D., Applied Mathematics (GPA: 5.0/5.0) — *September 2021 – present*
- **Research Interests**: Algorithms, combinatorics, optimization, theoretical computer science, operations research, network flow algorithms, traveling salesman problem

University of British Columbia — Vancouver, BC
B.Sc., Combined Honours Computer Science and Mathematics (GPA: 94.4%) — *September 2017 – May 2021*
- **Thesis**: *Optimization Problems on Network Flows with Degree Constraints*, advised by F. Bruce Shepherd [Link]

SELECTED EMPLOYMENT

Massachusetts Institute of Technology — Cambridge, MA
Mentor — *January 2022 – February 2022*
- **Directed Reading Program**: Mentored two undergraduate students to read *Randomized Algorithms* by Motwani and Raghavan. Advised the students on the presentations in the program symposium.

University of British Columbia — Vancouver, BC
Research Assistant — *April 2021 – August 2021*
- **Cost and Congestion of Exotic Network Flows**: Studied new network flow models with side constraints imposed by new telecommunication technologies (e.g., IP routing, optical networks, etc.). This research assistantship is partially funded by a Work Learn International Undergraduate Research Award.

Microsoft — Vancouver, BC
Software Engineer Intern — *May 2020 – August 2020*
- **.NET Runtime IL Interpreter**: Resurrected the IL (intermediate language) interpreter inside .NET Runtime. Conducted performance analyses for the various configurations of the IL interpreter. [GitHub] [Presentation]

Microsoft — Redmond, WA
Software Engineer Intern — *June 2019 – August 2019*
- **.NET Core Uninstall Tool**: A guided tool that enables the controlled clean-up of a system such that only the desired versions of .NET Core SDKs and Runtimes remain. Prepared user documentation. Released as an open source command-line tool by Microsoft to external users. [GitHub] [Blog] [Documentation]

SELECTED PROJECTS

- **Directed Reading on the Traveling Salesman Problem (TSP)**: Ongoing directed reading project on recent progress of the approximability of TSP and background results, advised by Prof. Michel X. Goemans at MIT.
- **Extending the Győri-Lovász Theorem**: On ongoing research project on finding a constructive proof for the Győri-Lovász theorem, an important result in graph theory. Collaborating with Prof. F. Bruce Shepherd at UBC.
- **MiniJava Compiler**: MiniJava is a subset of the Java language. Implemented a MiniJava-to-x64 compiler, including phases of frontend, intermediate representation, code generation, and optimization.

SELECTED AWARDS

Work Learn International Undergraduate Research Award	*2021*
Stanley M Grant Scholarship in Mathematics, University of British Columbia	*2019, 2021*
Faculty of Science International Student Scholarship, University of British Columbia	*2018, 2019, 2020*
Trek Excellence Scholarship, University of British Columbia	*2018, 2019, 2020*
Science Scholar / Dean's Honour List, University of British Columbia	*2018, 2019, 2020*
11th Place, ACM International Collegiate Programming Contest Pacific NW Region	*2017*
Outstanding International Student Award, University of British Columbia	*2017*
Silver Medal, China Team Selection Competition for International Olympiad in Informatics	*2015*
Bronze Medal, Asia Pacific Informatics Olympiad	*2015*
First Prize, National Olympiad in Informatics in Provinces (China)	*2013, 2014*

PROGRAMMING SKILLS

- **Languages**: C++, Python, Java, C#, SQL, MATLAB, Go, JavaScript, LaTeX