Yuchong Pan

Contact Information

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http://ypan.me

Research Interests

Algorithms, combinatorics, optimization, theoretical computer science – especially combinatorial optimization, submodular optimization, network flow theory, network design, graph theory, theory of computation, theory of complexity.

Education

University of British Columbia

B.Sc., Computer Science and Mathematics, Combined Honours, expected 2021
- Minor in Arts, Philosophy
- Thesis: *The Minimum-Cost Congestion of Single-Sink Unsplittable Flows* (work in progress) [Proposal]
- Advisor: F. Bruce Shepherd

Employment

Microsoft Corporation

Software Engineer Intern, 2020
Software Engineer Intern, 2019
Software Engineer Intern, 2018

University of British Columbia

Undergraduate Teaching Assistant, 2020
Undergraduate Academic Assistant, 2019–2020
Undergraduate Teaching Assistant, 2019
Student Assistant, 2019
Undergraduate Teaching Assistant, 2018

Jisuanke

Teaching Researcher, 2018–2019
Lecturer, 2018–2019

Sogou, Inc.

Software Engineer Intern, 2017

InitialView

Software Engineer Intern, 2016–2017

Research Experience

University of British Columbia

The minimum-cost congestion of single-sink unsplittable flows (thesis), 2020–2021
- Advisor: F. Bruce Shepherd
- Documents: [Proposal]

Gradual typing of recursive types, 2018–2020
- Advisor: Ronald Garcia

Teaching Experience

University of British Columbia

Teaching Assistant

CPSC 311	Definition of Programming Languages, Fall 2020
CPSC 421/501	Introduction to Theory of Computing (graduate), Fall 2019
CPSC 121	Models of Computation, Fall 2018

Academic Assistant

CPSC 411 Introduction to Compiler Construction, Fall 2019–Spring 2020
Involved in the redesign of the course, supervised by William J. Bowman.

Jisuanke

Lecturer

Competitive Programming, Level 6	Spring 2019
Competitive Programming, Level 5	Fall 2018
Competitive Programming, Level 3	Summer 2018

Teaching Researcher

Competitive Programming, Level 6 Spring 2019

Volunteer Experience

Shaoxing No.1 High School

Summer Coach (Competitive Programming), 2016
Student Lecturer (Competitive Programming), 2013–2015

Talks and Presentations

- The Single-Source Unsplittable Flow Problem. UBC Computer Science. University of British Columbia. Online. 2020. [Note] [Survey]
- Perturbation-Stable Maximum Cuts. Algorithms Reading Group, UBC Computer Science. University of British Columbia. Online. 2020. [Slides]
- Unsplittable Flow Problem on Paths and Trees: Closing the LP Relaxation Integrality Gap (with Adam Jozefiak). UBC CPSC 531F Survey. University of British Columbia. Vancouver, BC. 2019. [Slides] [Survey]
- Introduction to Communication Complexity. Quantum Club Seminar. University of California, Santa Barbara. Santa Barbara, CA. 2019.
- Gradual Typing for Octave Language (with Ada Li, Kathy Wang, and Paul Wang). UBC CPSC 311 Project. University of British Columbia. Vancouver, BC. 2018. [Report]
- Some Math Notes (in Chinese). Competitive Programming Summer School. Shaoxing No. 1 High School. Shaoxing, China. 2016. [Slides]
- Graph Algorithms (in Chinese). Competitive Programming Summer School. Shaoxing No. 1 High School. Shaoxing, China. 2016. [Slides]
- Miller-Rabin Primality Test and Pollard's ρ Integer Factorization Algorithm (in Chinese). Competitive Programming Seminar. Shaoxing No. 1 High School. Shaoxing, China. 2015. [Slides]

Honors and Awards

- J Fred Muir Memorial Scholarship in Science (CAD $200), University of British Columbia, 2020.
- Trek Excellence Scholarship (CAD $4,000), University of British Columbia, 2020.
- Science Scholar, University of British Columbia, 2020.
- Dean's Honour List, University of British Columbia, 2020.
- Faculty of Science International Student Scholarship (CAD $5,000), University of British Columbia, 2019.
- Dean of Science Scholarship (CAD $350), University of British Columbia, 2019.
- Trek Excellence Scholarship (CAD $4,000), University of British Columbia, 2019.
- Stanley M Grant Scholarship in Mathematics (CAD $1,500), University of British Columbia, 2019.

- Programming Language Implementation Summer School Fellowship (€400), 2019.
- Science Scholar, University of British Columbia, 2019.
- Dean's Honour List, University of British Columbia, 2019.
- Faculty of Science International Student Scholarship (CAD $10,000), University of British Columbia, 2018.
- Dean of Science Scholarship (CAD $425), University of British Columbia, 2018.
- Trek Excellence Scholarship (CAD $4,000), University of British Columbia, 2018.
- Marie Kendall Memorial Scholarship in Science (CAD $925), University of British Columbia, 2018.
- Joel Harold Marcoe Memorial Scholarship (CAD $150), University of British Columbia, 2018.
- Science Scholar, University of British Columbia, 2018.
- Dean's Honour List, University of British Columbia, 2018.
- Outstanding International Student Award (CAD $6,000), University of British Columbia, 2017.
- Silver Medal, China Team Selection Competition for International Olympiad in Informatics, China Computer Federation, 2015.
- Bronze Medal, Asia Pacific Informatics Olympiad, China Computer Federation, 2015.
- First Prize, National Olympiad in Informatics in Provinces (Advanced Division), China Computer Federation, 2014.
- First Prize, National Olympiad in Informatics in Provinces (Advanced Division), China Computer Federation, 2013.

Professional Service

Journal Review

SIAM Journal on Discrete Mathematics (SIDMA)

Selected Coursework

Mathematics

Probability (graduate)
Stochastic Processes (graduate)
Submodular Optimization (graduate)
Combinatorial Optimization (graduate)
Measure Theory and Integration (graduate)
Introduction to Theory of Computing (graduate)
Tools for Modern Algorithm Analysis (graduate)
Beyond Worst-Case Analysis (seminar)
Real Variables I & II
Introduction to Group Theory

Computer Science and Engineering

Numerical Computation
Introduction to Software Engineering
Definition of Programming Languages
Introduction to Compiler Construction
Computer Hardware and Operating Systems
Intermediate Algorithm Design and Analysis

Philosophy

Metaphysics
Philosophy of Law
Philosophy of Religion
Philosophy After 1800 (Russell & Wittgenstein)

Academic Training	◦ Second Programming Language Implementation Summer School. Bertinoro, Italy. 2019.
Relevant Skills	Languages: English, Mandarin Programming: LaTeX, Racket, Standard ML, JavaScript, C/C++, Java, C#, Python, Ruby, MATLAB, Go, MySQL
Last Updated	October 23, 2020