

Seyed Ali Tabatabaee, Ph.D.

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Overview

I am a Senior Research Engineer at Huawei Canada. I hold a Ph.D. in Computer Science from the University of British Columbia (UBC). With extensive experience in the theory and practice of computer science, I am interested in algorithms, optimization, distributed systems, blockchains, machine learning, and software engineering.

Education

Ph.D. in Computer Science, The University of British Columbia, Canada Sep 2021 – Jul 2025
THESIS: Optimization with Explorable Uncertainty, SUPERVISOR: Dr. William Evans, GPA: 95.00/100.00

M.Sc. in Computer Science, The University of British Columbia, Canada Sep 2019 – Aug 2021
THESIS: Attacking Transaction Relay in MimbleWimble Blockchains, SUPERVISORS: Dr. Ivan Beschastnikh and Dr. Chen Feng, GPA: 91.17/100.00

B.Sc. in Computer Engineering, Sharif University of Technology, Iran Sep 2014 – Jul 2019
THESIS: Distributed Unit Disk Covering, SUPERVISOR: Dr. Hamid Zarrabi-Zadeh, GPA: 17.16/20.00

Experience

Senior Research Engineer, Huawei, Canada Sep 2025 – Present
Working in the Distributed Scheduling and Data Engine Lab

Research Assistant, The University of British Columbia, Canada Sep 2021 – Aug 2025
Conducted research on optimization with explorable uncertainty supervised by Dr. William Evans

Teaching Assistant, The University of British Columbia, Canada Sep 2019 – Aug 2025
Assisted in teaching Intermediate Algorithm Design and Analysis (6 terms), Advanced Algorithms Design and Analysis (3 terms), Basic Algorithms and Data Structures (3 terms), Data Structures and Algorithms for Electrical Engineers (2 terms), and Introduction to Theory of Computing (1 term)

Research Intern, The Australian National University, Australia Apr 2025 – Jun 2025
Added functionality for sequence alignment and phylogenetic tree simulation to the Python package for IQ-TREE supervised by Dr. Minh Bui

Research Intern, The University of Edinburgh, Scotland May 2024 – Jul 2024
Conducted research on spectral clustering for graphs with hierarchical clusters supervised by Dr. He Sun

Research Intern, Kyoto University, Japan Jul 2023 – Aug 2023
Conducted research on fast construction of frequency difference consensus trees supervised by Dr. Jesper Jansson

Research Intern, The University of Zurich, Switzerland Jun 2022 – Aug 2022
Conducted research on Bitcoin consensus without block rewards supervised by Dr. Claudio J. Tessone

Research Intern, Aquanow, Canada Sep 2020 – Aug 2021
Conducted research on transaction relay in privacy-focused blockchains and developed network simulators and private test networks for this purpose

Research Assistant, The University of British Columbia, Canada Sep 2019 – Aug 2021
Conducted research on transaction relay in privacy-focused blockchains and a novel BFT-based sidechain construction supervised by Dr. Ivan Beschastnikh and Dr. Chen Feng

Research Intern, Peer Social, Canada May 2020 – Aug 2020
Conducted research on the scalability of a decentralized social network application

Research Assistant, Sharif University of Technology, Iran Sep 2017 – Aug 2019
Conducted research on the unit clustering problem in a distributed setting supervised by Dr. Hamid Zarrabi-Zadeh

Teaching Assistant, Sharif University of Technology, Iran	Sep 2016 – Dec 2018
Assisted in teaching Design of Algorithms (3 terms), Discrete Structures (2 terms), Artificial Intelligence (2 terms), and Theory of Languages and Automata (2 terms)	
Research Intern, Aalto University, Finland	Jun 2018 – Aug 2018
Developed a decentralized marketplace for the Secure Open Federation for Internet Everywhere (SOFIE) project supervised by Dr. Pekka Nikander	
Software Engineering Intern, IT-Orbit Co., Iran	Jul 2017 – Sep 2017
Experimented with the source code of Bitcoin to understand its consensus algorithm and network behavior	
Instructor, Salam High School, Iran	Sep 2013 – Jan 2016
Taught Design of Algorithms, Programming in C++, Graph Theory, and Combinatorics	

Publications

- William Evans and **Seyed Ali Tabatabaee**. **Perpetual Scheduling with Explorable Uncertainty**. In *Proceedings of the 14th International Conference on Algorithms and Complexity*, 2025.
- William Evans and **Seyed Ali Tabatabaee**. **Minimizing the Size of the Uncertainty Regions for Centers of Moving Entities**. In *Proceedings of the 16th Latin American Theoretical Informatics Symposium*, 2024.
- Jesper Jansson, Wing-Kin Sung, **Seyed Ali Tabatabaee**, and Yutong Yang. **A Faster Algorithm for Constructing the Frequency Difference Consensus Tree**. In *Proceedings of the 41st International Symposium on Theoretical Aspects of Computer Science*, 2024.
- Arash Beikmohammadi, William Evans, and **Seyed Ali Tabatabaee**. **Fractional Bamboo Trimming and Distributed Windows Scheduling**. In *Proceedings of the 49th International Conference on Current Trends in Theory and Practice of Computer Science*, 2024.
- Fangyu Gai, Jianyu Niu, Mohammad Jalalzai, **Seyed Ali Tabatabaee**, and Chen Feng. **A Secure Sidechain for Decentralized Trading in Internet of Things**. *IEEE Internet of Things Journal*, 2023.
- Seyed Ali Tabatabaee**, Charlene Nicer, Ivan Beschastnikh, and Chen Feng. **One Bad Apple Spoils the Bunch: Transaction DoS in MumbleWimble Blockchains**. In *Proceedings of the IEEE 4th International Conference on Blockchain and Cryptocurrency*, 2022.
- Fangyu Gai, Jianyu Niu, **Seyed Ali Tabatabaee**, Chen Feng, and Mohammad Jalalzai. **Cumulus: A Secure BFT-based Sidechain for Off-chain Scaling**. In *Proceedings of the IEEE/ACM 29th International Symposium on Quality of Service*, 2021.
- Kian Mirjalali, **Seyed Ali Tabatabaee**, and Hamid Zarrabi-Zadeh. **Distributed Unit Clustering**. In *Proceedings of the 31st Canadian Conference on Computational Geometry*, 2019.
- Submitted:** Jesper Jansson, Wing-Kin Sung, **Seyed Ali Tabatabaee**, and Yutong Yang. **A Faster Algorithm for Constructing the Frequency Difference Consensus Tree**. Submitted to *the Journal of Computer and System Sciences*, August 13, 2024.
- Submitted:** Kian Mirjalali, **Seyed Ali Tabatabaee**, and Hamid Zarrabi-Zadeh. **Massively Parallel Unit Clustering**. Submitted to *Theoretical Computer Science*, December 28, 2022.

Honors and Awards

President's Academic Excellence Initiative Ph.D. Award from UBC	Sep 2021 – Aug 2025
Faculty of Science Ph.D. Tuition Award from UBC	Aug 2021 – Aug 2025
International Tuition Award from UBC	Sep 2019 – Aug 2023
Mitacs Accelerate Award (3 Units)	May 2020 – Aug 2021
Special UBC Graduate Scholarship - Blockchain@UBC Graduate Student Award	Dec 2019 – Aug 2021
Grant for Undergraduate Studies from Iran's National Elites Foundation	Sep 2014 – Jul 2019
Gold Medal in the Iranian National Olympiad in Informatics (INOI)	Sep 2013
1st Place in the 7th Hellinet Programming Contest	Jul 2013
1st Place in the 2nd Salamcup Programming Contest	Dec 2012

Talks

Perpetual Scheduling with Explorable Uncertainty <i>At the 14th International Conference on Algorithms and Complexity</i>	Jun 2025
Minimizing the Size of the Uncertainty Regions for Centers of Moving Entities <i>At the 16th Latin American Theoretical Informatics Symposium</i>	Mar 2024
Fractional Bamboo Trimming and Distributed Windows Scheduling <i>At the 49th International Conference on Current Trends in Theory and Practice of Computer Science</i>	Feb 2024
One Bad Apple Spoils the Bunch: Transaction DoS in MimbleWimble Blockchains <i>At the 4th Blockchain Technology Symposium</i>	Jun 2022
One Bad Apple Spoils the Bunch: Transaction DoS in MimbleWimble Blockchains <i>At the IEEE 4th International Conference on Blockchain and Cryptocurrency</i>	May 2022
Distributed Unit Clustering <i>At the 31st Canadian Conference on Computational Geometry</i>	Aug 2019

Software Projects

piqtree's Alignment and Tree Simulator A sequence alignment and phylogenetic tree simulator integrated into piqtree, the Python package for IQ-TREE, using Python and C++	Apr 2025 – Jun 2025
World of Tulips A fully decentralized application that virtualizes a tulip growing community using Solidity, JavaScript, and CSS	Jan 2020 – Apr 2020
SOFIE Marketplace A decentralized marketplace that enables the trade of different types of assets using Solidity and JavaScript	Jun 2018 – Aug 2018
The Supervisor (Rahnama) A supervisor simulator system comprising eight subsystems that provide students with recommendations on scheduling, internships, accommodation, etc., using Python, JavaScript, and CSS	Jun 2017 – Aug 2017

Skills

Technical Skills: C, C++, Python, Java, JavaScript, Solidity, R, Git, SQL, Django, React, Node.js, HTML, CSS, Bash, Verilog, MPI, MIPS Assembly, Prolog, Docker, AWS, Microsoft Azure, Microsoft Power BI, PyTorch, L^AT_EX, Microsoft Office, Google Docs, LibreOffice, macOS, Linux, Windows, Android

Specialized Knowledge: Theoretical Computer Science, Algorithms, Optimization, Distributed Systems, Blockchains, Bioinformatics, Game Theory, Machine Learning, Software Engineering

Core Attributes: Versatile problem-solver, Quick and independent learner, Analytical thinker, Effective communicator, Adaptable team player, Proactive project leader

Languages: Persian (native), English (fluent)