

# Seyed Ali Tabatabaee

Department of Computer Science – University of British Columbia

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## Overview

I am a Ph.D. candidate in the Department of Computer Science at the University of British Columbia (UBC), supervised by Dr. William Evans. My Ph.D. research focuses on optimization with explorable uncertainty, and I am expected to graduate in August 2025. With a solid background in both 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 – Aug 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 MumbleWimble 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

**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 – Jul 2019  
Conducted research on the unit clustering problem in a distributed setting supervised by Dr. Hamid Zarrabi-Zadeh

<b>Teaching Assistant, Sharif University of Technology, Iran</b>	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)	
<b>Research Intern, Aalto University, Finland</b>	Jun 2018 – Aug 2018
Developed a decentralized marketplace for the Secure Open Federation for Internet Everywhere (SOFIE) project supervised by Dr. Pekka Nikander	
<b>Software Engineering Intern, IT-Orbit Co., Iran</b>	Jul 2017 – Sep 2017
Experimented with the source code of Bitcoin to understand its consensus algorithm and network behavior	
<b>Instructor, Salam High School, Iran</b>	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 14<sup>th</sup> 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 16<sup>th</sup> 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 41<sup>st</sup> 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 49<sup>th</sup> 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 4<sup>th</sup> 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 29<sup>th</sup> International Symposium on Quality of Service*, 2021.
- Kian Mirjalali, **Seyed Ali Tabatabaee**, and Hamid Zarrabi-Zadeh. **Distributed Unit Clustering**. In *Proceedings of the 31<sup>st</sup> 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

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

## Talks

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

## Software Projects

<b>piqtree's Alignment and Tree Simulator</b> A sequence alignment and phylogenetic tree simulator integrated into piqtree, the Python package for IQ-TREE, using Python and C++	Apr 2025 – Jun 2025
<b>World of Tulips</b> A fully decentralized application that virtualizes a tulip growing community using Solidity, JavaScript, and CSS	Jan 2020 – Apr 2020
<b>SOFIE Marketplace</b> A decentralized marketplace that enables the trade of different types of assets using Solidity and JavaScript	Jun 2018 – Aug 2018
<b>The Supervisor (Rahnama)</b> 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<sup>A</sup>T<sub>E</sub>X, 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)