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 THESIS: Optimization with Explorable Uncertainty, SUPERVISOR: Dr. William Evans	Sep 2021 – Aug 2025
M.Sc. in Computer Science, The University of British Columbia, Canada THESIS: Attacking Transaction Relay in MimbleWimble Blockchains, SUPERVISORS: Dr. Dr. Chen Feng, GPA: 91.17/100.00	Sep 2019 – Aug 2021 Ivan Beschastnikh and
B.Sc. in Computer Engineering, Sharif University of Technology, Iran THESIS: Distributed Unit Disk Covering, SUPERVISOR: Dr. Hamid Zarrabi-Zadeh, GPA	Sep 2014 - Jul 2019 A: 17.16/20.00
Experience	
Research Assistant, The University of British Columbia, Canada Conducted research on optimization with explorable uncertainty supervised by Dr. Willia	Sep 2021 – Aug 2025 am Evans
Teaching Assistant, The University of British Columbia, Canada Assisted in teaching Intermediate Algorithm Design and Analysis (6 terms), Advanced Analysis (3 terms), Basic Algorithms and Data Structures (3 terms), Data Structures and A Engineers (2 terms), and Introduction to Theory of Computing (1 term)	Sep 2019 – Aug 2025 Algorithms Design and Algorithms for Electrical
Research Intern, The Australian National University, Australia Integrated a phylogenetic tree simulator into IQ-TREE supervised by Dr. Minh Bui	Apr 2025 – Jun 2025
Research Intern, The University of Edinburgh, Scotland Conducted research on spectral clustering for graphs with hierarchical clusters supervised	May 2024 – Jul 2024 d by Dr. He Sun
Research Intern, Kyoto University, Japan Conducted research on fast construction of frequency difference consensus trees supervised	Jul 2023 – Aug 2023 I by Dr. Jesper Jansson
Research Intern, The University of Zurich, Switzerland Conducted research on Bitcoin consensus without block rewards supervised by Dr. Claud	Jun 2022 – Aug 2022 dio J. Tessone
Research Intern, Aquanow, Canada Conducted research on transaction relay in privacy-focused blockchains and developed r private test networks for this purpose	Sep 2020 – Aug 2021 network simulators and
Research Assistant, The University of British Columbia, Canada Conducted research on transaction relay in privacy-focused blockchains and a novel construction supervised by Dr. Ivan Beschastnikh and Dr. Chen Feng	Sep 2019 – Aug 2021 BFT-based sidechain
Research Intern, Peer Social, Canada Conducted research on the scalability of a decentralized social network application	May 2020 – Aug 2020
Research Assistant, Sharif University of Technology, Iran Conducted research on the unit clustering problem in a distributed setting supervised by Dr	Sep 2017 – Jul 2019 r. 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., IranJul 2017 – Sep 2017Experimented with the source code of Bitcoin to understand its consensus algorithm and network behaviorInstructor, Salam High School, IranInstructor, Salam High School, IranSep 2013 – Jan 2016Taught 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 MimbleWimble 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
$\label{eq:special_ubc} \mbox{Special_UBC_Graduate_Scholarship} \ - \ \mbox{Blockchain} \mbox{@UBC_Graduate_Student_Award}$	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
$\mathbf{1^{st}}$ Place in the 7 th Hellinet Programming Contest	Jul 2013
$\mathbf{1^{st}}$ Place in the 2 nd Salamcup Programming Contest	Dec 2012
Bronze Medal in the Iranian National Olympiad in Informatics (INOI)	Sep 2012

Talks

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

Software Projects

AliSim Tree SimulatorApr 2025 – Jun 2025A phylogenetic tree simulator under the multi-species coalescent model integrated into IQ-TREE using C++World of TulipsA fully decentralized application that virtualizes a tulip growing community using Solidity, JavaScript, and CSSSOFIE MarketplaceA decentralized marketplace that enables the trade of different types of assets using Solidity and JavaScriptThe Supervisor (Rahnama)A supervisor simulator system comprising eight subsystems that provide students with recommendations on scheduling, internships, accommodation, etc., using Python, JavaScript, and CSS

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, LATEX, 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)