Seyed Ali Tabatabaee

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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

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

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
Integrated a phylogenetic tree simulator into 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

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 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
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
Bronze Medal in the **Iranian National Olympiad in Informatics (INOI)** Sep 2012

Talks

Perpetual Scheduling with Explorable Uncertainty Jun 2025
At *the 14th International Conference on Algorithms and Complexity*

Minimizing the Size of the Uncertainty Regions for Centers of Moving Entities Mar 2024
At *the 16th Latin American Theoretical Informatics Symposium*

Fractional Bamboo Trimming and Distributed Windows Scheduling Feb 2024
At *the 49th International Conference on Current Trends in Theory and Practice of Computer Science*

One Bad Apple Spoils the Bunch: Transaction DoS in MimbleWimble Blockchains Jun 2022
At *the 4th Blockchain Technology Symposium*

One Bad Apple Spoils the Bunch: Transaction DoS in MimbleWimble Blockchains May 2022
At *the IEEE 4th International Conference on Blockchain and Cryptocurrency*

Distributed Unit Clustering Aug 2019
At *the 31st Canadian Conference on Computational Geometry*

Software Projects

AliSim Tree Simulator Apr 2025 – Jun 2025
A phylogenetic tree simulator under the multi-species coalescent model integrated into IQ-TREE using C++

World of Tulips Jan 2020 – Apr 2020
A fully decentralized application that virtualizes a tulip growing community using Solidity, JavaScript, and CSS

SOFIE Marketplace Jun 2018 – Aug 2018
A decentralized marketplace that enables the trade of different types of assets using Solidity and JavaScript

The Supervisor (Rahnama) Jun 2017 – Aug 2017
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)