

Seyed Ali Tabatabaee

Ph.D. Student

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Research Interests

Algorithms: Algorithmic Graph Theory, Computational Geometry, Algorithmic Game Theory, Distributed Algorithms, Approximation Algorithms

Blockchains: Blockchain Networks, Theoretical Analysis of Blockchains, Consensus Algorithms, Security and Privacy of Blockchains, Distributed Systems

Education

- 2021 – 2025 **Ph.D. in Computer Science**
[The University of British Columbia \(UBC\)](#), Vancouver, Canada
Supervisor: Dr. William Evans
- 2019 – 2021 **M.Sc. in Computer Science**
[The University of British Columbia \(UBC\)](#), Vancouver, Canada
Supervisors: Dr. Ivan Beschastnikh and Dr. Chen Feng
Thesis: [Attacking Transaction Relay in MimbleWimble Blockchains](#)
GPA: 91.17/100.00
- 2014 – 2019 **B.Sc. in Computer Engineering**
[Sharif University of Technology \(SUT\)](#), Tehran, Iran
Supervisor: Dr. Hamid Zarrabi-Zadeh
Thesis: Distributed Unit Disk Covering
GPA: 17.16/20.00

Publications

- 2021 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 (IWQoS)*.
- 2019 Kian Mirjalali, **Seyed Ali Tabatabaee**, and Hamid Zarrabi-Zadeh. **Distributed Unit Clustering**. In *Proceedings of the 31st Canadian Conference on Computational Geometry (CCCG)*.
- Submitted Fangyu Gai, Jianyu Niu, Mohammad Jalalzai, **Seyed Ali Tabatabaee**, and Chen Feng. **A Secure Sidechain for Decentralized Trading in Internet of Things**. Submitted to *the IEEE Internet of Things Journal* on August 6, 2021.
- Expected **Seyed Ali Tabatabaee**, Charlene Nicer, Chen Feng, and Ivan Beschastnikh. **Attacking Transaction Relay in Blockchains Based on MimbleWimble**. In Preparation for Submission to a Conference.
- Expected Kian Mirjalali, **Seyed Ali Tabatabaee**, and Hamid Zarrabi-Zadeh. **Distributed Unit Clustering in Fixed Dimensions**. In Preparation for Submission to a Journal.

Honors and Awards

- 2021 – 2025 The **President's Academic Excellence Initiative Ph.D. Award** from UBC
- 2021 – 2025 The **Faculty of Science Ph.D. Tuition Award** from UBC

- 2020 – 2021 The **Mitacs Accelerate Award (3 Units)**
- 2019 – 2021 The **Special UBC Graduate Scholarship - Blockchain@UBC Graduate Student Award**
- 2019 – 2025 The **International Tuition Award** from **UBC**
- 2014 – 2019 The **Grant for Undergraduate Studies** from **Iran's National Elites Foundation**
- 2013 **Gold Medal** in the **Iranian National Olympiad in Informatics (INOI)**
- 2013 **1st Place** in the 7th Hellinet Programming Contest by the **National Organization for Development of Exceptional Talents (NODET)**
- 2012 **1st Place** in the 2nd Salamcup Programming Contest
- 2012 **Bronze Medal** in the **Iranian National Olympiad in Informatics (INOI)**

Research Experience

Research Assistant

- 2021 – 2025 **The University of British Columbia**
Research in the area of algorithms supervised by Dr. William Evans
- 2019 – 2021 **The University of British Columbia**
Research on transaction relay in privacy-focused blockchains and a novel BFT-based sidechain construction supervised by Dr. Ivan Beschastnikh and Dr. Chen Feng
- 2017 – 2019 **Sharif University of Technology**
Research on the unit clustering problem in a distributed setting supervised by Dr. Hamid Zarrabi-Zadeh

Research Intern

- 2020 – 2021 **Aquanow**
Research on transaction relay in privacy-focused blockchains
- Summer 2020 **Peer Social**
Research on the scalability of a decentralized social network application
- Summer 2018 **Aalto University**
Research on blockchains and development of a decentralized marketplace for the **Secure Open Federation for Internet Everywhere (SOFIE)** project supervised by Dr. Pekka Nikander
- Summer 2017 **IT-Orbit Co.**
Research on blockchains and cryptocurrencies

Teaching Experience

Teaching Assistant

- 2020 **Basic Algorithms and Data Structures, UBC**
Supervised by Dr. Cinda Heeren (1 term)
- 2019 – 2021 **Intermediate Algorithm Design and Analysis, UBC**
Supervised by Dr. Anne Condon (3 terms) and Dr. Nicholas Harvey (1 term)
- 2018 **Discrete Structures, SUT**
Supervised by Dr. Mohammad Ali Abam (1 term) and Dr. Hamid Zarrabi-Zadeh (1 term)
- 2017 – 2018 **Theory of Languages and Automata, SUT**
Supervised by Dr. Arash Ahadi (1 term) and Dr. Ali Movaghar (1 term)
- 2017 – 2018 **Artificial Intelligence, SUT**
Supervised by Dr. Mahdih Soleymani Baghshah (2 terms)
- 2016 – 2018 **Design of Algorithms, SUT**
Supervised by Dr. Mohammad Ali Abam (2 terms) and Dr. Hamid Zarrabi-Zadeh (1 term)

Instructor

2013 – 2016 **Olympiad in Informatics, Top High Schools in Tehran (Salam, Danesh, Allameh Amini)**
Instructor for Design of Algorithms, Programming in C++, Graph Theory, and Combinatorics

Presentations

August 2019 Presented **Distributed Unit Clustering** at *the 31st Canadian Conference on Computational Geometry (CCCG)*

Software Projects

Winter 2020 **World of Tulips**
A fully decentralized application that virtualizes a tulip growing community

Summer 2018 **SOFIE Marketplace**
A decentralized marketplace that enables the trade of different types of assets

Summer 2017 **The Supervisor (Rahnama)**
A supervisor simulator system comprising eight subsystems that provide students with recommendations on scheduling, internships, accommodation, etc.

Skills

Programming C, C++, Python, JAVA, JavaScript, Solidity, R, Git, SQL, Django, HTML, CSS, Bash, Verilog, MPI, MIPS Assembly, Prolog

Operating Systems macOS, Linux, Windows, Android

Document Preparation \LaTeX , Microsoft Office, Google Docs, LibreOffice

Languages Persian (native), English (fluent)

Hobbies and Activities

Chess, Hiking, Novels, Piano, Basketball

Academic References

Dr. Mohammad Ali Abam, Sharif University of Technology, Iran

Dr. Ivan Beschastnikh, The University of British Columbia, Canada

Dr. William Evans, The University of British Columbia, Canada

Dr. Chen Feng, The University of British Columbia, Canada

Dr. Victoria Lemieux, The University of British Columbia, Canada

Dr. Pekka Nikander, Aalto University, Finland

Dr. Mahdieh Soleymani Baghshah, Sharif University of Technology, Iran

Dr. Hamid Zarrabi-Zadeh, Sharif University of Technology, Iran