

KAHBOD AEINI

Electrical and Computer Engineering Department, University of Waterloo, Waterloo, Ontario, Canada
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EDUCATION

- University of Waterloo** Jan 2026 - Ongoing
PhD in Electrical and Computer Engineering
Supervisor: Prof. Wojciech Golab
- University of Calgary** 2023 - 2025
Master of Science in Computer Science
Supervisor: Prof. Philipp Woelfel
Thesis: *A Space-Optimal Randomized Wait-Free Lock*
- Sharif University of Technology** 2019 - 2023
Bachelor of Computer Engineering
Thesis: *Fraud Detection from Sequences of Bank Transactions Using Various Machine Learning Algorithms*

RESEARCH INTERESTS

Distributed Systems, Concurrent & Randomized Algorithms, Persistent Memory & Recoverable Objects, Shared-Memory Systems, Multicore Programming, Advanced Data Structures, Database Systems

PUBLICATIONS

- Kahbod Aeini**, Dante Bencivenga, George Giakkoupis, Philipp Woelfel
Simple and Efficient Randomized Wait-Free Locks.
45th ACM Symposium on Principles of Distributed Computing (PODC), 2026. **Best Paper Award.**
- Kahbod Aeini**, Wojciech Golab
Analyzing Linearizability in Relativistic Distributed Systems.
8th ApPLIED Workshop, co-located with PODC 2026, 2026.
- Kahbod Aeini.**
A Space-Optimal Randomized Wait-Free Lock.
Master's Thesis, University of Calgary, 2025.

WORK EXPERIENCE

- Software Engineer**, ArcTrade (part-time) Dec 2025 - Ongoing
- Developing backend services and APIs for ArcTrade's retail energy technology platform.
 - Implementing secure, automated electronic data interchange (EDI) with external trading partners, enabling encrypted and verifiable exchange of business transactions.
 - Contributing to components supporting energy trading, risk management, pricing, billing and settlement workflows in North American electricity markets.
 - Collaborating with cross-functional teams to design scalable and efficient software solutions.
- Data Engineer**, AI Lida Feb 2022 - Sep 2022
- Developed, maintained and optimized data pipelines for ETL processes using Python and PostgreSQL.
 - Collaborated with the security department to gather requirements and deliver data solutions that supported business objectives.
 - Interviewed, hired, trained and supervised a team of 5 data engineer interns, providing mentorship and performance feedback.

RESEARCH EXPERIENCE

PhD Student, Research Assistant, Distributed Algorithms Jan 2026 - Ongoing
 Advisor: Prof. Wojciech Golab, University of Waterloo
 Conducting research on persistent memory, shared-memory distributed systems, and recoverable objects, focusing on the design and analysis of efficient algorithms for synchronization, consensus, and fault tolerance in distributed systems.

Master's Student, Research Assistant, Distributed Algorithms Jun 2024 - Jun 2025
 Supervisor: Prof. Philipp Woelfel, University of Calgary
 Designed and analyzed randomized wait-free lock algorithms achieving optimal trade-offs between space and time complexity in shared memory systems, including the first space-optimal algorithm and complementary time-optimal variants.

Bioinformatics, Research Assistant (Volunteer, Remote) Feb 2023 - Aug 2023
 Supervisor: Prof. Mehdi Pirooznia, Johns Hopkins University
 Conducted feature selection and developed machine learning models to predict immune cell composition in lung cancer. Performed identification of immune cell types, analysis of differentially expressed genes, functional enrichment analysis, and classification of cancer subtypes using machine learning techniques.

Deep Learning, Research Assistant, Machine Learning Oct 2021 - Feb 2022
 Supervisor: Dr. Fatemeh Baharifar & Dr. Vahid Motaghed, *IPM*
 Developed and evaluated face clustering algorithms using graph convolutional networks (GCN) for linkage prediction and pairwise classification approaches.

AWARDS AND SCHOLARSHIPS

Best Paper Award, 45th ACM Symposium on Principles of Distributed Computing (PODC) 2026
 Awarded for *Simple and Efficient Randomized Wait-Free Locks*

Departmental Research Award, Department of Computer Science, University of Calgary 2023
 Won the RA award, which is granted to the best students in each department to step away from TA responsibilities and focus on their research

Top 100 Students in Country 2019
 Ranked 94 (31st in the Region) in National Universities Entrance Exam among around 160,000 participants

National Elites Fellowship 2019
 Fellowship in Iran's National Elites Foundation

TEACHING EXPERIENCE

University of Calgary 2023 - 2025
 Led and managed TA teams across undergraduate and graduate courses (up to 300 students total), including Theoretical Foundations of Computer Science (7 TAs, 150+ students), Randomized Algorithms (graduate), Programming Paradigms (Haskell & Prolog), and Python Programming.

Sharif University of Technology 2020 - 2023
 Served as Head TA across multiple undergraduate courses (TA teams of 10-25, 200+ students), including Data Structures & Algorithms, Numerical Calculations, and Mobile Programming.

SKILLS

Languages: C#, Python, R, Haskell, Java, C/C++, Prolog

Frameworks & Tools: .NET / ASP.NET Core, Entity Framework, Docker, Git, Django, PyTorch, TensorFlow, scikit-learn, Numpy, Pandas, OpenCV, Android, limma

Databases: Microsoft SQL Server, PostgreSQL, MongoDB, MySQL

Other: Linux, NixOS, Kali