

Fateme Ghasemi

Software Developer

Toronto, ON – Canada

+1 365 833 7375

✉ ghasemi.fateme33@gmail.com

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Summary

- 5+ years of industrial and academic experience in **software development**, skilled in **OOP**, and **formal methods**
- 2+ years of experience with **unit testing** and **Property-Based Testing** with JUnit/JUnit-QuickCheck/RapidCheck
- Experienced in back-end development (**REST APIs**, **payment gateways**, **SSO**, **database design**)
- Strong **communication** skills from TA roles and collaboration with other software development teams in Huawei
- Currently working on formalizing my proofs in my Master's thesis in Lean (self-initiated project)

Work Experience

- Sep 2022– **Associate Researcher, Formal Methods Lab, Huawei Technologies Canada Co., Ltd. (Co-op)**
Dec 2023
 - Translated testing requirements into technical specifications, developed and integrated Property-Based Tests for database APIs and distributed key-value stores
 - Increased test coverage by $\sim 50\%$ for a database API and $\sim 10\%$ for a key-value store
 - Identified and documented long-standing production bugs through Unit testing and Property-Based Testing (RapidCheck for C++, and JUnit-QuickCheck for Java), and troubleshooting
 - Contributed to an internal Property-Based Testing cookbook and framework
- Sep 2021– **Research Assistant, McMaster University, Hamilton, Ontario, Canada**
June 2025
 - Conducted research in theoretical computer science (computable analysis)
 - Proved acceptability for a class of real-valued elementary functions as part of my master's thesis.
- Sep 2021– **Teaching Assistant, McMaster University**
Dec 2024
 - Led tutorials, provided student consultation, authored homework solutions and rubrics, and marked assignments and exams
- May 2020– **Backend Developer, Afarinesh**
Jun 2021
 - Gathered and analyzed user requirements, created technical specs, and features for multiple projects
 - Designed and implemented RESTful APIs, integrated with payment gateways, and Single Sign-On, using C# .NET and LINQ (EF)
 - Designed and implemented relational database schemas and queries using SQL and LINQ (EF)
 - Conducted zero-downtime SQL database migrations

Tools & Knowledge

- Programming Java, C++, C# .NET (EF Core, LINQ), Python, SQL, ASCL, \LaTeX , Lean
- Dev tools Git, Postman, Swagger, Gitlab, Overleaf, Gurobi (C++ API)
- Testing RapidCheck(C++), JUnit-QuickCheck(Java), Google Test
- OS Linux

Education

- 2025 **Master's Degree in Computer Science (GPA 4.0/4.0), McMaster University**
Thesis: *WhileCC-Approximability and Acceptability of Elementary Functions*
Proved a long-standing conjecture (10+ years)
- 2016 **Bachelor's Degree in Computer Science (GPA 3.39/4.0), University of Tehran**

Accomplishments and Certifications

- 2024 Functional Programming with Java (LinkedIn Learning Course)
- 2017 Ranked 50th among 1M in the National MSc. Entrance Exam
- 2012 Admitted to University of Tehran (Exempted from the Standard Entrance Exam)
- 2011 Ranked 2nd in Rescue Agent Simulation league, International RoboCup Competitions

Other Projects

- 2024 Implemented a secure zero-knowledge proof protocol in C++ for counting triangles in a graph
- 2025 **(Workshop Presentation) WhileCC-Approximability and Acceptability of Elementary Functions, CCC 2025: Continuity, Computability, Constructivity - From Logic to Algorithms**, Swansea University