

Fateme Ghasemi

Software Developer

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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 ~ 50% for a database API and ~ 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, L^AT_EX, 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
2011 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