Fateme Ghasemi

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Summary

- ○ 5+ years of industrial and academic experience in **software development**, skilled in **OOP, design patterns, clean code**, and **formal methods**.
- ○ Experienced in **Java, and C++ testing** (unit and property-based), backend development (REST APIs, payment gateways, SSO, etc.), **bug detection**, and **troubleshooting**.
- ○ Strong **collaboration and communication** skills from teaching assistant roles and technical documentation.
- ○ Currently formalizing Master's thesis results in **Lean** for machine-verifiable proofs.

Work Experience

Sep 2021– Dec 2024   **Teaching Assistant**, *McMaster University*
- ○ Led tutorials, provided student consultation, authored homework solutions and rubrics, and marked assignments and exams
- ○ Courses: Logical Reasoning for Computer Science, Automata and Computability, Discrete Math and Applications, Discrete Mathematics for Computer Science

Sep 2022– Dec 2023   **Associate Researcher, Formal Methods Lab**, *Huawei Technologies Canada Co., Ltd. (Co-op)*
- ○ 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, contributing to troubleshooting and preventative maintenance
- ○ Contributed to an internal Property-Based Testing cookbook and framework

May 2020– Jun 2021   **Backend Developer**, *Afarinesh*
- ○ 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
- ○ Conducted zero-downtime database migrations

Tools & Knowledge

Programming	Java, C++, C# .NET, SQL, ASCL, LaTeX, Lean
Optimization	Gurobi (C++ API)
Dev tools	Git, Postman, Swagger, Gitlab, Overleaf
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*
Advisor: Prof. Jeffery Zucker

2016   **Bachelor's Degree in Computer Science (GPA 3.39/4.0)**, *University of Tehran*

Accomplishments

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

2025   Minimized transportation costs and inventory levels for a multi-carrier supply chain using Gurobi (C++ API)

2024   Implemented a secure zero-knowledge proof protocol in C++ for counting triangles in a graph

Presentations

2025   **WhileCC-Approximability and Acceptability of Elementary Functions**, *CCC 2025: Continuity, Computability, Constructivity - From Logic to Algorithms*, Swansea University