Hamid Fathi

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Computer Science Department
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Experience

Researcher and C++ Developer Sep. 2022 - Present
ORCCA, Computer Science Department, Western University, Canada
Supervisor: Dr. Marc Moreno Maza

- Implemented an efficient thread pool with a work-stealing scheduler in C++.
- Developed a fast polynomial multiplication module using Karatsuba method in the *BPAS library*.
- Designed and implemented an object-oriented model in C++ to manipulate power series.

R&D Intern May. 2024 - Aug. 2024
Maplesoft, Waterloo, Canada

- Developed the double-description method (polyhedral sets) in C++ as a shared library for the Maple software.

C++ Software Engineer Jun. 2020 - Jul. 2022
MAPSA Technology Center, Tehran, Iran

- Researched academic literature and provided efficient algorithms for different software modules.
- Developed robust C++ code for the computation engine and Qt-based UI using the MVC design pattern.
- Conducted thorough testing, debugging, and profiling to enhance software reliability and performance.
- Collaborated in an agile team, using Scrum and Azure DevOps to optimize CI/CD and project outcomes.

Scientific Computing Researcher Mar. 2019 - Sep. 2020
Sharif University of Technology, Tehran, Iran

- Designed and implemented finite element simulation software, incorporating advanced numerical methods and algorithms for solving systems of PDEs in complex domains.
- Implemented parallel computing with OpenMP and CUDA to speed up simulations.

Teaching Assistant
Computer Science Department, Western University, Canada

Delivered lectures, held lab sessions, and evaluated student assignments and projects for the following courses:

- Operating Systems (Winter 2024)
- C++ Object-Oriented Design and Analysis (Fall 2023)
- Discrete Structures for Computing (Winter 2023)
- Software Tools and Systems Programming (Fall 2022)

Skills

Languages: C/C++, Fortran, Python, bash, Maple, MATLAB
Parallel Computing: C++ Multithreading, pthreads, OpenMP, CUDA
Tools: Git, svn, Qt, Jira, make, CMake, gdb, perf, Valgrind

Publications

- Fathi, Seyed Abdol Hamid, *Efficient Algorithms and Parallel Implementations for Power Series Multiplication* (2024). Electronic Thesis and Dissertation Repository. 10337. https://ir.lib.uwo.ca/etd/10337

Education

M.Sc. in Computer Science Sep. 2022 - Present
Western University, London, Canada *GPA: 4/4*

- Relevant Coursework: Analysis of Algorithms, Distributed Systems, Parallel Computing

M.Sc. in Engineering Sep. 2018 - Sep. 2020
Sharif University of Technology, Tehran, Iran *GPA: 4/4*

B.Sc. in Engineering Sep. 2014 - Jul. 2018
Abadan Institute of Technology, Ahwaz, Iran *GPA: 3.92/4*