Meghdad Dehghan

+1-778-392-6821 meghdadd78@gmail.com LinkedIn github.com/mqddd

Summary

Master's graduate in Computer Science with a solid background in software engineering and AI. My research focuses on parameter-efficient fine-tuning of LLMs, model merging, and improving the efficiency and reusability of these models. Experienced with Python, PyTorch, and Hugging Face Transformers for training and working with deep learning models. I also bring industry experience developing production-grade microservices in Java and Spring Boot.

Education

University of British Columbia **2023 – 2025**

M.Sc. in Computer Science *Kelowna, Canada*

- **GPA:** 91.8/100 (A+)
- **Thesis:** Merging Task-Specific Adapters in Code LLMs for Automated Program Repair

University of Isfahan **2018 – 2022**

B.Sc. in Computer Engineering (Software) *Isfahan, Iran*

- **GPA:** 17.95/20

Research Experience

- **M. Dehghan**, JJW. Wu, FH. Fard, and A. Ouni. "MergeRepair: An Exploratory Study on Merging Task-Specific Adapters in Code LLMs for Automated Program Repair." Accepted to the Empirical Software Engineering Journal, 2025 [Pre-print]
- A. Sartipi, **M. Dehghan**, A. Fatemi. "An Evaluation of Persian-English Machine Translation Datasets with Transformers." arXiv, 2023 [Pre-print]

Professional Experience

University of British Columbia | Graduate Researcher **Sep 2023 – Jun 2025**

- Fine-tuned and evaluated multiple Code LLMs such as StarCoder2 and Granite-Code on software engineering tasks like Automated Program Repair (APR) and Bug Detection.
- Utilized LoRA as a PEFT method to efficiently fine-tune models on instruction-following code datasets for various tasks.
- Empirically analyzed the effectiveness of model merging techniques such as Weight-Averaging, TIES, and DARE-TIES on task-specific LoRA adapters.
- Presented techniques such as QLoRA, model quantization, gradient accumulation, and gradient checkpointing to enable efficient training of the Llama-7b model on a single 16GB GPU in the DRI workshop.

University of British Columbia | Graduate Teaching Assistant **Sep 2023 – Dec 2024**

- Assisted with marking and answering students' questions for the following courses: Data Structures (Fall 2023, Summer 2024), Analysis of Algorithms (Winter 2023), Introduction to Database Systems (Fall 2024)
- Attended lab sessions to help students with their weekly lab problems for the following courses: Data Structures (Fall 2023, Summer 2024)

University of Isfahan | Teaching Assistant **Sep 2020 – May 2021**

- Assisted with marking and answering students' questions for the following courses: Fundamentals of Computer Programming (Fall 2020), Advanced Programming (Spring 2021), Data Structures (Fall 2020, Fall 2021)

SobhanTech | Software Engineer **Apr 2021 – Mar 2022**

- Developed a service to extract key product elements (price, image, category) from the HTML source of online shops, achieving approximately 75% accuracy on a test dataset of 100 samples.
- Implemented a client to integrate and leverage Elasticsearch APIs and functionalities required for the spell checker service.
- Wrote various unit and integration tests for services and APIs ensuring high code coverage ($\geq 80\%$) while maintaining low code complexity.

Nahira | Backend Developer Intern **May 2020 – Aug 2020**

- Implemented and deployed the server-side code of an online shop to get hands-on experience with backend development concepts.
- Tested and debugged APIs of Ashpazsho.ir shop ensuring compatibility with new use cases.

Projects

Comet Assistant Pro [Source Code] | (Javascript) **Oct 2025**

- Created an extension for Comet (and other Chromium-based browsers) that helps users learn LeetCode problems, with the potential to extend it to other topics or study materials.
- Prompts the Comet assistant to solve LeetCode problems step-by-step and encodes each step's answer in Base64 to keep it unreadable to humans.
- Parses the LLM's response and decodes each step's answer to make it readable by humans.

Parallel Ray Tracing [Source Code] | Parallel Computing Course Project (C, OpenMP, CUDA) **Fall 2023**

- Implemented the Ray Tracing technique to generate a 2D rendering of a 3D environment featuring spherical objects.
- Utilized OpenMP and CUDA to parallelize the algorithm on both CPU and GPU, demonstrating significant performance improvements over the non-parallel version.

Content-aware Image Resizing [Source Code] | Advanced Algorithm Course Project (Python) **Fall 2023**

- Implemented Minimum Backward and Forward techniques using dynamic programming to identify low-energy seams in images, enabling size reduction while maintaining important image details.
- Enabled size reduction in both vertical and horizontal directions by removing low-energy seams accordingly.

AI-UI-1400 Game [Source Code] | Artificial Intelligence Course Project (Java) **Fall 2021**

- Implemented Breadth-First Search and Q-learning algorithms to find the path that maximizes the points collected by an agent on a 2D grid map.
- Implemented the Minimax algorithm for the same environment, enabling two agents to compete for maximum point collection.

BankFX [Source Code] | Advanced Programming Course Project (Java, JavaFX, JDBC, MySQL) **Fall 2019**

- Developed a banking transaction system using Java to simulate the common functions of a bank such as deposit, withdraw, transfer funds, get loan, and pay a loan.
- Designed a desktop GUI using JavaFX for the application supporting login, logout, and bank transactions.
- Connected the system to a MySQL database to store user data for future logins to the system.

Certificates

Machine Learning [Certificate] **Coursera, Sep 2021**

Deep Learning Specialization [Certificate] **Coursera, Mar 2022**

Technical Skills

Programming Languages: Python, Java, C, SQL

Tools & Libraries: PyTorch, Hugging Face Transformers, Spring Boot, Linux, CUDA, Git

Keywords: Natural Language Processing, Parameter-Efficient Fine-Tuning (PEFT), Adapters, Model Merging, Retrieval-Augmented Generation (RAG)