




Ali Alimohammadi

Research Assistant at *Software Technologies Lab* at Simon Fraser University

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SKILLS

Languages: C/C++, Java, Python, SQL, MATLAB, R, Rust, Pascal, Delphi, \LaTeX
Tools: Git, Android SDK, Docker, NginX, RESTful APIs, Selenium, Arch Linux, Shell, Wireshark
Frameworks: Django, PyTorch, Spring Tool Suite (Java Framework), WordPress
Libraries: Vaex, pandas, NumPy, Matplotlib, Scikit-Learn, seaborn, NetworkX, PyCryptoDome, JSoup

PROFESSIONAL EXPERIENCE

Software Engineer | *Hirbod SQL Judge* February 2020 – August 2020

- The World's First Native Database (SQL) Judge/Scoring System
- Implemented in Python/Django Framework & PostgreSQL RDBMS using the latest virtualization and containerization technologies to provide Safety and Scalability followed by efficient use of server resources.
- Worked in a Scrum/Agile environment with rotational Scrum Master duties.
- **Status:** First M.V.P. has been released, tested, and reviewed by team members; Now being refactored and enhanced for better Persian language support.

RESEARCH EXPERIENCE

Chronic Kidney Disease Knowledge Discovery | *Simon Fraser University* September 2022 – Present
Supervised by Dr. Uwe Glässer

- Exploring measurable features from a set of more than 50,000 features, normalizing and preprocessing the selected features, and feeding them into different Deep Learning architectures to model patient's future condition. Resulted in 92% accuracy with further improvements still in progress.
- Additionally, using Attention mechanism and other interpretability assessment tools, makes the model explainable, which is critical for the healthcare domain.

SymRustC | *Simon Fraser University* May 2022 – August 2022
Supervised by Dr. Steven Ko

- Tested the compatibility of Rust module `coreutils` on an experimental compiler-based symbolic executioner.

DrugVAE | *Amirkabir University of Technology (Tehran Polytechnic)* February 2021 – December 2021
Supervised by Dr. Amin Gheibi

- Developed **DrugVAE**, a Deep Generative Variational Autoencoder with graph-structured architecture for Designing Drug-like Molecules, enhanced by advanced graph-matching algorithms for isomorphic graphs, demonstrated through comparative analysis against established models.
- The model yielded close results to three state-of-the-art models using only 5% of computational resources over *ENZYMES* and *BRENDA* datasets.

TEACHING EXPERIENCE

Teaching Assistant | *Simon Fraser University* September 2022 – Present

Special Topics in Data Mining, Cybersecurity Analysis, Introduction to Software Engineering, System Security and Privacy, Requirement Engineering, Data Structures/Programming

Teaching Assistant | *Amirkabir University of Technology (Tehran Polytechnic)* September 2019 – March 2021

Fundamentals of Computer & Programming, Advanced Programming (using C++), Data Structures & Algorithms, Database Design, Design & Analysis of Algorithms

PROJECTS

- End-To-End Encrypted Cloud-Based Messenger** | *Python, Web-Socket, Unix Shell* 2020
- Implemented without using SSL. Encryption protocols were implemented from scratch without using any library.
- Lexical Analyzer for B-Minor Language** | *C* 2019
- A standard implementation of B-Minor language compiler using C programming language.
- DigiKala Sales Dataset Analysis** (Biggest Iranian Online Marketplace) | *Python, MySQL, Matplotlib* 2019
- Automated Cleaning and Restructuring of Annual Sales Reports data in order to comply with all Normal Forms (1 to 5). Furthermore, analyzed and reported several KPIs.
- World of Music** | *Java, Android SDK, Spring Tool Suite, MySQL, JSoup, Web-Scraping* 2015
- Android Application and server-side implementation of an automatic web-scraper of music databases over the internet to present structured musician and song information to Android clients.

EDUCATION

- Simon Fraser University** May 2022 – September 2024 (Expected)
Master of Science in Computer Science Supervised by Dr. Uwe Glässer
Thesis: *Mining Electronic Health Records for Modeling Patient Trajectories*
- Amirkabir University of Technology (Tehran Polytechnic)** September 2017 – December 2021
Bachelor of Science in Computer Science GPA: 17.74/20
Thesis: *Applications of Deep Learning in Drug Molecules Generation and Development*

AWARDS

- Honor Student** | *Amirkabir University of Technology (Tehran Polytechnic)* 2017 – 2021
- Ranked amongst the Top %1** | *Iran's National University Entrance Exam* 2017
- Accepted as an Exceptional Talent** | *Iran's National Organization for Development of Exceptional Talents* 2010
Admitted through a competitive two-rounded national entry examination process with the acceptance rate of **0.01%**.

LANGUAGES

- English** Native or Bilingual
- Persian** Native or Bilingual
- Spanish** Limited Proficiency