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Ali Alimohammadi

Computer Science Master's Graduate

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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
Certifications: CCNA Routing & Switching

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 – July 2024
Supervised by Dr. Uwe Glässer

- Designed and Developed ***C**hrono**A**ttention**N**et* (`CAN`), integrating Temporal Convolutional Networks and Transformers with Hybrid Pooling and Attention-Augmented Layers to predict early stages of CKD progression using real-world data.
- Achieved remarkable diagnostic accuracy, with an AUC of 98.36% and an accuracy of 93.75%, demonstrating a 14% improvement over existing benchmarks.
- Facilitated medical interpretations of complex datasets, driving forward the utility of machine learning in predicting CKD to improve patient prognosis and quality of life.

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 – September 2024
Discrete Mathematics, 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 – July 2024

Master of Science in Computer Science *Supervised by Dr. Uwe Glässer*

Thesis: *`CAN`: A Deep Learning Approach to Diagnose Chronic Kidney Disease*

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

Graduated with Distinction | *Amirkabir University of Technology (Tehran Polytechnic)* 2021

Achieved the Highest Academic Honor by Iran's Ministry of Science and Technology

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