Sepehr Rafiei

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EDUCATION

University of California, Berkeley: College of Engineering Expected Graduation: December 2024
Bachelor of Science: Electrical Engineering & Computer Science

Relevant Coursework: |Algorithms | Data Structures | The Structure and Interpretation of Computer Programs | Computer Architecture | Database Management | Computer Security | IOS Development | Full-Stack | Server-Side Development using PHP | Client-Side Web Development | Figma | Machine Learning | Principles & Techniques of Data Science | Deep Learning for Visual Data | Designing, Visualizing, and Understanding Deep Neural Networks | Artificial Intelligence | Foundations of Data Science | Discrete Mathematics and Probability Theory |

PROFESSIONAL EXPERIENCE

Alcatel-Lucent Enterprise Calabasas, CA | October 2021 – August 2022
Software/Network Engineer (Internship)
- Developed a **full-stack** web application to virtualize connections within a network-switch topology.
- Built a Windows application using **C#** and **Microsoft SQL** Server to maintain shipments and product inventory.
- Created a **Python** and **C#** library for serial and SSH communication to an OmniSwitch™.
- Assisted with **QA** and maintained switch topologies.

Ventura County Community College District Moorpark, CA | September 2021 – May 2022
Head Teaching Assistant
- Tutored over **100** students in **Java**, **C++**, and **Python**, enhancing their coding skills and significantly improving their exam performances through personalized instruction and custom learning resources.

PROJECTS

A Secure File Sharing System Berkeley, CA | November 2023
- Implemented a secure file sharing system in **Go** with cryptographic libraries, ensuring data authenticity, confidentiality, and integrity in an insecure environment; engineered defenses against attackers, passing **100+** adversarial test cases.

Cook County Housing Price Prediction Berkeley, CA | March 2024
- Engineered a robust regression model in **Python** with **60+** features, achieving a competitive **<100k RMSE** on **200k+** observations; employed advanced **preprocessing**, **feature engineering**, and **regularization** to optimize performance.

Optimized Convolutions Berkeley, CA | June 2023
- Developed and optimized a **C** program to compute 2D convolutions.
- Leveraged **OpenMP** for multi-threading, **SIMD** for data parallelism, and **OpenMPI** for multi-processing to achieve an **8x** speed boost.

Build Your Own World Berkeley, CA | April 2023
- Designed a procedural world-generation engine in **Java**, creating a scalable 2D environment with pseudo-random terrain and dynamic rooms/hallways.

NGordnet Berkeley, CA | April 2022
- Developed a scalable backend in **Java** to visualize historical word trends and relationships using Google NGrams and WordNet data, optimizing query processing by **30%** and handling datasets with over **50 million** word instances for real-time interactive visualizations.

Movie Recommender System Berkeley, CA | May 2024
- Developed a personalized movie recommendation system in **Python** using **SVD**-based **Latent Factor Model** to predict user ratings with high accuracy; applied regularization and alternating minimization to optimize performance and reduce overfitting.

Deep Learning Models for Image Classification and Object Detection Berkeley, CA | October 2024
- Developed custom **ResNet** and **YOLO** models from scratch using **PyTorch**, achieving high accuracy on CIFAR-10 dataset and real-time object detection with optimized bounding box predictions using non-max suppression and confidence thresholding.

Ultimate Tic Tac Toe (TelePort) Berkeley, CA | May 2024
- Designed and built a fully functioning Ultimate Tic Tac Toe game in **Swift** for IOS devices, incorporating modern **UI/UX** design for a professional look.

SKILLS

Programming Languages: Python, SQL, Java, C++, C, JavaScript, Go, C#, Kotlin, Swift, PHP, HTML, CSS, NASM, RISC-V

Library and Frameworks: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, Matplotlib, OpenCV, Flask, Django, Selenium, Requests, .NET, Node.js, Express.js, React, jQuery, Bootstrap

Tools: Git, AWS, Google Cloud Platform (GCP), Docker, Conda, MongoDB, Firebase, Postman, Figma

Languages: *English* & *Persian (Farsi)* – fluent; *Mandarin Chinese* – limited