SEPEHR RAFIEI

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EDUCATION

University of California, Berkeley: College of Engineering Berkeley, CA | December 2024

Bachelor of Science: Electrical Engineering & Computer Science

Relevant Coursework: Python Programming, Designing Deep Neural Networks, Deep Learning for Visual Data, Machine Learning, Artificial Intelligence, Efficient Algorithms, Data Structures, Data Science, Database Mgmt Systems and Application, Computer Architecture, Computer Security, Discrete Mathematics and Probability Theory

SKILLS

Programming Languages: Python, JavaScript, TypeScript, Java, C++, C, Go, C#, Kotlin, Swift, PHP, SQL, HTML, CSS, Bash
Libraries/Frameworks: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, Matplotlib, OpenCV, Flask, Django, Selenium, Requests, .NET, Node.js, Express.js, React, jQuery, Bootstrap
Tools: Git, Linux/Unix, Docker, AWS, Google Cloud Platform (GCP), Conda, MongoDB, Firebase, Postman, Figma
Backend Development: REST APIs, Microservices, GraphQL, Serverless, Caching, Auth, Database design & optimization
Testing & Debugging: Unit Testing, Integration Testing, Test-Driven Development (TDD), debugging tools (e.g., gdb, Valgrind)
Performance Optimization: Multithreading, SIMD, Distributed Computing, Memory Optimization
Languages: English & Persian (Farsi) – fluent; Mandarin Chinese – limited

PROFESSIONAL EXPERIENCE

Novikov Beverly Hills Beverly Hills, CA | Dec 2024 – Jan 2025

Freelance Software Developer

- Delivered a robust review summarization platform featuring a **React** frontend and a **FastAPI** backend to analyze Yelp and Google Maps data.
- Integrated **GPT API** for AI-driven insights, generating actionable recommendations tailored to the restaurant's operational needs.
- Achieved an **80% reduction** in manual processing time, empowering management with concise insights to identify recurring concerns and optimize decision-making.

Alcatel-Lucent Enterprise Calabasas, CA | Oct 2021 – Aug 2022

Software/Network Engineer (Internship)

- Developed a full-stack web application (**React**, **TypeScript**, **Flask**, **PostgreSQL**) to virtualize network-switch topologies, replacing manual Visio diagrams and enabling real-time connection insights.
- Built a **C#** Windows application with **Microsoft SQL Server** to streamline inventory and shipping, eliminating paper-based tracking and improving operational oversight for thousands of switches.
- Created custom **Python** and **C#** libraries for automated serial/SSH communications, reducing manual data entry by enabling one-click device logging and rapid configuration.

PROJECTS

News Summarization and Headline Generation with Transformers Berkeley, CA | November 2024

- Implemented the "**Attention is All You Need**" paper to design a **Transformer** model for generating concise news headlines and summarizing articles, showcasing advanced **natural language processing** techniques in real-world applications.

Vision Transformer for Image Classification Berkeley, CA | November 2024

- Developed and trained a **Vision Transformer (ViT)** model to classify **CIFAR-10** images, implementing key components such as multi-head self-attention, patch embeddings, and layer normalization, achieving strong performance using **PyTorch**.

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 the **CIFAR-10** dataset and real-time **object detection** with optimized bounding box predictions using non-max suppression and confidence thresholding.

Neural Network and CNN Development Berkeley, CA | April 2024

- Developed **neural networks** and custom **CNNs** from scratch in **Python** and **NumPy**, achieving **96% accuracy** on the **Iris** dataset through efficient implementation and hyperparameter optimization.

Movie Recommender System Berkeley, CA | May 2024

- Developed a personalized movie recommendation system using an **SVD**-based **Latent Factor Model** to predict user ratings with high accuracy; applied **regularization** and alternating minimization to optimize performance and reduce overfitting.

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.

Spam Email Detection System Berkeley, CA | April 2024

- Developed machine learning models from scratch using **NumPy** to detect spam emails, achieving competitive accuracies: **SVM** (85.7%), **GDA** (82.2%), **Random Forest** (83.7%), and **Linear Regression** (87%).