

# 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:** | Designing, Visualizing and Understanding Deep Neural Networks | Deep Learning for Visual Data | Machine Learning | Artificial Intelligence | Efficient Algorithms | Data Structures | Foundations of Data Science | Principles & Techniques of Data Science | Database Mgmt Systems and Application | Computer Architecture | Computer Security | Discrete Mathematics and Probability Theory |

## PROFESSIONAL EXPERIENCE

### CoachAI (*Early-Stage Startup*)

Berkeley, CA | August 2024

*Founder/CEO*

- Leading a team of five in developing an AI-powered app that provides real-time sports coaching feedback through computer vision.

### 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

### 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 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 **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%).

## 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

**Certifications:** Cybersecurity Awareness, Web Design Certificate of Achievement, Web Development Proficiency Award, Workplace Harassment Prevention for Employees, Communicating Across Cultures

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