# 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:** Algorithms, Data Structures, Python Programming, Java Programming, Computer Architecture, Database Management, Computer Security, iOS Development, Full-Stack Development, Machine Learning, Artificial Intelligence, Deep Learning, Data Science, Discrete Mathematics and Probability Theory.

## 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 Engineer (Internship)*

- Created a full-stack web platform (**React**, **TypeScript**, **Flask**, **PostgreSQL**) to virtualize network-switch topologies, replacing static Visio diagrams and enabling real-time topology insights.
- Developed a **C#** Windows application with **Microsoft SQL Server** to digitize inventory and shipping, eliminating paper-based processes and improving operational visibility across thousands of switches.
- Wrote custom **Python** and **C#** libraries for automated serial/SSH login, accelerating switch inventory logging by over **5×** and reducing manual entry.

## PROJECTS

**Secure File Sharing System** Berkeley, CA | November 2023

- Engineered a zero-trust, end-to-end encrypted file sharing backend in **Go**, using **AES-GCM** for encryption, **RSA** for key wrapping and signatures, and **HMAC-SHA256** for integrity over untrusted storage.
- Designed invitation-based **access control** with secure key distribution, rotation, and revocation protocols.
- Passed **100+** adversarial tests simulating real-world attacks, validating confidentiality, integrity, and authentication.

**NGordnet** Berkeley, CA | April 2023

- Built a high-performance backend in **Java** to analyze historical language trends using **Google NGrams** and **WordNet** datasets.
- Implemented efficient **graph traversal** and **binary search** algorithms to support semantic queries across **400K+** NGram records.
- Enabled real-time linguistic exploration over **270 years** of data, integrating **80K+ synsets** and complex word relationships.

**Optimized Convolutions** Berkeley, CA | May 2023

- Developed a high-performance **C** program for 2D convolutions in video processing, optimizing memory access and **data locality**.
- Used **profiling**, **loop unrolling**, and matrix traversal optimizations to eliminate bottlenecks and scale on **multi-core** systems.
- Achieved **8×** speedup with **SIMD** vectorization, **OpenMP** multi-threading, and **OpenMPI** for distributed parallelism.

**YouTube SafeGuard (Cal Hacks 9.0)** San Francisco, CA | October 2022

- Built an interactive **Chrome Extension** to filter YouTube comments in real time, focusing on dynamic DOM manipulation and polished UI/UX.
- Integrated **Cohere NLP APIs** for high-accuracy comment classification, enhancing moderation quality and user safety.
- Deployed a full-stack solution in under **36 hours** using **Django REST API** for secure data flow and responsive front/back-end integration.

**Personal Portfolio Website** Berkeley, CA | November 2024

- Coded a responsive site using **React JS**, **Vite**, **Node**, and **TypeScript** by refactoring code into modular components.
- Implemented light and dark mode switching to enhance user experience.
- Managed version control with **GitHub** and deployed via **Netlify**, enabling streamlined updates and maintaining **99.9%** uptime.

## SKILLS

**Programming Languages**: Python, JavaScript, TypeScript, Java, C++, C, Go, C#, Kotlin, Swift, PHP, SQL, HTML, CSS, Bash
**Libraries/Frameworks**: React, Node.js, Express.js, Flask, Django, FastAPI, Pandas, NumPy, Tailwind CSS
**Tools**: Git, Linux/Unix, Docker, AWS, Google Cloud Platform (GCP), Conda, MongoDB, Firebase, Postman, Figma
**Backend Development**: REST APIs, 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