Adnan Ashraf

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Education

UC Berkeley Berkeley, CA

Computer Science — GPA: 3.96 *Expected Graduation: Dec 2025*

Coursework *Data Structures, Efficient Algorithms, Discrete Math and Probability, Optimization Models, Machine Structures, Techniques of Data Science, Computer Security, Operating Systems*

Experience

Research Computing Intern August 2024 - Present

UC Berkeley

- Optimizing Linux HPC cluster with bash and slurm, ensuring efficient execution of large-scale computational tasks
- Providing technical support to researchers, helping them optimize their code for HPC environments and troubleshoot issues related to maximizing resource utilization and conda environment management

AI Engineering Intern May 2024 - August 2024

World Salon

- Led a team of 3 to develop an AI-based data collection and processing pipeline utilizing python, OpenAI, AWS, postgresql to streamline business operations increasing the bandwidth to handle 100 times more customers
- Built a RAG assisted agent to automate email workflows capable of handling 20,000+ emails a week
- Optimized company operations by building a node.js server to deliver status updates, saving 10+ hours a week

Research Fellow May 2022 – Aug 2022

NASA

- Designed a data visualization tool using Javascript and Firebase, enabling geographical radiation analysis
- Processed sensor data, displayed on dynamic heat map built with leaflet.js and presented metrics to leadership

Projects

PintOS | *C, Operating Systems, Concurrency*

- Designed and implemented the process commands execute, wait, exit, and halt for the PintOS system
- Developed a priority scheduler and multi-level feedback scheduler for thread scheduling and file operation syscalls

Secure File Sharing System | *Golang*

- Utilized cryptographic primitives such as AES and HMAC to build an end-to-end encrypted file sharing system
- Built in secure user authentication and safety measures to protect against file tampering and illegal file accesses

Shell | C, Linux

- Built a Linux shell in C capable of handling program execution, I/O redirection, pipes, and signals
- Managed concurrent processes with Unix signals, enabling efficient foreground and background execution

Berkeley Class Recommender | *Python, JavaScript, Flask, Spacy, NLP*

- Built a web application to recommend Cal classes utilizing spaCy's word embeddings and a similarity search
- Scraped all Cal class data and pre-processed data, resulting in 15.8 times faster queries

Efficient Convolver | *C, OpenMP, OpenMPI, Intel Intrinsics (SIMD)*

- Optimized a program with parallel computing to efficiently convolve sets of large matrices together using C
- Leveraged SIMD operations, OpenMP, and OpenMPI to speedup code by a factor of 10.69

Spam Classification API | Python, Numpy, Pandas, Scikit-Learn, Matplotlib, Regex, node.js, express.js, AWS

- Created an SVM spam classifier achieving 95.4% accuracy, 90% precision, and 96% recall
- Deployed a RESTful API built with Node.js on AWS Lambda to facilitate real-time classification

Technical Skills

Languages: Python, C, Java, JavaScript, SQL, Risk-V, Golang, Rust
Technologies: Git, AWS, Google Cloud, Bash, GDB, Linux, Conda
Python Libraries: Pandas, Scikit-learn, SQLAlchemy, Matplotlib, Seaborn, NumPy, Selenium
Frameworks/Tools: Node.js, Express.js, Intel Intrinsics, OpenMP, OpenMPI, Docker
Database: PostgreSQL, MySQL, Firebase, Amazon RDS