Adnan Aman

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Education

University of California, Berkeley **Class of 2025**
Bachelor of Arts in Computer Science GPA: 3.6/4.0

Relevant Coursework:
Data Structures, Efficient Algorithms and Intractable Problems, Computer Architecture, Introduction to Database Systems, Computer Security, Discrete Math and Probability, Optimization Models in Engineering, Machine Learning, and Probability for Data Science

Experience

University of California, Berkeley June 2023 – August 2023
Academic Intern *Berkeley, CA*

- Worked as a lab assistant for UC Berkeley's Data Structures course with roughly ∼1600 students
- Assisted with project design, debugging, and running labs in Java
- Worked in office hours to support students with homework and conceptual misunderstandings
- Helped students implement and experiment with fundamental algorithms and data structures

Projects

YelpCamp | *Node.js, Express.js, MongoDB, Bootstrap* December 2023 – Present

- Developed a web application for campsite reviews, using Node.js, Express.js, and MongoDB, focusing on user-generated content, security, and data integrity
- Implemented user authentication, admin roles, and a review system in YelpCamp, to enhance application security and user interaction
- Integrated Google Maps API for interactive campsite location features and deployed Google Ads for potential revenue generation

Secure File Sharing System | *Go, Cryptography* January 2024 – March 2024

- Developed a secure file sharing system in Go, allowing users to create, edit, and share files
- Used cryptographic libraries for encryption, decryption, and secure invitation links, to ensure data confidentiality and integrity even in the presence of attackers
- Focused on resilience and security through atomic operations, asymmetric encryption (RSA), symmetric encryption (AES-CTR), hash-based MACs, signatures, and certificates
- Used remote databases for persistent, secure data storage, UUIDs for data management, and PKI for authentication.

RookieDB: Resilient Database Recovery System | *Java, ARIES Algorithm* January 2023 – May 2023

- Designed a database recovery system using Java and the ARIES algorithm
- Used logging and checkpoints for system recovery in case of system failures
- Optimized I/O operations utilizing concurrency and query optimization, which led to a 30% reduction in data retrieval latency

CS61KaChow: Optimized 2D Convolutions | *C, SIMD, OpenMP, Open MPI* April 2023 – May 2023

- Optimized 2D convolutions utilizing SIMD vector instructions, achieving a **8.05x** speedup and significantly improving image processing times
- Enhanced task parallelism using OpenMP, resulting in efficient multi-threaded operations and reduced processing overhead
- Coordinated parallel processing tasks utilizing Open MPI's manager-worker architecture, leading to a **5.30x** speedup in convolution operations across large datasets

Technical Skills

Languages: Java, Python, C, JavaScript, HTML, CSS, SQL, MQL
Frameworks: React, Node.js, Express.js, Bootstrap, Android (MVC), JUnit
Developer Tools: Git, Vim, Linux, MongoDB, LaTeX, Android Studio, Logisim