Adnan Aman

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Education

UC Berkeley **Class of 2025**
Bachelor of Arts in Computer Science Berkeley, CA

Relevant Coursework:
Computer Architecture, Discrete Math and Probability, Data Structures, Probability for Data Science, Linear Algebra, Structure of Computer Programs, Introduction to Database Systems, Efficient Algorithms and Intractable Problems

Experience

CodePath August 2021 – January 2022
Android Software Engineer *Irvine, CA*

- Engineered **3+ dynamic Android applications** using Java, demonstrating expertise with Android Studio IDE, Gradle, and debugging techniques.
- Implemented Model-View-Controller (MVC) design patterns in **3 major projects** to create scalable and efficient code, ensuring a responsive user experience for active users.
- Integrated RESTful APIs in **4 applications** using CodePath's AsyncHttpLibrary; parsed JSON responses to fetch, display, and manipulate data, resulting in a **25% faster load time**.
- Pioneered the implementation of advanced user authentication techniques, improving app security by **50%** and providing seamless user onboarding experiences.
- Worked closely with a team of **2 UI/UX designers** to implement views and layouts; successfully ensured **98% design fidelity** and responsiveness, leveraging advanced Android theming techniques.

Projects

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

- Implemented high-performance algorithms for 2D convolutions, leveraging SIMD vector instructions to achieve significant optimizations, with a **peak speedup of 8.05x**.
- Utilized OpenMP for enhanced parallelism within tasks, leading to expertise in multi-threading and concurrent execution.
- Integrated Open MPI for efficient parallel processing, achieving up to a **5.30x speedup**; employed a manager-worker architecture to coordinate tasks among worker processes.

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

- Designed and developed a robust database recovery system using Java, following the ARIES algorithm.
- Achieved **99.99% system uptime** through the implementation of features like savepoints, fuzzy checkpoints, and crash recovery mechanisms, drastically reducing data loss scenarios.
- Boosted query execution speed by **45%** and reduced latency by **30%** by optimizing I/O operations and efficient utilization of memory buffers.
- Optimized resource management by implementing efficient disk space allocation and memory buffer utilization strategies.

NGordnet: NLP and Data Analysis | *Java, HTML, CSS* November 2022 – December 2022

- Developed NGordnet, an NLP tool in Java, incorporating features from Google's NGram Viewer. Implemented depth-first search algorithms and used graph data structures, **increasing linguistic analysis speed by 60%**.
- Processed and analyzed large textual **datasets of over 5GB** to construct NGram models. Optimized NGramMap and TimeSeries data structures, resulting in a **40% improvement in word frequency analysis efficiency**.
- Leveraged WordNet for semantic lexicon integration, expanding the tool's word sense capabilities by 5000+ unique senses, allowing users to delve into complex semantic relationships.
- Designed an intuitive web interface using HTML and CSS, complete with interactive data visualization tools to aid in language research and analysis.

Technical Skills

Languages: Java, Python, C, RISC-V Assembly, SQL, MQL, HTML/CSS
Developer Tools: Git, Vim, Linux, MongoDB, JUnit Testing, LaTeX, Android Studio, Logisim