MANSOOR MAMNOON

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EDUCATION

University of California - Berkeley **August 2023 - May 2027**
Bachelor's, Computer Science *GPA: 3.98*

- Efficient Algorithms, Data Structures and Algorithms, Computer Architecture, Machine Learning, Optimization Methods, Probability and Statistics, Linear Algebra, Discrete Mathematics, Honors Abstract Algebra, Computer Vision, Random Walks

PROFESSIONAL EXPERIENCE

Amazon **Seattle, WA, USA**
Software Development Engineer Intern – Backend & Distributed Systems *May 2025 - August 2025*

- Architected and shipped an end-to-end, real-time occupancy monitoring platform—ingesting data from 100+ IoT sensors and visualizing it via a live dashboard—piloted across 4 buildings. Authored and presented design documents to a review panel of SDE2s and SDE3s.
- Built a scalable, fault-tolerant backend pipeline using AWS Lambda, SQS, DynamoDB, and Timestream, processing 10K+ streaming events/min with P99 latency < 900ms.
- Engineered a real-time React dashboard with live occupancy visualizations (<1s data freshness), enabling operations teams to monitor usage across facilities in real-time.

BLCK UNICRN **Berkeley, CA, USA**
Software Engineering Intern *September 2024 - December 2024*

- Engineered a scraping and ranking system using Python, Beautiful Soup, and pandas, optimized via custom trie-based prefix matching and vectorized scoring, reducing runtime by 5× across 200+ client profiles.
- Designed a weighted lead ranking algorithm that scored prospects on post frequency, keyword density, and engagement signals, enabling automated prioritization in outreach workflows.
- Delivered live technical demos at SF Tech Week to 40+ clients, showcasing platform features and collecting real-time user feedback to drive UI performance improvements.

PROJECTS & OUTSIDE EXPERIENCE

Offline RL Agent – Custom Reinforcement Learning System **Seattle, WA, USA**
Software Development Engineer (Independent Project) *May 2025 - June 2025*

- Implemented Conservative Q-Learning (CQL) from scratch in PyTorch for a custom Gym environment with delayed sparse rewards and dual observations; evaluated sample efficiency and regret under offline rollout constraints using bootstrapped CI bounds and variance analysis.
- Benchmarked CQL vs DQN across 8 seeds, tuning ±penalty and discount ³to study trade-offs in exploration entropy vs Q-overestimation; visualized policy shifts with t-SNE and Bellman error heatmaps to track convergence stability.

Edge Deployer – Serverless IDE for Multi-Cloud Deployment **Berkeley, CA, USA**
Software Engineer (Independent Project) *March 2025 - May 2025*

- Engineered a desktop IDE using Electron, React, and TypeScript to deploy serverless APIs across AWS Lambda@Edge, Cloudflare Workers, and Vercel Functions via one-click multi-cloud workflows.
- Integrated infrastructure-as-code (IaC) generation using Terraform, dynamic configuration, and live preview via Monaco Editor—enabling production-grade deployments with zero CLI interaction.

Gitlet – Java-Based Version Control System **Berkeley, CA, USA**
Software Development Engineer (Student) *June 2024 - August 2024*

- Rebuilt core functionality of Git in Java, implementing a content-addressable file storage system using SHA-1 hashing to track and retrieve versioned objects across 50K+ file states.
- Engineered a commit graph with branching and merging logic, supporting operations like init, add, commit, checkout, and log with constant-time history traversal.

SKILLS

Skills: Python, TypeScript, Java, C/C++, React.js, Pytorch, AWS (Lambda, CDK, DynamoDB), Terraform, Docker, SQL, CI/CD, Git, Reinforcement Learning, Optimization, Infrastructure as Code, System Design, Probability Theory, Stochastic Processes, Discrete Optimization, LP/ILP, Game Theory, Regret Minimization