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, Quantum and Random Walks, Decentralized Finance Systems

PROFESSIONAL EXPERIENCE

Amazon **Seattle, WA, USA**
Software Development Engineer Intern – Backend & Distributed Systems *May 2025 - August 2025*
- Architected and shipped a real-time occupancy monitoring platform (100+ IoT sensors, 10K+ events/min, P99 latency <500ms), piloted across 4 Amazon buildings with expansion underway.
- Built a scalable, fault-tolerant backend on AWS (ECS Fargate, SQS, DynamoDB, Timestream), cutting infra costs and enabling horizontal scaling under peak loads.
- Automated multi-region deployments via AWS CDK (TypeScript), reducing provisioning time by 85% and standardizing infrastructure across dev/staging/prod.
- Engineered a React dashboard with <1s data freshness, enabling ops teams to monitor usage live and improve space allocation across facilities.
- Authored design doc + exec one-pager, led review cycles with SDE2/SDE3s, and incorporated feedback into final deployed architecture.

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.
- A/B tested targeted outreach across Apollo CRM, LinkedIn, and email, improving contact conversion by 25%, and pipelining feedback into internal analytics dashboards.
- Built a reusable data ingestion module and led documentation + interface design for intern handoff, increasing system onboarding velocity and reducing context loss.
- 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 - *Link to project* **Seattle, WA, USA**
Software Development Engineer (Independent Project) *May 2025 - June 2025*
- Developed a custom Gym environment with dual observation channels and delayed reward functions, simulating high-dimensional control tasks with ~10u state transitions per training run.
- Implemented an offline RL training pipeline in PyTorch, featuring a prioritized replay buffer (±0.6, ²≈0.4), batch reward normalization, and dynamic μgreedy exploration—achieving ~92% average reward recovery from expert trajectories.
- Benchmarked Conservative Q-Learning (CQL) and DQN across 8 random seeds, analyzing variance, convergence speed, and sample efficiency; achieved ~30% lower regret compared to baseline DQN under identical rollout constraints.

Edge Deployer – Serverless IDE for Multi-Cloud Deployment - *Link to project* **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.
- Designed a fully offline-compatible build pipeline, benchmarked to support 1K+ concurrent requests/sec, simulating cold-start behavior and cross-cloud latency tradeoffs in edge environments.

Order Book Engine – High-Performance Trading Infrastructure - *Link to project* **Berkeley, CA, USA**
Software Engineer (Independent Project) *July 2025 - August 2025*
- Built a C++20 matching engine with intrusive FIFOs, slab allocators, and cache-hot ladders, achieving 20M+ msgs/sec throughput with sub-μs median latency; validated determinism via snapshot/resume replay proof with bit-for-bit fill equivalence.
- Designed an end-to-end analytics + backtesting pipeline (Python, Parquet, Docker, Streamlit) to replay real Binance BTCUSDT data, compute microstructure metrics (spread, microprice, volatility, impact curves, order-flow autocorr), and evaluate VWAP/TWAP/POV/Iceberg strategies with reproducible PnL & risk metrics.

SKILLS

Skills: Python, TypeScript, Java, C#, C/C++, SQL, React.js, Node.js, Pytorch, Pandas, NumPy, BeautifulSoup, Scikit-learn, Electron.js, AWS (Lambda, SQS, DynamoDB, Timestream, CDK), Docker, Terraform, CI/CD, CloudWatch, Distributed Systems, Event-driven Architecture, Real-time Data Pipelines, Infrastructure as Code (IaC), Observability (logs, metrics, alerts), Reinforcement Learning, Offline RL, Time Series Analysis, Optimization, Probability & Statistics, Linear Algebra, Git / GitHub, VSCode, Postman, Jupyter, Apollo CRM, Google Sheets (scripting & data handling), System Design, A/B Testing, API Design, Performance Optimization, Product Thinking