Brock Benton

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Education

University of Colorado Boulder Boulder, CO

B.A. in Computer Science, B.A. in Economics (GPA: 3.96) *Expected May 2028*

- *Honors:* Boettcher Scholar, Undergraduate Enrichment Program, Engineering Honors Program
- *Clubs:* Blockchain Club (Co-President), CS Undergraduate Advising Committee (Head of Academics)
- *Relevant Coursework:* Algorithms, Data Structures, Software Development, Algorithmic Economics, Microeconomics, Macroeconomics

Work Experience

Information Technology Manager, Computer System Administrator May 2023 – Aug. 2025

Alamosa School District *Alamosa, CO*

- Led IT support operations for 3000+ devices across a district serving 2100+ students and 440+ staff
- Oversaw and coordinated a summer tech team, facilitating task delegation, daily standups, and team workflows
- Streamlined laptop imaging processes using FOG Project and FlexOS to deploy standardized system clones efficiently
- Performed hardware repairs on Chromebooks and Windows laptops, including keyboards, touchpads, and screens
- Tracked and managed district-wide device inventory using Incident IQ
- Assisted with infrastructure maintenance, including Ethernet cable routing and workstation setups

Projects

Git Infrastructure & CI/CD Pipeline | *Docker, Nginx, PostgreSQL, Python, Linux* Oct. 2025

- Engineered containerized Git infrastructure using Docker Compose to orchestrate multi-service architecture with automated database backups and persistent volume management
- Configured Nginx reverse proxy with SSL/TLS termination to provide secure HTTPS access and unified routing across microservices
- Developed automated CI/CD pipeline with webhook-driven deployments, implementing HMAC-SHA256 signature verification for secure event-driven automation
- Built Python automation scripts for deployment workflows, reducing manual deployment time by 90% and enabling continuous integration for development teams

Distributed Consensus System | *C++, TCP Sockets, Multi-threading, Cryptography* Nov. 2025

- Built distributed peer-to-peer network in C++ featuring cryptographic proof-of-work validation, transaction processing, and consensus algorithms for data integrity across multiple nodes
- Implemented multi-threaded TCP server handling concurrent client connections with mutex-protected shared state and JSON-based inter-process communication protocol
- Designed automatic chain synchronization algorithm enabling nodes to resolve conflicts and maintain consistency through cryptographic validation and longest-chain selection
- Applied SHA-256 hashing and Merkle tree data structures to ensure tamper-proof transaction validation in distributed environment

Decentralized Financial Transaction Platform | *TypeScript, Node.js, Smart Contracts, REST APIs* Dec. 2025

- Architected and deployed smart contract system with account abstraction to enable gasless transactions, reducing user transaction costs to sub-cent levels while maintaining security
- Integrated external REST APIs to create hybrid oracle system for real-world event resolution, automating financial settlement based on prediction market outcomes
- Designed incentive-compatible escrow mechanism leveraging external data sources as trustless arbiters, eliminating counterparty risk in peer-to-peer financial agreements
- Implemented secure financial transaction handling with cryptographic signature verification and automated settlement logic

Technical Skills

Languages: C++, Python, TypeScript, JavaScript, SQL, Bash
Backend & Infrastructure: Node.js, Docker, PostgreSQL, Nginx, REST APIs, CI/CD, Linux, TCP Sockets
Systems & Distributed Computing: Multi-threading, P2P Networking, Consensus Algorithms, Cryptography
Blockchain Technologies: Solidity, Ethereum, Smart Contracts, Hardhat, ethers.js, ERC-4337