Biya Brook

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Education

Stanford University - 3.91 GPA   June 2027
B.S. in Computer Science and Linguistics (Double Major)
Relevant Coursework: Computer Organization & Systems, Data Structures & Algorithms, Probability & Machine Learning for Computer Scientists, Linear Algebra & Multivariable Calculus
Activities: Stanford Symphony Orchestra (Percussion/Timpani), Stanford Association for Computing Machinery
Awards: 11x National Certamen Winner and 3x MVP, 3x National Latin Exam Perfect Score (top 0.1%)

Experience

Software Engineering Intern   April 2025 - Present
Burton Algorithms   *San Francisco, CA*
  - Built and shipped full-stack AI projects, working 1:1 with early-stage founders from concept to production
  - Reduced manual labeling time by **80%** at Daero AI by building a construction annotation system with OCR-assisted tagging to align and annotate multi-layered floor plans with inconsistent scaling and offsets
  - Built Exo AI's clinical dashboard on Next.js to predict surgery and visit necessity from physician-submitted questionnaires using a probabilistic ML classification model

Machine Learning Researcher   June 2023 - August 2024
Harvard Medical School & Boston Children's Hospital   *Boston, MA*
  - Improved bone segmentation success rate from **10% to 85%** by training and validating a 3D U-Net Convolution Neural Network to automatically identify and extract bones from MRI and CT scans
  - Created 3D knee models of ACL injuries for mock surgeries using automatically segmented MRI data
  - Performed statistical analysis for pre-operational and post-operational clinical notes classification

Lead Software Engineer and Founder   April 2023 - January 2025
Schola Latinae 501(c)(3)   *Boston, MA*
  - Directed a **6-member** engineering and curriculum team to launch Schola Latinae, a Next.js platform that helps over **4,000** students learn Latin and Greek for free through lessons, practice, and games
  - Programmed an algorithm that recommends practice questions based on past success, over **10k qs answered**
  - Produce video lessons with **2,500+** views on YouTube; Design social media marketing posts using Photoshop

Projects

BullPVP | *TypeScript, Next.js, TailwindCSS, Supabase, Express.js, Redis, Socket.io, Rust, Three.js*   May 2025
  - Built a real-time PvP gaming platform where users compete for real money in deterministic, skill-only games
  - Developed **5+** competitive real-time games (e.g., Archery, Flappy Bull) with session-based multiplayer logic using Three.js, Socket.IO rooms, and Redis pub/sub for scalable state synchronization
  - Wrote **Solana smart contracts in Rust** to handle wager escrow, settlement, and on-chain payout logic for user withdrawals and payouts, ensuring cryptographic transparency and tamper-proof accounting

NBA Player Stats Predictor | *Python, Pandas, NumPy, SciPy, NBA API, The Odds API*   March 2025
  - Developed a statistical ML model using Bayesian inference to identify value in NBA player prop markets
  - Implemented sequential Bayesian updating to account factors such as opponent and recent performance
  - Achieved **+25% ROI** in backtests over **500 simulated bets**, identifying positive EV plays by comparing implied market odds to model-calculated probabilities

Solana Rivals | *Typescript, Express.js, Next.js, TailwindCSS, Shadcn UI, Supabase, Docker*   February 2025
  - Built a gamified crypto quantitative trading platform with personalized, autonomous competing AI agents
  - Developed an algorithm that analyzes real-time coin data and user preferences to inform trading decisions
  - Achieved up to **300%** projected 24-hour profit in volatile market conditions by optimizing agent settings

Skills

Coding Languages: Python, C/C++, JavaScript, TypeScript, Swift, SQL, HTML/CSS
Frameworks and Libraries: Next.js, React.js, Flask, Node.js, React Native, Tailwind CSS, Pandas, NumPy, SciPy
Language: Bilingual in English and Amharic; Studied Mandarin Chinese, Latin, Ancient Greek, and Ge'ez