

ANTHONY ZHANG

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EDUCATION

Duke University, Pratt School of Engineering

Durham, NC

BSE Triple Major in Computer Science, Mechanical Engineering, and Mathematics | Aerospace Engineering Certificate May 2025

GPA: 3.81 / 4.00 | ACT: 35/36 | SAT Math II: 800/800 | Honors: Dean's List, Lynnfield High School Valedictorian

Relevant Coursework: Computer Networks, Computer Systems, Data Structures & Algorithms, Data Analysis & Decision Science

Activities: Duke Men's Basketball Creative Video Intern, Duke Quantitative Finance, Duke Asian Students Association, IM Basketball

WORK EXPERIENCE

Fidelity Investments – Global Financial Services Firm with \$4.5 Trillion+ AUM

Boston, MA

Full Stack Software Engineering Intern

May 2023 - Present

- Safeguarded Fidelity Institutional's \$50 billion portfolio by evolving internal application to manage collateral, market, credit risk
- Created full stack 'Data Vault' micro-app; indexed 10K+ distinct data points across 5 risk groups to catalog key fields, formulas, and metadata with OracleDB, Amazon Aurora PostgreSQL, Java, Maven, SpringBoot, Angular; application used by 500+ analysts
- Leveraged Agile, Scrum Boards, & Jenkins automation software to manage project workflow, collaboration, and CI/CD pipeline

Cell Signaling Technology – BioTech Firm developing antibodies (\$200M+ Annual Revenue)

Danvers, MA

Software Engineering Intern | github.com/anthonyjzhang/CloudParameters

May 2022 – Aug 2022

- Identified bottlenecks in digital infrastructure; leveraged AWS to streamline production development pipeline for 140 employees
- Developed firmwide cloud computing solution with capabilities to store over 100 terabytes, improving database capacity by ~35%
- Implemented REST API function calls via AWS Java SDK to retrieve, filter, and store over 5000 key administrative parameters
- Extended key-value pair storage solution using Maven and the Spring Framework to query company Amazon DynamoDB tables

Four Alpha – Sports Betting Arbitrage Initiative | fouralpha.bet

Durham, NC

Co-founder / CEO | github.com/anthonyjzhang/fouralpha

Dec 2022 – Present

- Founded & led 15 person team; leveraging data-driven strategies to execute risk-free bets that yield 5% guaranteed returns on avg.
- Aggregated historical, pre-game, & live betting odds from 100,000+ events and 12 bookmakers to capture arbitrage opportunities
- Engineered middle-tier with Python and TheOddsAPI to detect arbitrage opportunities across 60+ international sporting markets
- Designed UI/UX with Figma; coded frontend with React/Tailwind CSS; integrated Firebase to automate storage & display of bets
- Raised \$10K in seed capital, advancing internal capabilities and funding long-term term vision of monetizing B2C SaaS platform

EXTRACURRICULARS & PROJECTS

McKinsey Digital Hackathon – Selected to code for Central Park Conservatory (in July 2023)

New York, NY

FaceSense - Facial Recognition Machine Learning (ML) Application | github.com/anthonyjzhang/FaceSense

Durham, NC

- Implemented reliable predictive modeling algorithm to classify over 60 subjects as either 'Unknown', 'Not a Face', or Subject X
- Achieved 92% accuracy in facial recognition between 600+ distinct greyscale images while maintaining an 85% fraction of variance
- Reduced dimensionality of 112x92 images from 10,000 to 150 principal components with Principal Component Analysis (PCA)
- Leveraged ML & data analysis algorithms with Python Scikit-learn: Binary Classification, K-Nearest Neighbor, Random Forest, etc.

Duke Applied Machine Learning Group – Develop innovative solutions for real-world clients

New York, NY

- Advised FinTech startup 'Marco Financial' through strategic cloud migration: transferring on-prem ML models to AWS SageMaker
- Utilized cloud technologies (Lambda, S3, API Gateway) to effectively align IT infrastructure with future scalability requirements
- Streamlined processing of \$18M worth of invoices by conceptualizing innovative pipeline design to enhance document recognition

Duke Engineers for International Development – Facilitate social-impact engineering projects

Durham, NC

- Directed team of 9 to deliver weekly client presentations, craft technical memos, and build a high fidelity 15-foot bridge prototype
- Partnered with Engineers in Action & University of Southern Indiana to implement 350-foot bridge; used by 2K Bolivians in Japo

Duke AERO – Student-run high power rocketry program

Durham, NC

- Managed \$8,300 budget for rocket manufacturing in 2022 Spaceport America 30K COTS Challenge to build 'Coach 30K' rocket
- Monitored telemetry via TeleMega & RRC3 altimeters; design analysis with Open Rocket, SolidWorks FEA, Ansys Fluent software

1st Place Bain & Co. x University of Chicago GCC Case Competition (April 2023)

Chicago, IL

SKILLS & CERTIFICATIONS

Languages & Frameworks: Java, Python (Pandas, Scikit-learn, Jupyter), C, JavaScript, TypeScript, Angular, React, Node.js, Spring, SQL

Tools & Software: AWS, Git, Agile, Scrum, Maven, REST, Databases (Firebase, DynamoDB, Aurora), Figma, Wireshark, Jira, MATLAB

Certifications: AWS Certified Solutions Architect Associate, AWS Certified Cloud Practitioner Foundational, Bloomberg Market Concepts

Interests: Videography, NYT Mini-crosswords, Violin, Thrifting streetwear, AAPI Activism, Stand-up comedy, Poker, Celtics, Backpacking