Aditya Dhanraj

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Education

University of Texas at Austin — Austin, TX

Bachelor of Science in Computer Science — *May 2028*

- SAT: 1580 | Walnut Grove High School's Inaugural Salutatorian (4.0 GPA)
- UFA (Investment Associate), UTexas Energy (Commodities Prep Member), ML & Data Science, UTPC, ACM, ABSA
- Software Engineering, Data Structures, Computer Architecture, Operating Systems, Cloud Computing, Linear Algebra

2025 Invite-Only Early Talent & Insight Programs

- **Citadel** – The Fixed Income & Macro Challenge (NY)
- **Walmart** – Spring Sophomore Summit: SWE II Intern (AR)
- **Bank of America** – Global Tech Early Insights Forum
- **UBS** – Tomorrow's Talent Equity Research Insights Day (NY)
- **ServiceNow** – Discover Program – Engineering (CA)
- **Susquehanna Intl. Group** – First-Year Discovery Day

Experience

Founding Engineer — July 2025 – Present

Xsauce Inc. — Node.js, TypeScript, Python, AWS, Docker, Redis, DynamoDB, Express, Prometheus — *Remote*

- Leading backend development and infrastructure for Wage, a pre-launch gaming platform expanding market access for younger generations, including REST API design, microservices and pipeline management, and core product features

Undergraduate Research Assistant — Jan. 2025 – July 2025

UT Austin — Python, Statistical Modeling, NumPy, Pandas, Time-Series, Bloomberg Terminal — *Austin, TX*

- Analyzed daily time-series data for over 80 indices, developed a VIX Term Structure, and built a commodities forecasting model in Python to forecast price movements and model market volatility alongside Dr. Travis Johnson

Executive Board Member — July 2023 – Aug. 2024

Computer Science Youth of America — Python, Event Coordination, Public Relations — *Remote*

- Supplied free Computer Science education to over 950 students, helped build a research program, coordinated hackathons with hundreds of participants, and raised over $285,000 in sponsorships

Projects

ConnectAI — *Python, FastAPI, NLP, Docker, Next.js, TypeScript, Tailwind CSS* — Oct. 2025

- Developed a full-stack AI cold outreach platform, featuring asynchronous FastAPI microservices and REST endpoints for NLP-driven profile parsing, company discovery, personalized message generation, and intelligent relevance scoring

RaceNebula — *Python, Flask, Pandas, NumPy, SKLearn, FastF1, React* — Oct. 2025

- Architected a modular data pipeline and a Flask REST API powering real-time F1 telemetry (20+ drivers, 500+ data fields/sec) with endpoints for analytics, ML predictions, and Digital Twin simulations
- Constructed a Random Forest model (15 engineering features) for pit-stop prediction, achieving $\tilde{0}.8$ ROC AUC accuracy and developed a Digital Twin modeling tire wear, fuel load, and engine heat to test race strategies

MacroDynamiX — *Python, Machine Learning, Statistical Modeling, Time-Series, Macro* — Apr. 2025 – Sept. 2025

- Engineered a modular data pipeline to process 120+ monthly macro indicators (1959 - Present) from FRED
- Constructed a stacked ensemble regression model to predict S&P 500 monthly returns via features like a custom Market Health Index (MHI) and achieve up to 78% R^2, 87.7% directional accuracy, 1.63 MAE, and 2.13 RMSE
- Developed a regime classification framework to model the macro environment and segment market conditions into interpretable clusters with distinct return, volatility, and drawdown profiles (max drawdowns ranging from 11%-50%)

Dynamic Memory Allocator — *C, Memory Management, Systems Programming, Bitwise Ops, GDB* — Feb. 2025

- Implemented a malloc/free-style allocator from scratch with 16-byte alignment, explicit free lists, binning, bitwise metadata, block coalescing/splitting, and heap design for efficient low-level memory management
- Achieved 100% correctness across 24 traces and averaged 70% memory utilization and 1900 ops/sec throughput

Skills & Interests

Programming: Python, Java, C, HTML/CSS/JS, Node.js, AWS, DynamoDB, Linux, Docker, Git, GDB, Mathematica
Data Science: Machine Learning, NumPy, Pandas, SKLearn, TensorFlow, PySpark, Hadoop, NLP, NLTK, BeautifulSoup
Mathematics: Time-Series Analysis, Statistical Modeling, Probability & Statistics, Linear Algebra, Stochastic Processes
Other: Spanish, Hindi, Piano (15 Years, 5× National Winner), Football (15 Years), Poker, Chess, ANSYS, AutoCAD