

Aditya Dhanraj

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EDUCATION

University of Texas at Austin

Bachelor of Science in Computer Science

Austin, TX

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
- Multivariable & Vector Calculus, Prob. & Stats., LinAlg, Microeconomics, Data Structures, Software Engineering

2025 INVITE-ONLY EARLY TALENT & INSIGHT PROGRAMS

- **Citadel** – The Fixed Income & Macro Challenge (NY)
- **Walmart** – Spring Sophomore Summit: SWE II Intern (AR)
- **UBS** – Tomorrow's Talent Equity Research Insights Day (NY)
- **ServiceNow** – Discover Program – Engineering (CA)

EXPERIENCE

Founding Engineer

Xsauce Inc. — *Node.js, TypeScript, Python, AWS, Docker, Redis, DynamoDB, Express, Prometheus* July 2025 – Present

Remote

- Designing and implementing scalable backend infra for Wage, a pre-launch gaming platform, including event-driven microservices and APIs, Redis-based caching, and real-time financial data ingestion and analytics pipelines

Undergraduate Research Assistant

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

Jan. 2025 – July 2025

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

Computational Fluid Dynamics Researcher

University of North Texas (UNT) — *ANSYS Fluent, AutoCAD, Finite Element Analysis*

June 2023 – Oct. 2023

Denton, TX

- Leveraged ANSYS Fluent software to model 3D geometries, simulate fluid flow scenarios, and analyze multiphysics phenomena (e.g., pressure distributions, heat transfer, turbulence) alongside Dr. Hamid Sadat of UNT

PROJECTS

Financial Market Monitor — *Market Research, Macro, Equities, Fixed Income, Forex*

Sept. 2024 – Present

- Composing periodic market reports on global economic conditions, earnings reports, significant mergers/acquisitions, etc. for over 600 readers, including college students and finance professionals, worldwide

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
- Developed a regime classification framework to model asset allocation under distinct macro environments and a stacked ensemble regression model to forecast S&P 500 monthly returns (up to 78% R², 87.7% directional accuracy)

EchoAlpha — *Python, NumPy, Pandas, NLP, BeautifulSoup, Market Research, Equities*

July 2025 – Aug. 2025

- Constructed a systematic trading pipeline to parse inconsistent SEC 10-Q filings using BeautifulSoup, extract NLP-based sentiment from MD&A sections with VADER, and refine classification via polarity ratios and risk proxies
- Backtested contrarian long/short equity signals with configurable entry lags, holding periods, and transaction cost assumptions (current configurations yield Sharpe ratios up to 0.51 and 67% win rate)

Computational Stock Model — *Stochastic Modeling, Mathematica, Equities*

Jan. 2025 – June 2025

- Joined Dr. Thaleia Zariphopoulou in utilizing Mathematica and stochastic processes to compute an expression involving the Moment Generating Function (MGF) for modeling the drift and volatility of stock prices

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 (70% utilization)

SKILLS & INTERESTS

Finance: Market Research, Macro, Trading, Equities, Valuation, Fixed Income, Commodities, Options, Bloomberg

Computer Science: Python, Machine Learning, NLP, Java, R, C, HTML/CSS/JS, TypeScript, Node.js, AWS, DynamoDB, NumPy, Pandas, SKLearn, PySpark, TensorFlow, Hadoop, Linux, Mathematica, GDB, Docker, 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