

Aditya Dhanraj

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EDUCATION

University of Texas at Austin

Bachelor of Science in Computer Science

Austin, TX

May 2027

- SAT: 1580 | Student Organizations: UTexas Energy, ML & Data Science, UT Programming Contest, ACM, ABSA

INVITE-ONLY 2025 EARLY TALENT & INSIGHT PROGRAMS

- **Citadel** – The Fixed Income & Macro Challenge (NY)
- **Walmart** – Spring Sophomore Summit: SWE II Intern (AR)
- **ServiceNow** – Discover Program – Engineering (CA)
- **Bank of America** – Global Tech Early Insights Forum
- **SIG** – First-Year Discovery Day
- **J.P. Morgan** – Virtual Freshman Focus
- **Bain & Co** – 2025 Consulting Kickstart
- **PGIM** – 2025 APA Student Summit

EXPERIENCE

Undergraduate Research Assistant

Jan. 2025 – Present

University of Texas at Austin — Python, Time-Series, Bloomberg, Market Research, Commodities

Austin, TX

- Analyzing daily time-series data for over 80 indices and futures, developing a VIX Term Structure, and building a commodities forecasting model to forecast price movements and model market volatility alongside Dr. Travis Johnson

Executive Board Member & Head of Press

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

Computational Fluid Dynamics Researcher

June 2023 – Oct. 2023

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

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

Data Analyst & Innovation Consultant Intern

July 2023 – Sept. 2023

Excelerate — Statistics, Excel, Project Management

Remote

- Elected as the Team and Project Lead on two separate teams:
 - * Guided a group of 4 other interns in evaluating marketing data for an educational competition hosted by GlobalShala and issuing recommendations that resulted in a 17% improvement in engagement across all campaigns and optimized cost efficiencies by 8%
 - * Directed a group of 5 other interns in successfully formulating an active translation device meant to surmount language barriers and presenting our concepts to the executive board

PROJECTS

MacroDynamix — Python, Machine Learning, Statistical Modeling, Market Research, Macro

Apr. 2025 – Present

- Engineering a data pipeline in Python to process over 120 monthly macroeconomic indicators from FRED (1959 - Present), including data preprocessing, categorization, and dimensionality reduction
- Constructing a stacked ensemble regression model to predict S&P 500 returns based on a devised Market Health Index, lagged data, and technical indicators and ultimately achieve 77% R^2 in explaining monthly returns
- Developing a regime classification system using KMeans clustering to analyze market conditions and trends over time

Algorithmic Trading Bot — Python, Pine Script, Statistical Modeling, Equities, Forex, Crypto

Oct. 2024 – Dec. 2024

- Constructed a mid-frequency trading strategy using Pine Script and Python that, through backtesting:
 - * Yielded a 32.59% return on XAU/USD (1 Hour Timeframe) from Jan 4, 2024 to Dec 27, 2024, outperformed its buy-and-hold by 4.52%, and delivered a Sharpe ratio of 0.952 and a Sortino ratio of 6.69
 - * Achieved a 57.26% win rate, 1.824 profit factor, and a maximum drawdown of 5.84%

SKILLS & INTERESTS

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

Computer Science: ML, Java, Python, R, C, HTML/CSS/JS, NumPy, Pandas, Scikit-Learn, Linux, Mathematica

Mathematics: Time-Series Analysis, Statistical Modeling, Linear Algebra, Stochastic Processes, Probability & Statistics

Other: Spanish, Hindi, Football (13 Years), Piano (13 Years), Poker, Chess, ANSYS Fluent, AutoCAD