

# 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)
- Student Organizations: UFA (Investment Associate), ML & Data Science, UT Programming Contest, ACM, ABSA

## 2025 INVITE-ONLY EARLY TALENT & INSIGHT PROGRAMS

- **Citadel** – The Fixed Income & Macro Challenge (NY)
- **Point72** – Academy Spring Sessions
- **Goldman Sachs** – Virtual Insight Series
- **Bank of America** – Global Tech Early Insights Forum
- **PGIM** – APA Student Summit
- **UBS** – Tomorrow's Talent Equity Research Insights Day (NY)
- **SIG** – First-Year Discovery Day
- **J.P. Morgan** – Virtual Freshman Focus
- **Bain & Co.** – Consulting Kickstart
- **Stout** – Future Leaders in Finance

## EXPERIENCE

### Investment Associate

Sept. 2024 – Present

University Finance Association — Market Research, Equities, Valuation, Accounting, Excel

Austin, TX

- Directing the Generalist Industry Group in following market developments and building stock pitches, while also mentoring three junior analysts and providing guidance on financial modeling, accounting, and valuation principles

### Undergraduate Research Assistant

Jan. 2025 – Jul. 2025

University of Texas at Austin — Python, Statistical Modeling, Time-Series, Bloomberg, Commodities

Austin, TX

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

### Equity Research Analyst Intern

Oct. 2024 – Dec. 2024

Westlake Securities — Market Research, Equities, Valuation, Accounting, Excel

Austin, TX

- Produced in-depth equity research reports on Walmart (WMT) and Atmos Energy (ATO), including company valuations and detailed market and industry analyses, alongside Westlake Securities' investment banking team

## PROJECTS

### EchoAlpha — Python, NLTK (VADER), BeautifulSoup, Matplotlib, Market Research, Equities

Jul. 2025 – Present

- Building 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 short-term risk proxies
- Backtesting contrarian long/short equity signals with configurable entry lags, holding periods, and transaction cost assumptions (current configurations yield Sharpe ratios up to 0.51 with a 67% win rate)

### MacroDynamix — Python, Machine Learning, Statistical Modeling, Time-Series, Macro

Apr. 2025 – Present

- Engineering a modular Python data pipeline to process 120+ monthly macroeconomic indicators (1959 - Present) from FRED, including statistical transformations, categorization, feature engineering, and dimensionality reduction
- Constructing 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
- Developing a regime classification framework capable of modeling both the overall macro environment and specific domains like inflation, the labor or housing market, rates, credit, etc. to segment market conditions into interpretable clusters with distinct return, volatility, and drawdown profiles (max drawdowns ranging from 11% to 50%)
- Conducting rigorous tests across MHI variants with both expanding and rolling window analysis, clustering approaches (KMeans, GMMs, HMMs, etc.), and varying model parameters (e.g., regularization, # of regimes, etc.)

### 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 400 readers, including college students and finance professionals, worldwide

## SKILLS & INTERESTS

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

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

**Computer Science:** Python, Machine Learning, NLP, Java, R, C, HTML/CSS/JS, Linux, Git, Jupyter Notebook

**Other:** Spanish, Hindi, Piano (14 Years, 5× National Winner), Football (14 Years), Poker, Chess, ANSYS, AutoCAD