Varun Srinivasarao Budati

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EDUCATION

Virginia Tech, Blacksburg, Virginia   August 2023 – May 2027
B.S. in Computer Science   GPA: 3.51/4.0
Minor in Mathematics & Finance   In-Major GPA: 3.65/4.0

COURSEWORK

CS 3114: Data Structures and Algorithms, CS 2505/6: Computer Organization I/II, CS 2114: Software Design & Data Structures

CORE SKILLS

Programming Languages: Python (5 years), MySQL (2years), Java, C/C++, JavaScript, HTML/CSS, x86, Matlab.

Frameworks & Libraries: NumPy, Pandas, Matplotlib, Plotly, Sklearn, Seaborn, SciPy, React, Node.js, Flask.

Developer Tools & OS: Git, Docker, AWS, Linux/Unix.

Spoken Languages: English, Hindi, Telugu, Sanskrit.

WORK EXPERIENCE

Incoming MAOP Undergraduate Summer Research Intern, Virginia Tech, Blacksburg, Virginia   May 2025 – July 2025

Quantitative Researcher, Dataism Lab for Quantitative Finance - Virginia Tech, Blacksburg, Virginia   October 2024 – Present

- Collaborating with two researchers on Order Execution & Optimization research, focusing on market microstructure analysis and implementation of trading strategies.
- Constructed execution algorithms in Python, including VWAP (Volume Weighted Average Price) and TWAP (Time Weighted Average Price), to analyze market impact and transaction costs.
- Applied reinforcement learning methods (e.g., PPO, DDQN) using Python libraries to optimize trading strategy execution.
- Modeling quantitative performance using statistical methods and Python (NumPy, Pandas, SciPy) to analyze trade execution efficiency and market dynamics.

Web Developer, Intern, The Amricani Cultural Centre, Kuwait City, Kuwait   June 2021 – September 2021

- Designed and built 5 interactive web-pages for young museum visitors, featuring sequential exhibit zones with QR codes for historical information about Kuwait.
- Produced 8 puzzles and games using cardboard pieces and silhouettes.
- Designed 3 interactive tools like query boards/trivia questions to enhance children's learning of Kuwait and Al-Sabah exhibit history.

PROJECT WORK

Poker Game   January 2024 - March 2024

- Engineered a card handling system using JavaScript arrays and objects to manage a 52-card deck with 4 suits and 13 values.
- Programmed 8 distinct game variants through conditional logic and dynamic paytable adjustments.
- Architectured poker hand evaluation algorithms with $O(n \log n)$ time complexity for pattern recognition (pairs, straights, flushes).
- Built responsive UI with CSS Grid and Flexbox layouts, supporting 3 breakpoints for cross-device compatibility.

Sports Betting Algorithm & Analytics System   August 2024 – May 2025

- Formulated a Python-based sports prediction algorithm using NumPy and Pandas for data analysis, achieving ROI by turning $10 into $640 through systematic execution and statistical edge identification.
- Established a real-time data processing pipeline using commercial sports APIs and Requests library, leveraging Pandas DataFrames for efficient player statistics management and SciPy/statsmodels for probability calculations.
- Visualized performance tracking via a dashboard using Matplotlib/Seaborn for analysis of ROI trends and player metrics, while incorporating an automated risk management system for optimal bankroll allocation.

EXTRACURRICULAR

Group Lead, FinTech Club, Virginia Tech, Blacksburg, Virginia   October 2024 - Present

- Led a project under Dr. Daniel Rodriguez replicating Evans & Archer (1968) via Python simulation, analyzing portfolio diversification and risk reduction.
- Utilized Pandas, NumPy, and SciPy on historical stock data to model risk (std dev log returns) vs. portfolio size, quantifying diversification benefits.
- Presented findings confirming that most unsystematic risk is mitigated with 10-20 assets, aligning with the foundational study.