# Venkata Surya Sashank Gundepudi

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## Education

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| **North Carolina State University,** Raleigh, NC | December 2023 |
| *Master of Financial Mathematics* | GPA: 3.8/4.0 |

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| **SSN College of Engineering**. Chennai, India | August 2022 |
| *Bachelor of Mechanical Engineering* | GPA: 3.6/4.0 |

**Relevant Coursework :** Object Oriented Programming, Machine Learning Applications, Quantitative Trading Strategies, Options and Derivatives Pricing, Calculus, Monte Carlo Methods, Software Engineering, Probability, Statistics, Financial Risk Analysis, Fixed Income, Time Series Analysis

## Skills

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| **Technical Skills** | Python , R , C++ , Java, MATLAB, LaTeX, MongoDB, SQL, Git, Tableau, SAS, Stata, PowerBI, Excel, Bloomberg |
| **Libraries** | NumPy, matplotlib, Pandas, QuantStats, Pandas-ta, tidyverse, sci-kit-learn, Plotly, Tensorflow, QuantLib |
| **Industry Skills** | Quantitative Analysis, Backtesting, Predictive Modelling, Market API, Natural Language Processing, Big Data, Prop Trading |

## Work Experience

**Flagstar Bank** — **Troy, MI**
*Quantitative Financial Analyst II - Liquidity Stress Testing- Treasury Department* — Dec'23 – Present
- Actively participating in the **review** and harmonization of **liquidity policies** in the context of the ongoing merger between Flagstar Bank, NYCB, and Signature Bank.
- Leveraged **Python** to enhance the engineering of deposit data across three legacy institutions, significantly reducing liquidity stress testing data preparation time from over **3 weeks to 2 days**.
- Implemented **automation** for daily regulatory and internal reporting utilizing PowerBI, Python, and Alteryx.

**Arch Mortgage Insurance** — **Greensboro, NC**
*Quantitative Data Modelling Intern- Credit Risk Modeling - Quantitative Analytics* — June '23 – Aug '23
- Streamlined loan portfolio stress testing, reducing evaluation time from 2 weeks to 1 day and improving Risk-Weighted Assets (RWA) accuracy.
- Conducted **2023 CCAR** risk analysis with quantitative methods, collaborating across teams to evaluate various credit risk scenarios, including the calculation of Value at Risk (VaR), and their impact on regulatory capital adequacy.
- Built an interpretable AI system with TensorFlow and TabNet for PD and LGD predictions, alongside a user-friendly Python framework for model comparisons.

**Saravana Stocks Private Limited (Prop Trading Firm)** — **Chennai, India**
*Quantitative Trading Analyst - Algorithmic Trading Desk* — Nov '21 – June '22
- Leveraged Python, R, and SQL to optimize algorithmic trading strategies, with a specific focus on NIFTY futures and tech futures markets.
- Proficiently executed pairs trading and dispersion trading methodologies, employing technical analysis tools to enhance trading performance.
- Additionally, conducted in-depth analysis of market microstructure to fine-tune strategies, utilized statistical arbitrage techniques to identify profitable opportunities, and performed thorough order flow analysis to inform data-driven trading decisions.

## Technical Projects

**Sentiment Analysis for Event Driven Stock Price Prediction** | *Python* | *LSTM* | *Neural Networks* | — Jan'23 - April '23
- Led a multidisciplinary team in the implementation of a cutting-edge neural tensor network to capture event embeddings.
- Engineered a web scraping tool to systematically acquire, preprocess, and analyze a substantial 10 GB corpus of financial news data.
- Developed a CNN designed for sentiment analysis, achieving an accuracy of 97% in predicting the sentiment polarity of news headlines.

**Pairs Trading** | *Python* | *Quantitative Trading* | *Github* | *Time Series Analysis* | — Aug '22 - Nov' 22
- Executed a comprehensive data extraction strategy encompassing over 200 individual stocks and ETFs spanning diverse industries.
- Identified and rigorously validated highly correlated and cointegrated stock pairs. Applied advanced statistical methods, including the Augmented Dickey-Fuller test, to ascertain stationarity in the spread between selected stock pairs.
- Generated trading signals, leading to the successful execution of a Pairs Trading Strategy that achieved an impressive CAGR of 21%.
- Currently collaborating with graduate students on integrating Alpaca API to build a live trading strategy.

**Visualizing Technical Indicators Using Python v1** | *Python* | *Web Development* | *Technical Analysis* | — Nov '21 - Feb '22
- Pioneered the development of a sophisticated data visualization utility, empowering users to visualize daily stock prices with precision.
- Integrated a comprehensive set of technical indicators into the visualization tool using Python's Plotly library.
- Engineered a dynamic web interface allowing users to input ticker symbols, start and end dates, and receive interactive plots featuring OHLC data alongside an array of technical indicators.

## Academic Publications

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| - Low-cost BLE based indoor localization using RSSI fingerprinting and machine learning | **LINK** |
| - Detection of acute lymphoblastic leukemia by utilizing deep learning methods. | **LINK** |
| - 6G with Quantum Technology and Intelligent Reflecting Surfaces | **LINK** |
| - ML-Aided Dynamic Clustering and Classification of UEs as VBs in D2D Communication Networks | **LINK** |

## Leadership Experience/Additional Engagement

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| - Financial Mathematics Program Ambassador | Jan '23 - Dec '23 |
| - ***First Place at Arch MI 2023 Data Dive*** | Oct '23 |
| - Interacting with IBKR API with C++ and Python to backtest implement Quantitative Trading Strategies | Ongoing |