# SHOBHAN PANDA

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## EDUCATION

**GEORGIA INSTITUTE OF TECHNOLOGY** **Atlanta, GA**
**Master of Science in Quantitative and Computational Finance** *Jan 2021 – Dec 2022*

- GPA: 4.0/4.0
- GRE: 327/340
- Key Coursework: Numerical Methods in Finance, Stochastic Processes, Financial Optimization, Fixed Income Securities, Derivative Securities, Financial Data Analysis, High Performance Computing, Machine Learning

**BIRLA INSTITUE OF TECHNOLOGY AND SCIENCE** **Pilani, IN**
**Bachelor of Engineering (Hons.)** *Aug 2014- May 2018*

- GPA: 7.7/10
- Major: Mechanical Engineering
- Key Coursework: Linear Algebra, Multivariable Calculus, Differential Equations, Probabilistic Systems and Applied Probability, Engineering Optimization, Econometric Methods, Macroeconomics, Fluid Mechanics

## EXPERIENCE

**Citigroup Inc.** **Pune, IN**
***Officer / Securities Services Technology*** *Jul 2018 – Dec 2020*

- Contributed to development of a PySpark framework to streamline the development of financial models. Developed features to pull data from different sources like HDFS, Hive and SQL. Used metaprogramming to override the functions for access control.
- Onboarded the models of Balance Sheet Commentary validator model (using NLP to process commentary and applying pre-defined rules) and Anomaly Detection in future prices of Commodities (using autoencoders) onto the framework. Generated revenue excess of $100k for the team.
- Created an Eclipse Plugin to provide an alternative mechanism for rapid prototyping and deployment of financial models.
- Implemented a caching mechanism for Python virtual environment reducing the initialization time by over 90%.
- Designed and deployed a full stack web application for visualizing dependence graph of applications demonstrating the flow of data. Functionality included data updation through various mechanisms, SSO integration and access control.
- Led a team of 3 members to deliver the dashboard. Responsible for gathering requirements, designing the architecture, and coordinating the workload. More than 50 applications were onboarded and showcased on the platform.
- Analyzed logs of applications involved in OTC securities settlement for latency and performance. Identified and provided inputs to address the delays in trade processing flow. Inputs were responsible for ~25% decrease in latency.
- Developed various regression testing suites. Efforts resulted in decrease in time taken for UAT testing from ~4 business days to 1 hour. Awarded Citi Gratitude twice for going out of way to provide innovative solutions.

**Credit Suisse Business Analytics India** **Mumbai, IN**
***Intern / Global Markets*** *Jul 2017 – Dec 2017*

- Performed independent testing of internal controls mandated by Dodd-Frank Act 2010 providing effectiveness rating.
- Pioneered the use of Python for automation and trained others for its adoption. Took initiative to automate recurrent tasks saving more than 300 man-hours annually. Two of my projects were nominated for the best automation project.

## PROJECTS

**Forecasting Stock Movement using Technical Indicators, Georgia Tech, Atlanta** *Oct-2021*

- Analyzed 20 years of daily price data of stocks in S&P500 along with technical indicators to predict binary future price movement.
- Tried and back tested various ML models like Logistic Regression and Random Forest to achieve an accuracy of 63%.

**Portfolio Balancing using Markowitz Optimization and Simulation, Georgia Tech, Atlanta** *Apr-2021*

- Optimized a portfolio of stocks and options using Markowitz portfolio theory and obtained 12.74% Sharpe ratio.
- Performed simulations using Geometric Brownian Motion, Merton Jump Diffusion, Constant Elasticity of Variance (CEV) and Heston Volatility model using MATLAB and generated 15% real returns.

**Modelling Systemic Credit Risk using CDS Spreads, Georgia Tech, Atlanta** *Mar 2021-May 2021*

- Replicated and tested the model proposed by the paper "*Systemic sovereign credit risk: Lessons from the U.S. and Europe*".
- Concluded that proposed regression model for predicting systemic risk and geographical impact of states on sovereign risk does not translate to present day scenario (tested on data from 2018-19).

**Predictive Model for Institutions offering Term Deposits, Georgia Tech, Atlanta** *May - 2021*

- Predicted the conversion of customers for term deposit for a banking institution by analyzing various features of customers.
- Employed various techniques like KNN, Decision Trees, Naïve Bayes, and SVM to get an accuracy of 67%

## SKILLS/INTERESTS

**Programming :** Python, C++, Java, SQL, VBA, R, SAS, JavaScript, Data Structures and Algorithms (DSA)
**Software :** Bloomberg, SharePoint, Spark, Hive, MATLAB, Scikit-Learn, ElasticSearch, AWS, Git , Latex