

# SWARNABHA ROY

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## EXPERIENCE

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### Elutions Inc

June 2023 - present

*Data Scientist*

*Tampa, FL, USA*

- Lead on a project focused on addressing over 5 benefit categories to reduce operational costs, strategize CIP and maintenance, and enhance output through optimization of identified control variables and KPIs
- Delivered an 11% boost in resource efficiency and a 7% spike in yield for a client through rigorous **data validation, EDA, feature selection, modeling, and optimization**, generating approximately \$1.7 million in realized benefits from recommended directives
- Engineered a pivotal transformation for **Maestro AI**, automating operations, leading to a remarkable turnaround time reduction and enabling a 3x increase in scalability
- Implemented causal inference methodologies to refine decision-making, achieving prediction accuracy improvement of over 10% while providing transparent and effective operational and risk mitigation strategies

### University of Florida

July 2022 - May 2023

*Graduate Research Assistant, Advisor: Prof. Amin Hosseininasab*

*Gainesville, FL, USA*

- Conducted research on **counterfactual instance generation** and **explanation** in recommendation systems
- Investigated the impact of financial independence and literacy on the female bank account index, banking autonomy index, and CSP knowledge index in rural India, revealing increases of 0.13, 0.19, and 0.15 standard deviation units, respectively

### Cognizant Technology Solutions India Pvt. Ltd.

May 2021 - July 2021

*Big Data Analytics Intern*

*Chennai, India*

- Automated the **data reporting and visualization** infrastructure using Python, Tableau, and Spark to generate actionable insights by predicting future outcomes from clients' marketing funnels and business KPIs

### ABCOM Information Systems Pvt. Ltd.

September 2020 - November 2020

*Machine Learning Intern, Advisor: Dr. Poornachandra Sarang*

*Mumbai, India*

- Launched a **Question Answering system** for COVID-19 information, hit 10,000+ queries within a week

## EDUCATION

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### University of Florida

August 2021 - May 2023

*Master of Science in Computer Science, GPA: 3.7/4.0*

*Gainesville, FL, USA*

### Maulana Abul Kalam Azad University of Technology

August 2017 - July 2021

*Bachelor of Technology in Computer Science & Engineering, GPA:9.19/10*

*Kolkata, WB, IND*

## TECHNICAL SKILLS

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**Languages** : Python, Java, C, C++, HTML, CSS, JavaScript, SQL

**Libraries**: pandas, numpy, keras, TensorFlow, PyTorch, scikit-learn, plotly, shap, optuna, OpenCV, nltk

**Software Tools**: GCP, AWS, Git, PowerBI, Tableau, Hadoop, Spark, Docker, MLflow, ZenML

## PROJECTS

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**Optimized Coffee Shop Layout** | *Python, Architecture, Design and Planning*

May 2024

- Developed a model to identify the most efficient layout for a coffee shop, leveraging **simulated annealing** and **genetic algorithms** to maximize customer flow, operational efficiency, and refine space usage

**Stock Market Prediction using Tweet Sentiment Analysis** | *Python, Time Series, NLP* | Report **April 2022**

- Built a sentiment analysis model (VADER) to extract meaningful features from the tweet data
- Predicted closing price of stocks taking into account tweet sentiments in addition to analyzing previous trends

**Can Machine Unlearning protect Membership Privacy?** | *Python, Data Privacy* | Report **December 2021**

- Devised and deployed an image classification model, and applied machine unlearning using SISA
- Validated how Posterior MIA reduces attack accuracy from 85% to 52% with an advantage of 0.05

## HONORS & AWARDS

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Herbert Wertheim College of Engineering Achievement Award Scholarship

2021

Selected for Google Research India AI Summer School - Computer Vision track

2020