SWARNABHA ROY

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EXPERIENCE

Elutions Inc June 2023 - present
Data Scientist *Tampa, FL, USA*

- Led a cross-functional team to optimize KPIs across 5 benefit categories for a water desalination plant, reducing operational costs and strategizing sustainable CIP and maintenance plans
- Delivered an 11% boost in resource efficiency and a 7% spike in yield, resulting in $13.6M in client benefits, through rigorous **data validation, EDA, statistical methods, feature selection, modeling, and optimization** to generate data-driven directives
- Engineered a pivotal transformation for Maestro AI by integrating **GenAI** and **fine-tuned LLMs**, automating operations, and modularizing the codebase to enable reusability, boosting scalability by 3x
- Implemented **causal inference** and **A/B testing** to refine predictive models, leading to enhanced operational efficiency and risk mitigation

University of Florida July 2022 - May 2023
Graduate Research Assistant, Advisor: Prof. Amin Hosseininasab *Gainesville, FL, USA*

- Conducted research on **sequential skip prediction** and **counterfactual instance generation** methodologies in recommendation systems like Spotify
- 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 data reporting pipelines and visualization using **Python**, **Tableau**, and **Spark** to process large datasets efficiently, and developed models to forecast outcomes and provide actionable recommendations
- Presented data-driven insights from large-scale marketing datasets to stakeholders, resulting in a 25% increase in conversion rates across 4 key campaigns

TECHNICAL SKILLS

Programming & Scripting: Python, SQL, Java, C++, JavaScript, HTML, CSS, REST APIs, Flask
DS & ML Libraries: pandas, numpy, scikit-learn, TensorFlow, PyTorch, Keras, SHAP, Optuna, Plotly
Data Platforms & Tools: MLflow, ZenML, Kubeflow, Power BI, Tableau, Git, Wireshark
Big Data & Cloud: AWS, GCP, BigQuery, Hadoop, Spark

PROJECTS

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, streamline inventory management, and refine space usage

Globe Trotter | *AngularJS, Go, AWS, SQLite3, REST APIs, Agile* | *Code* March 2022

- Coded an end-to-end application where tourists can search for tours, and guides can add services
- Managed workflow in 4 sprints, with comprehensive **feedback**, **documentation**, and **unit testing**

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

EDUCATION

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*

HONORS & AWARDS

Herbert Wertheim College of Engineering Achievement Award Scholarship **2021**
Selected for Google Research India AI Summer School - Computer Vision track **2020**