SOUMYA DASGUPTA

Senior Data Scientist

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Summary:
Experienced data-scientist with a demonstrated history of working in the urban mobility sector, healthcare and management consulting. Skilled in System Modeling, Python, Matlab, Data Analysis, Data Science, Machine Learning, SQL and Algorithms. Strong research professional with a Doctor of Philosophy (PhD) in Systems and Control with currently 6 years of hands-on work experience in Machine Learning.

PROFESSIONAL EXPERIENCE

Deloitte Ventures, Tax and Legal 11/2021 – present | London, United Kingdom
Senior Data Scientist

- At Deloitte UK – Tax & Legal, I hold the position of Manager within the Data & AI team, collaborating with Data Scientists, Cloud Engineers, and Tax experts. Our focus is on addressing technology and business challenges in Tax, Legal, and Finance, serving a client base exceeding 1000.
- Notably, I led the development of a data-driven solution, resulting in substantial tax savings of over £1 million for clients in the past year alone.
- Within the team, I serve as the Lead Data Consultant, responsible for diverse tasks ranging from developing machine learning models and business intelligence to crafting data engineering and cloud solutions. These projects cater to clients both on-premises and on the cloud, with Python and Azure services playing a pivotal role.
- Apart from my technical responsibilities, I actively engage in presenting and conducting workshops to showcase the value of Data and AI to both internal and external stakeholders. Additionally, I play a significant role in outlining the design and value of data & AI-based solutions in internal & external proposals.
- My advisory role involves utilizing key insights derived from client data to facilitate decision-making processes, focusing on operational efficiency, data consistency, financial savings opportunities, and other essential business intelligence aspects. These efforts have led to cumulative savings of thousands of hours and millions of pounds, with Deloitte earning substantial client fees.
- Beyond project delivery, I take the lead in exploring new Data & AI technologies through R&D efforts. This passion for driving innovation allows me to stay up-to-date with the latest trends in the tax and financial industry.
- My project management expertise is evident in my proven track record of success, consistently delivering projects on-time, within budget, and with high-quality results. My collaborative and proactive approach fosters strong stakeholder relationships and effective team communication, contributing significantly to project success.
- In addition to my technical contributions, I am actively involved in managing, training, and mentoring junior developers and consultants within the team. I provide guidance and support in various aspects, including programming and automating in Python, creating dashboards, and effectively communicating results through data visualization.
- My involvement in Data Science projects spans a diverse range of applications. I have leveraged ML and DL techniques for transaction classification, anomaly and outlier identification, extraction of unstructured data from documents, time series forecasting, and utilized language models like GPT-3 for text understanding.
- Currently, my focus lies in in-context learning for Large Language Models (LLMs) using Azure Cognitive Search and Azure OpenAI. I am dedicated to applying this cutting-edge technology to address multiple use cases for clients and the business, leveraging the power of data-driven insights and advanced machine learning techniques. This innovative approach is being showcased to different clients, and it is proving to be a valuable asset in attracting new business opportunities for the company.

NHS, England 08/2021 – 11/2021
Machine Learning Engineer London, United Kingdom

- For the NHS, I worked on the prestigious CAP-AI project which is a pioneering research program in Artificial Intelligence conducted at Barts Life Sciences in east London. It aims to leverage AI and machine learning to revolutionize healthcare services and improve patient outcomes. One of the ongoing projects within CAP-AI involves using AI to predict the development of congenital ascending tumor condition in patients, allowing for better management of their care and early detection of potential cancerous cells.
- The collaborative approach of CAP-AI combines technical expertise, healthcare data knowledge, and innovation to tackle challenges in AI development due to limited health data availability. The project is jointly funded by the European Regional Development Fund (ERDF) and Barts Charity, and it aims to explore and trial AI applications in healthcare and research, including disease detection, chronic condition management, and improved healthcare delivery.
- Overall, the project strives to deploy AI and machine learning technology to create a cancer detection tool accessible on smart devices for pathologists in hospitals, ensuring patients receive the best possible treatments at the right time.

Trust : *Barts Health.*
Primary Location: *Royal London Hospital.*

Beryl 05/2019 – 06/2021
Data Scientist London, United Kingdom

- At Beryl, I focused on addressing the bike redistribution problem in bike sharing systems. This involved tackling the principal operating costs related to bike redistribution and maintenance. The challenge was to efficiently manage the fluctuating demand for bikes, which varies based on factors such as time, day of the week, holidays, and travel disruptions.
- To solve this problem, I worked on predicting the demand for bikes at various bike bays. This predictive approach enabled the business to make better decisions regarding bike placement within the scheme. I explored multiple strategies to achieve this goal.
- Firstly, I developed an accurate Machine Learning (ML) model using time series analysis and regression techniques. This model played a crucial role in predicting bike demand effectively. Additionally, I implemented a user-friendly front-end app and deployed it using the Flask API, which allowed easy access to the predictive insights.
- Furthermore, I explored incentivizing customers based on demand patterns to encourage them to relocate bikes strategically, which helped in managing the redistribution more efficiently.
- By working on this project, I contributed to optimizing bike sharing operations and reducing operating costs, ultimately enhancing the overall efficiency and effectiveness of the bike sharing system.

Nanyang Technological University 04/2016 – 05/2019 | Singapore, Singapore
Senior Research Scientist

- In Singapore, my main focus was analyzing the movement of heavy-duty trucks in a platoon, where the lead vehicle was operated by a certified driver, while the remaining vehicles were autonomously controlled to follow the leader. I developed precise controllers to accurately track velocity and inter-vehicular speed within the platoon.
- I used machine learning techniques to predict accidents on Singapore highways, ensuring that the platoon vehicles, operating autonomously, would never encounter collisions. These predictions took into account various exogenous factors, including weather conditions and the movement of other vehicles on the roads. By incorporating this predictive capability, the platoon vehicles were able to proactively adjust their driving behavior to avoid potential accidents, further enhancing their safety and efficiency.
- Furthermore, a significant aspect of my work involved creating an advanced simulator using machine learning and simulation techniques (MATLAB, VISSIM, and NS3) to test platooning concepts. This simulator effectively modeled realistic traffic scenarios since using real vehicles and traffic conditions was impractical. It allowed for visualization and evaluation of the impact of traffic management algorithms and communication protocols.
- I am proud to share that my contributions in this field were recognized, and our team was awarded a trophy for my work which came in with cash prizes. Our research paper was selected as the most innovative in this field, acknowledging the significant impact of our findings and the advancements made in platooning technology. This recognition highlights the excellence and novelty of our work in the domain of autonomous vehicle systems.

Brainware Group of Institutions 07/2011 – 12/2011 | Kolkata, India
Assistant Professor

EDUCATION

Ph.D 01/2012 – 01/2016 | Kolkata, India
Jadavpur University, Network Control System

Masters in Technology 08/2009 – 05/2011 | Kolkata, India
Westbengal University of Technology, Instrumentation and Control

Bachelors in Technology 08/2005 – 05/2009 | Kolkata, India
Westbengal University of Technology, Electrical Engineering

LANGUAGES

English | Hindi | Bengali

SKILLS

Machine Learning (Regression, Classification, Recomendation, Time Series Analysis, Natural Language Processing, Deep Learning - ANN and CNN.)

Python (6 years of hands-on experience) | **SQL**

Cloud (Azure Synapse Analytics, Azure DevOps, Azure OpenAI, Azure Cognitive Search, Azure)

LLM Generative AI (In-context learning, Tuning LLMS for enterprise data, Hugging Face)

INTERESTS

Travelling • Photography • Cooking

AWARDS

Vincent Bendix Automotive Electronics Engineering Award 01/2022
SAE Mobilus
The award recognizes the authors of the best paper relating to the subject matter of automotive electronics engineering. Publication: An optimal controller systhesis for longitudinal control of platoons with communication scenarios in urban environments and highways.

DAAD-AvH Research Grant 08/2012
Alexander Humboldt Foundation, Germany
Analysed the effect of data-drops on stability of nuclear power plants using the concepts of switched systems for NCS.