Sukanya Saha

MS student at CU Boulder • Ex Machine Learning Engineer at HSBC

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Summary

Machine learning application developer with 4 years of work experience in Python, statistical models, deep learning, natural language processing, and computer vision.

Experienced in designing and building end-to-end highly scalable and robust ML applications, computer vision models in a commercial setting. Proficient in distributed ML architecture such as federated learning, privacy preserving algorithms, anomaly detection models

Education

University of Colorado Boulder, US **- MS in Computer Science:** Jan 2021 - Dec 2022

Course work:

- Distributed Systems
- Natural Language Processing
- Computer Vision
- Advanced Robotics

Research work:

- **Reinforcement Learning, Generative Adversarial Networks and Robotics**. Currently working on human-inspired robot learning using generative models and reinforcement learning

Projects:

- E-Commerce application with distributed backend services using Python, **gRPC**, **RAFT Protocol, Atomic broadcast and Google Cloud Platform**
- Enhancing Privacy in **Federated machine learning** using **differential privacy**

West Bengal University of Technology, Kolkata - **B.Tech** in Electronics & Instrumentation Engineering: 2012 - 2016

Work experience

Google, USA - **Computer Science Research Mentorship Program Apprentice:** September 2021 - Present

- Accepted to a quarter-year long program that pairs graduate students with Google mentors to support computer science research goals, and to attend research conferences

University of Colorado Boulder, USA - **Graduate Teaching Assistant**: Jan 2021 - Present

- Teach students **Principles of Programing Languages** to the class of 270 undergraduate students and help students to debug Scala and Python code
- The syllabus includes **Scala, functional programming**, inductive definitions, recursion, parsers, interpreters, type checker for programming languages, lambda functions, **higher-order functions** including map-reduce, filter, etc.
- Guide students to brainstorm project ideas for class

Skillset (Proficient)

Programming languages

Python

ML libraries

numpy scikit-learn matplotlib pandas plotly PyTorch TensorFlow Keras

Computer Vision libraries

OpenCV

NLP libraries

spaCy Gensim NLTK

Web automation tools

Beautiful Soup Selenium

Web frameworks

Flask

Databases

MySQL BigQuery MongoDB MS SQL Server

Tools

Git Jupyter notebook

Skillset (Intermediate)

Programming languages

Golang Scala C

Web technologies

gRPC REST HTML CSS

Tools

Webot DialogFlow ROS CUDA

Work experience

HSBC, India — **ML Engineer:** March 2019 - December 2020

- Designed and developed a **digital customer segmentation** model using **unsupervised machine learning** based on customer's digital presence, demographics, expenditure, etc.
- Built a model to **predict credit card utilization** of customers to generate offers
- Developed a web application that provides **features insights of mobile apps** comparing it with competitors' apps. Used **topic modeling** to analyze customers' preferences and sentiments
- Developed a web-based **FAQs Chabot** using Natural Language Processing
- Achieved **91% accuracy** by improving the existing ML model of customer return to purchase and scaling up to run the model every week
- Gained **81% accuracy** by developing customer attrition ML model with high dimensional data to decrease customer churn

Cognizant, India **— Data Scientist:** August 2016 - February 2019

- Created a **predictive model** for customer return to purchase for the **Marketing Analytics** team with a **5% increase in Recall** on an existing model
- Built **Resume Screening** application using Optical Character Recognition that decreased the average screening time from 1 week to 2 days
- Used **Text Summarization** to save resources for **validating KYC** for high volume customer documents streamlining and simplifying the validation process
- Developed **CCTV surveillance in ATMs** using convolution neural network and activity recognition to reduce fraud Built Server Failure Prediction model on a network using anomaly detection to enhance fault tolerance

Awards and Extra-Curricular

- Awarded “**Above and Beyon**d” in Cognizant Technology Solutions
- Awarded “**Client’s champion**” in HSBC
- Ranked **65th in Indian Engineering Olympiad**, Academic excellence awards
- Conducted seminar in Department of Information Technology, Govt. of India in association with the Computer Society of India Education,
- Conducted training sessions for differently-abled children in the **Indian Institute of Mother and Child** NGO
- Influenced young children for STEM education with **Adore India** NGO

Certifications

- Coursera **Machine Learning** by Stanford University
- **Deep Learning Specialization** by deeplearning.ai
- **Generative Adversarial Networks** Specialization by deeplearning.ai
- **Reinforcement Learning Specialization** by University of Alberta & Alberta Machine Intelligence Institute