Riju Mukherjee

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Work Experience:

Abzooba India Infotech	Data Science	Dec 20- present
Project	Graph Recommendation System	
Description	• Implemented omni-channel Heterogeneous Graph based recommendation system. • Built entire project architecture, trained GNN and GCN models like HeteroSage. • Proposed a new recommendation accuracy calculation method – Average Intersection (AI). • Achieved better offline metrics (MAP, MAR, AI) w.r.t. baseline model. • Implemented code in Azure Databricks env in Pyspark language. • Working on Link-Prediction explanation methods to explain recommendations.	
Technology Stack	Graph Neural Networks (GNN), Graph Convolutional Networks (GCN), Python Pyspark, Pytorch, DeepSnap, Pytorch-Geometric, DGL	

Tata Consultancy Services (A&I)	Data science	June 19- Dec 20
Project	Sales Demand forecasting	
Description	• Worked in a Time Series Forecasting problem for a European retail company • Created short-term and long-term forecast of transactions in stores. • Implemented a new algorithm to cluster time-series data. • Used this algorithm to handle cold-start problem, to find reference store for a new store. • Implemented a new algorithm to predict for stores affected (reopened after a long pause) due to Covid'19 • Migrated code from R, Python to Pyspark.	
Technology Stack	Time series forecasting, XG-boost, LGBM, Linear-regression, Statistical approaches, Hierarchical clustering, Python, Pyspark.	

Education

Heritage Institute of Technology, Kolkata, India — Aug 15- June 19

Maulana Abul Kalam Azad University of Technology, Kolkata, India

Bachelor of Technology — Overall GPA: 8.8/10

Major: Electronics and Communication Engineering

Relevant Coursework

Introduction to Computing (C), Data Structure and Algorithms, Object Oriented Programming using C++, Digital Electronics, Web Intelligence & Big Data, Soft Computing, Microprocessor – Microcontroller Systems, Computer Communication & Networking, Coding & Information Theory, Soft computing,

Digital Signal Processing, Digital Electronics, Mathematics-1, Mathematics-2, Numerical and Statistical Methods, Analog VLSI, Digital VLSI, EM Theory, Solid State Devices and others.

Internship

Tata Consultancy Services	DS & ML	Jan 19 -April 19
Project	TCS-Digital, Analytics and Insights	
Description	• Worked on Time Series forecasting using Statistical methods-ARIMA, SARIMAX • Worked on Time Series forecasting using LSTMs • Implemented CNNs using Tensorflow, Keras, Custom Trained YOLO-v3 • Learned about GANs, Implemented Cycle GAN. • Learned Reinforcement Learning, Deep Q Learning.	

Publication

- Riju Mukherjee, D. Ahmed and M.H. Abbasi, Detection of Surface Water from Satellite Imagery Using Deep Learning with Indirect Proxy Based Label Collection Method in *International Symposium on Advanced Electrical and Communication Technologies* (ISAECT 20)

Doi: 10.1109/ISAECT50560.2020.9523706
Detected surface water using 14 band satellite imagery. Used two different Neural Network architectures and compared them. Proposed an indirect proxy-based data collection method which eliminates the overload of manual data collection of surface water from ground-based surveys. Also, did a comparative study to check the sensitivity of model accuracy on data size, which clarifies the required size of training data-points.

Projects

32 KB SRAM Memory Design using 45-gpdk:

Designed a 32 K SRAM Memory in final year undergraduate project for a product development project (research towards productization) under the prestigious India Chip Program (Make in India Initiative) in collaboration with eCOE (Electronic Center of Excellence, supported by ESSCI, Skill India). It got recognition in a newspaper. https://www.apnnews.com/microchip-developed-by-heritage-institute-of-technology-becomes-the-first-of-its-kind-in-india-developed-by-any-engineering-college/

Other Projects and Courses:

- Principles of Machine Learning and Data Processing.
- Embedded Systems - Microcontroller I/O, multithreaded interfacing.
- Deep Reinforcement learning.
- Blockchain.
- Summer training at Indian Railways.
- ML-ops, Machine Learning in Production