Riju Mukherjee

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Education

Heritage Institute of Technology, Kolkata **Aug 15 – Jun 19**

Maulana Abul Kalam Azad University of Technology, Kolkata, India

Bachelors of Technology in Electronics and Communication Engineering| GPA – 8.8 /10

Relevant Coursework

Introduction to Computing (C), Data Structure and Algorithms, OOPs using C++, Digital Electronics, Web Intelligence & Big Data, Soft Computing, Microprocessor – Microcontroller Systems, Computer Communication & Networking, Coding & Information Theory, Soft computing, Engineering Mathematics (Linear Algebra, Calculus, Probability & Statistics, etc.), VLSI, Solid State Devices, and others.

Work Experience

Abzooba: *Data Scientist (Graph Recommendation System | Client: Capital Group)* **Dec 20 – Present**

- Implemented omnichannel Heterogeneous Graph-based Recommendation System that achieved better offline accuracy than baseline
- Built the entire project architecture from scratch, trained Graph Neural Networks (GNNs) and GCN models like HeteroSage
- Proposed a new recommendation accuracy calculation method – Mean Average Intersection (MAI)
- Experimented with Link-prediction explainability in GNNs using Graph Attention Networks (GATs)
- Productoinized a Recommender System that works with 300 products and around 300,000 users.
- Contributed enhancements to opensource projects like DGL
- **Technology Stack** – Graph Neural Networks (GNN), Graph Convolutional Networks (GCN), Deep Learning, Python, Pyspark, Pytorch, DeepSnap, Pytorch-Geometric, DGL, AzureDB, Amazon S3

Tata Consultancy Services: *Systems Engineer, Data Science (Sales Demand Forecasting| Client: Albert Heijn)* **Jun 19 – Dec 20**

- Worked on a Time Series Forecasting problem, predicting transactions for Albert Heijn's physical stores
- Implemented a new algorithm to cluster time-series data
- Used this algorithm to find a reference store for a new store to handle the cold-start problem.
- Implemented a new algorithm to predict for stores affected (reopened after a long pause) due to Covid'19, achieved 70% better accuracy
- Migrated code base from R, and Python to Pyspark
- **Technology Stack** – Time-series forecasting, XG-boost, LGBM, Linear-regression, Hierarchical clustering, Python, Pyspark

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 Earth's surface water using 14-band satellite imagery, used two different Neural Network architectures, and compared them
- Proposed an indirect proxy-based data collection method that eliminates the overload of manual data collection of surface water from ground-based surveys.
- Experimented with the sensitivity of model accuracy on data size, which clarifies the required length of training data points.

Internship

Tata Consultancy Services: *TCS Digital A&I Intern (Data Science and Machine Learning)* **Jan 19 – Apr 19**

- Worked on Time Series forecasting using Statistical methods-ARIMA, SARIMAX, LSTMs
- Implemented CNNs using Tensorflow, Keres, and custom-trained YOLO-v3 model for object detection.
- Learned about GANs, Implemented Cycle GAN.
- Learned Reinforcement Learning, Deep Q Learning.

Projects (https://rijumukherjee.com/#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