# Debmalya Pramanik

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• https://www.linkedin.com/in/dPramanik • https://github.com/ZenithClown • Lab • HackerRank •
• https://stackoverflow.com/users/6623589/ • Kaggle • PluralSight • ResearchGate •

Anticipating an engaging working environment where I can devote my knowledge and expertise, that will facilitate operating costs, improving speed and accuracy of a system. I have 6+ years of experience in the field of model development, optimization, visualizations, hyper-parameter tuning, and end-to-end machine learning architecture and building scalable and robust solutions.

## —Work Experience—

### Pidilite Industries Ltd. | Manager Data Scientist

June, 2023 — *present*

Joined as a Data Scientist to manage clients, and develop models for business upliftment.

### Reliance Jio Platforms Ltd. | Data Analyst

October, 2016 — May, 2023

May, 2021 — Promoted as ***Manager***
Apr, 2020 — Promoted as ***Deputy Manager***
Jan, 2019 — **Transferred** to **Navi Mumbai, Maharashtra (India),** Reporting to **Brijesh Shah (Asst. Vice President)**
Oct, 2016 — Joined as ***Asst. Manager,*** at **Kolkata, West Bengal (India),** Reporting to **Sourav Raj (Deputy Manager)**

- Built an Unsupervised Learning Algorithm using *Self Organization Maps* (SOM or KSOFM), with a REST API back-end end (using *flask*) to **Predict User Movement** and **Mitigate Coverage Issue** by placing one or multiple ODSCs to improve per-user SINR.
  - Achieved about a **3 dB improvement** during development.
  - An improvement of **1.3 to 1.9 dB** is noticed during field test at Mira-Bhyandar JC.
- Design and mathematical modeling of a *Recurrent Neural Network Model (LSTM)* is extensively studied for replacing **Digital Pre-Distortion (DPD) for Linearization of Power Amplifier (PA)** to achieve Linear Characteristics of PA.
  - Power Amplifier (PA) model is being developed in MatLAB/Simulink (R2020b), and a **ACPR -45 dBc is attained** as per *3GPP standard specifications.*
  - The LSTM model is trained with a PA I/O data *at constant physical parameters* (like temperature) and a significant out-of-band signal reduction is observed.
- An algorithm is devised for **Pro-Active Load Balancing** by *Estimation and Detection* of over-loaded cells based on TA, Delta and Neighbour Cells Measurement Parameters.
- Building an algorithm for establishing **back haul line-of-sight feasibility** between eNode-B (i.e. cells or towers, signal sending end) and ODSC (i.e. outdoor small cells, signal receiving end).
  - AMSL (Above Mean Sea Level) Values between the starting location and ending location is obtained from the Open-Source SRTM Database, and HOP-Length is incorporated into the Elevation Heights, to minimize obstacle interruptions. Fresnel radius between the two points is calculated.
  - Based on the above two parameters, feasibility is calculated between the originating site and its' nearest three neighbours (i.e. the Customer Demand Point).
- Calculation of **Path Loss** and estimation of cellular network coverage. For this, an area is selected and divided into grids of $20m^2$, and a neural network model is used to calculate coverage grid-by-grid.

**Key Achievements :** Closely worked with Network Planning Team, to Design and Automate Line of Sight Feasibility Module which drastically reduced manual field interventions, and estimation of up-front costs.

# —Research & Publications—

**Reliable Estimation of Dissipation Factor of In-service Power Transformer** — Debmalya Pramanik, Arijit Baral
2022 IEEE 2nd Mysore Sub Section International Conference (MysuruCon), Mysuru, India, 2022 MysuruCon 2022
(pp. 1-6, doi: 10.1109/MysuruCon55714.2022.9972517)

***Technical Reviewer*** **: Step-Up for Leadership in Enterprise Data Science and Artifical Intelligence with Big Data : Illustrations with R & Python (hard copy available from Amazon, eBook is available on Kindle)**
Authored by, Shitalkumar R. Sukhdeve

**Designing a Finger Based Heart Rate Monitoring System and Creating a Service Application for Data Transfer and Visualization using LABView Simulation Toolkit** — *Bachelor's Thesis (2015-16)*
Neotia Institute of Technology Management and Science Diamond Harbor, West Bengal (India)
**Project Partners :** Jishnu Bhattacharyya, Mainak Ghosh, Priti Kumari

**Layer wise Image Segmentation of Skin OCT using Random Walks** — 15th June - 14th July, 2015
Indian Institute of Technology (IIT) Kharagpur, West Bengal (India)
**Project Mentor :** Dr. Debdoot Sheet (Asst. Prof. Dept. of Electrical Engineering, IIT Kharagpur)

## Others

- Inverter Design Methodology and Efficiency of Solar PV Systems
- Series and Parallel Combination of PV Modules

# —Skills—

### Core Skills in Data Science & Analytic

- Python (pandas, NumPy, Scikit-Learn, SciPy)
- Statistics Analysis and Data Interpretation
- Machine Learning Algorithms – Regression, Clustering, PCA, K-Means, KNN, Decision Trees, Random Forest, XGBoost
- Neural Networks – Primitive Networks (MP Neuron, Hebb's Network, Perceptron), Back Propagation Algorithms; and Deep Neural Network - Design and Modeling (using Keras with TensorFlow); RL with Self Organizing Maps (SOM)
- Optimization Methodologies – Linear Programming (or Simplex Algorithm), Single or Multi-Variable Optimizations, Multi-Objective Optimization Techniques
- Specialized Methodologies like Genetic Algorithms (GA), Multi-Objective Genetic Algorithm, Particle Swarm Optimization (PSO), Ant-Colony Optimization (ACO), Gradient Descent
- Databases : Apache Hive; MongoDB (*basic*); SQL (MySQL, Google Big-Query, Postgre-SQL (PSQL))
- Data Visualization Tools: Tableau, PowerBI
- Machine Learning Frameworks: TensorFlow (v2.0+) with Keras (backend), PyTorch
- Automation Tools: CI/CD Pipelines, GIT
- **Data Engineering Skills:** *(basics)* MLOPs, DVC, ML Model Deployment and Monitoring

### Cloud Technologies and Modern AI Tools

- Amazon Web Services (AWS): Amazon Sagemaker, Amazon GenAI Tools
- Google Cloud Platform (GCP): Google Colaboratory, Google Big Query, BigQuery ML
- Azure: Azure ML/AI, Azure Data Insights

### Electrical and Computer Science Engineering

- Web Frameworks for building REST API using Flask.
- Virtualization of Application as Service using Docker.
- Hadoop and Big Data for Handling Large Data and Running Analysis.
- MatLAB & Simulink (Mathematics, Control System & Image Processing Toolbox).
- Mathematical Modelling of Control Systems.
- Simulation Software: MultiSIM, PSIM.
- Power Market - DAM, RTM, GDAM, GTAM, etc. and Scheduling of Power in NLDC/IEX. Demand forecasting, MCP/MCV forecasting.
- Power Transformers *(basics)* - insulation and condition based monitoring techniques.

# —Education Details—

**(3 Yr.) M. Tech. in Power Electronics and Electrical Drives** 2018 —2021
Indian Institute of Technology (IIT) Dhanbad, Jharkhand (India)

**Final Year Project:** "*Estimation of Dielectric Dissipation Factor of Power Transformer using Return Voltage Method*" under guidance of Dr. Arijit Baral (later the study was also published in IEEE).

**B. Tech in Electrical and Electronics Engineering** 2012 —2016
Neotia Institute of Technology Management & Science Diamond Harbor, West Bengal (India)

- Held the position as **President** for the *social activities club* ***Ajantrik***, and organized events like cloth distribution, language day celebration and blood donation campaign.

- Joined as a **Member** of ***Kolkata Turning Lens Society (KTLPS)*** - a photographic club for like-minded individuals.

**ISC (Science)** 2010 —2012
Welland Gouldsmith School Kolkata, West Bengal (India)

**ICSE (Science)** 2008 —2010
Welland Gouldsmith School Kolkata, West Bengal (India)

# —Certifications, Conference & Work-Shops—

## Fundamentals of Machine Learning

University of Alberta, Albreta ML Institute | coursera

## Advanced Data Science Specializations

IBM | coursera

- Fundamentals of Salable Data Science
- Adv. Machine Learning and Signal Processing

## MatLAB and Simulink

MathWorks, MatLAB Academy

- MatLAB Fundamentals
- Introduction to Statistical Methods
- Machine Learning with MatLAB
- Deep Learning with MatLAB

## Conference & Workshops

**2020** **Research and Technical Challenges in Energy and Power Systems (RTCEPS)** Narula Institute of Technology

**2020** **Control Applications of Renewable Energy Systems - Recent Trends and Future Aspects (CARESRTFA)** Invertis University

## Open-Source Contributions

**September, 2021** **Weather Ambassador Collaborator with Visual Crossing to build Python API Wrapper** Visual Crossing

**March, 2021** **In Top *6% Contribution* for the Month in Stack Overflow** Stack Exchange

**2021 [MIT License]** **Building AI-ML Algorithm from Scratch: `decompose`** GitHub