Atanu Dey

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GitHub: https://atanudeyiitkgp.github.io/AtanuDey/

Education

Doctor of Philosophy (PhD)   July, 2021 – Present (Pursuing)

Indian Institute of Technology, Kharagpur (IIT-Kgp). **CGPA–9.67/10** (Till Date)
Category: Working Professional Category
Faculty contact: **Prof. Mamata Jenamani**
Research Area: Natural Language Processing, Sentiment Analysis, Machine Learning, Deep Learning &
Industry Applications.
Course Taken: Applied Multivariate Statistical Modelling, Stochastic Modelling of Business, Advanced
Decision Modelling, Design and Analysis of Experiment, Computational Lab

Master of Science by Research (MS by Research)   July, 2016 – October, 2018

Indian Institute of Technology, Kharagpur (IIT-Kgp). **CGPA–9.69/10**
Faculty contact: **Prof. Mamata Jenamani & Prof. Jitesh J Thakkar**
Thesis: Sentiment Analysis using n-gram Lexicon and Cross-Domain Features.
Research Area: Natural Language Processing, Sentiment Analysis, Machine Learning, Deep Learning.
Course Taken: Recommender System in E-Business, Decision Modelling, Production Planning and
Inventory Control, Machine Learning, Natural Language Processing

Bachelor of Technology (B.Tech),   July, 2010 – June, 2014

Govt. College of Engineering & Textile Technology (GCETT), Berhampore,
West Bengal University of Technology (WBUT), India. **DGPA–8.42/10**
Specialization: Computer Science & Engineering (CSE).
Thesis: A Proposed Embedded System for the Calculation of Trigonometric and Algebraic Functions

Experiences (*Total 9+Y*)

Data Science Program Manager,   March, 2019 – Present

HP Inc., Kolkata, India

- ■ Project 14: Prediction of Budget for WIB (Approach - Generation Over Generation
  Forecasting Technique) (Ongoing)
  - WIB stands for Warranty Install Base, which plays key role to calculate Annualize Intervention Rate (AIR). Thus, accurate WIB forecasting is one of the prime requirements to understand the future AIR. According to forecasted value of AIR upcoming budget is decided.

- ■ Project 13: Warranty & Carepack GoG Dashboard *(Approach: Statistics)*
  - An automated method of displaying Generation-Over-Generation charts for Install-Base, Interventions, Annualize Intervention Rate (AIR), and other correlated metrics. First processing raw calendar view data into GoG format using the python programming based on the first month of Fiscal Year as "November". Next, PowerBI play a role to visualize the charts.

■ Project 12: Support Net Promoter Score (sNPS) Dashboard *(Approach: NLP & Statistics)*
  - Automatic way to visualize several features for making easy business decision – i) Generation Over Generation sNPS View, ii) Promoter vs Detractor Pie Chart, iii) Year over Year sNPS% view, iv) PL-level sNPS% view, v) Word-cloud on the Detractors' sNPS Comments, vi) Trun Around Time (TAT) vs sNPS Scores Correlation.

■ Project 11: Contact Center Control Pannel Dashboard *(Approach: NLP & Statistics)*
  - Automatic way to find the scope of world-wide waste reduction using several correlations of different lead metrics such as NMU, PRE, Live Lense, PPMC and PPMD. Agents' performance also can be compared across all the metrics previously mentioned. "NMU" -> No Material Used.

■ Project 10: Project 4: NMU India Drilldown Menu Insight Dashboard *(Approach: Pattern Finding) – (Received BOMBERO FIRE-FIGHTER & Innovation Awards)*
  - For India-NMU cases, we did rigorous analysis in terms of finding "pattern" to from work-order-resolution note to segregate "Primary" and "Secondary" Issues (all issues considering). Then at the end the dashboard shows partner-wise statistical analysis of every issue.

■ Project 9: *India Field NMU (Approach: NLP & RPA) - (Received Director-Level Recognition)*
  - "NMU" stands for No Material Used. When case is created by agent and transaction happen in that case without using any spare-parts then it's known as NMU. For India-NMU cases, we did rigorous analysis in terms of finding "# of interventions", "insights on gray issues like No-Boot, No-Display, No-Power", and so on. At the end a dashboard will be developed which will help to the organization for tracking the NMU issues.

■ *Project 8: Advisory Adherence (Approach: Text Mining & RPA)*
  - "Advisory" or "Wise" code tells you a proper diagnostic step for a specific problem. Agent or field engineer needs to put the advisory code before closing a case. Here, we check the number of misses of advisory code for each issue using text mining approach.

■ *Project 7: Einstein-NMU Categorization (Approach: Machine Learning)*
  - To investigate each case, need to identify issues' department. For example, whether the issue is happened by either "Contact Center" or "Field" or "Supply Chain" so on and so forth. To solve the problem, a machine learning based approach has been developed with 85% accuracy.

■ *Project 6: Social Listening (Received Official Recognition)*
  - An end-to-end system is being developed which contains from a scrapping BOT (data from HP Forum) to an insights findings tool of public data on HP products. This system will help the organization by hitting the particular "Waste" area which will improve the quality of the future products.

■ *Project 5: Predictive Analytics (Flash Intervention during disaster time frame)*
  - A two-layer predictive model is proposed to develop the complete system which can Flash the Interventions during disaster time frame like pandemic & lock-down situation. To achieve the model we use ensemble of "regression model with causal effects".

■ *Project 4: QPS (Quality Predictive System) (Received Official Recognition)*
  - An alert system is developed to alert managers/operations-managers on the current spike of dispatches in comparison with history using Six-Sigma SPC (Statistical Process Control) methods. We are also developing an IDP (Intelligent Dispatch Process) by finding accurate issues from the conversation of agent and customer using Deep Neural Net.

■ *Project_3: Eagle (Automated quality analysis of consumer review)*
  - Proactive product and service quality analysis using "sentiment analysis" & "topic modelling" on consumer review. In this project, we are also trying to understand the "what customer wants?" (customers' expectation) which provides meaningful insights to improve the quality of product and service.

■ *Project_2: Early warnings Analysis*
  - Analysis of product's quality before launching or just in 1st week of launching.

- *Project_1: Automation Work (Received Official Recognition)*
  - To reduce manual efforts and save the cost of organization, automation is highly desirable. Example of some tools are automatic review scrapping from e-commerce sites, automatic recommended spare list (RSL) validation, and so on.

Junior Data Scientist, April, 2018 – February, 2019

Tookitaki Technologies Pvt. Ltd., Bangalore, India
- *Project: Reconciliation Management System (Pattern-Based matching solution)*
  - Classification using Machine Learning algorithms like Linear Regression, Logistic Regression, SVM, NB.
  - Pattern-based solution using data science algorithm such as Subset-Sum and Longest Common Subsequence.

Junior Research Fellow, April, 2016 – March 2018

E-Business Centre of Excellence Lab, IIT Kharagpur.
- *Faculty contact*: Prof. Mamata Jenamani
  - E-Business Centre of Excellence project, sponsored by Ministry of Human Resource Development (MHRD), Govt. of India.
  - Working Area: NLP & Sentiment Analysis using python.

Research Associate, June, 2015 – March, 2016

BCI – HCI Lab, IIT Kharagpur.
- Research on Brain Computer Interface to investigate states of mind and mental workload using EEG devices (used Java and Matlab).
- Working on Virtual Keyboard Standardization of Indian Languages for smart phone.

Software Engineer, September, 2014 – June, 2015

Capgemini India Pvt. Ltd., Hyderabad, India
- Insurance domain project "Phoenix", Client "XL - CATLIN". Language – Java.

Certifications

- **Root Cause Analysis** – Certification from American Society for Quality (ASQ)   December, 2021
- **Advance Machine Learning with Python** – Certification from NCC Education *(HP Inc. selected 40 employees for the certification & I was one of them)*   August, 2021 – October, 2021
- **Oracle Certified Professional Java Programmer** (JAVA SE- 6).   November, 2014
- Capgemini Fresher Learning Program- **Java Technologies**   September, 2014 – November, 2014
  Core JAVA, Advance JAVA, JDBC, HTML, JavaScript, JSP, Spring Boot, JPA.

Technical Skills

- Languages   :   **Python,** Java, C, SQL, VHDL
- Framework   :   **PowerBI, Flask, Batch Desktop Application**
- Skills   :   **NLP, Sentiment Analysis, Machine Learning, Deep Learning, Algorithm, Statistical Analysis, Forecasting, Optimized Decision Modelling, Quality Analysis, Analytic Report Generation**
- Software Packages :   Latex , Matlab
- Google Scholar Link :   https://scholar.google.com/citations?hl=en&user=nxTq1GlAAAAJ

English Proficiency Test

IELTS Score: *Overall:* 6.5 (*Speaking:* 6.5; *Reading:* 6.5; *Writing:* 6.5; *Listening:* 6.0)   12th October 2019

Academic & Professional Achievements

- Received **Seven Recognitions** from HP Team & Executive-level for different projects   2019-2021

- Secured 9.69 CGPA in scale of 10.0 in MS (by Research) (**Top 5%** in the School)   2018

- Qualified All India Examination GATE (**Top 5%** total participants 100000+)   2016

- Secured 4th rank in Dept. of CSE, GCETTB during B.Tech (**Top 6%**, total students 60+)   2014

- Secured 5798th rank in West-Bengal Joint Entrance Examination (state level engineering entrance examination), (**Top 4%**, total participants 120000+)   2010

- Secured 5th rank from school in higher-secondary examination, (**Top 2%**, total students 250+) 2009

Award/Scholastic Achievements

- BOMBERO FIRE-FIGHTER Award – received from HP for the spontaneous fire drilling.   February, 2022
  Award tokens – 200

- Received ***PhD offers*** from **"UNSW Australia"** with Award of Australian Government Research Training Program Scholarship (RTP), *(Could not attend the call due to Covid-19 Pandemic)*.
  Awarded Scholarship money – 35,000 AUD Annually for 3.5 Years   4th May, 2020

- PReMI – Springer Student Award for Lexical-TFIDF Paper from 7th International Conference on Pattern Recognition and Machine Intelligence (PReMI 2017),
  Award money – INR 5000   8th December, 2017

- Received Junior Research Fellow (JRF) award from Ministry of Human Resource Development via IIT Kharagpur. **Received Fund – INR 25000 / Month (for two years)**   April, 2016 – March, 2018

- Maintained institute rank within Top 5 over last 3 years at GCETT Berhampore.
  Received Scholarship for the same – INR 6000 / Semester (for three years)   2011 – 2014

- Recipient of Chief-Minister-Scholarship from West Bengal Government.
  Scholarship Amount – INR 15000   2011 – 2012

Publications (For Sentiment Analysis, NLP & ML)

Journals (Published/Under Review):

1. **Atanu Dey**, Mamata Jenamni "UAN-OACIS: Unsupervised Attention Neural Framework for Opinion-Aspect-Category-Irrealis-Sentiment Quintuple Extraction from Reviews", *Decision Support Systems, Elsevier, 2023.* **[Under Review]**

2. **Atanu Dey**, Mamata Jenamni, Jitesh J Thakkar, "Cross-D-vectorizers: a set of feature-spaces for cross-domain sentiment analysis from consumer review", *Multimedia Tools and Application, pp.1-19, Springer, 2019.*

3. **Atanu Dey**, Mamata Jenamni, Jitesh J Thakkar, "Senti-N-Gram: An n-gram lexicon for sentiment analysis", *Expert Systems with Applications, 103, pp.92-105, Elsevier, 2018.*

Conferences (Published/Accepted):

1. **Atanu Dey**, Mamata Jenamni, Arijit De, "An efficient approach for findings document similarity using optimized word mover's distance", *10th international conference on Pattern Recognition and Machine Intelligence (PReMI), IEEE & Springer, December 12th – 15th , 2023 in ISI Kolkata, India.* (***Accepted***)

2. **Atanu Dey**, Mamata Jenamni, Jitesh J Thakkar, "Lexical TF-IDF: An n-gram Feature Space for Cross-Domain Classification of Sentiment Reviews", *7th international conference on Pattern Recognition and Machine Intelligence (PReMI), IEEE & Springer, December 5th – 8th , 2017 in ISI Kolkata, India. (**Best Paper Award**)*

3. **Atanu Dey**, Mamata Jenamni, Jitesh J Thakkar, "Sentiment wEight of N-grams in Datasets (SEND): A Feature-set for Cross-Domain Sentiment Classification", *9th international conference on Advance Pattern Recognition (ICAPR), IEEE & IAPR, December 28th – 30th, 2017 in ISI Bangalore, India.*

Some Other Publications

Journals (Published):

1. Abul Hasnat, **Atanu Dey**, Santanu Halder, Debotosh Bhattacharjee, "Square Root and Inverse Square Root Computation using a Fast FPGA Based Architecture", *Journal of Active and PassiveElectronic Devices (JAPED), Old City Publishing, 13, 2018.*

2. Abul Hasnat, Tanima Bhattacharyya, **Atanu Dey**, Santanu Halder, Debotosh Bhattacharjee, "A Novel Sorting Algorithm using Quotient and Remainder", *Journal of Engineering and Applied Sciences (JEAS), 12, Medwell journals, 2017.*

Conferences (Published):

1. Abul Hasnat, **Atanu Dey**, Md. Azizul Hoque, Santanu Halder, Debotosh Bhattacharjee , "A Novel Unit Circle Approach for Computation of Sine Function", *2nd international conference 2017 Devices for Integrated Circuit (DevIC), IEEE, March 23-24, 2017 in Kalyani, West Bengal.*

2. Abul Hasnat, Tanima Bhattacharyya, **Atanu Dey**, Santanu Halder, Debotosh Bhattacharjee , "A Fast FPGA Based System for Determining the Square Root and Inverse Square Root Value", *2nd international conference 2017 Devices for Integrated Circuit (DevIC), IEEE, March 23-24, 2017 in Kalyani, West Bengal.*

3. **Atanu Dey,** Sourav Bhattacharjee, Debasis Samanta, "Recognition of Motor Imagery Left and Right Hand Movement using EEG", *IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT-2016), IEEE, May 20-21, 2016 in Bengaluru.*

4. **Atanu Dey**, Tanima Bhattacharyya, Abul Hasnat, Santanu Halder, "A Fast FPGA Based Architecture for Determining the Sine and Cosine Value", *5th International Conference on Advances in Communication Network and Computing, Elsevier, Feb 21-22, 2014 in Chennai, India.*

Position of Responsibilities

- *Guest Lecturer* in a Online Session on "**Case Study on Data Science in Industries**" at Department of Computer Science and Engineering, Indian Institute of Information Technology, Sri City (**IIIT Sri City**).   13th December, 2022

- *Speaker* in a One Day Virtual Workshop on "**Data Science and Data Analytics Using Python**" at Industrial and Systems Engineering Department of **IIT Kharagpur**.   28th November, 2020

- *Teaching Assistant* in a **NPTEL** (National Programme on Technology Enhanced Learning) Course "E-Business" at **IIT Kharagpur**.   July, 2017 – October, 2017

- *Teaching Assistant* in a Lab-Course ("Information System Lab") at Dept. of Industrial and Systems Engineering, **IIT Kharagpur**.   July, 2017 – December, 2017

- **Teaching Assistant** in a theory course ("Recommender System in E-Business") at Dept. of Industrial and Systems Engineering, **IIT Kharagpur**. July, 2017 - December, 2017
- **Teaching Assistant** in a workshop on "**Web Data Analytics using R and Python**" at **IIT Kharagpur**. September 6th -10th, 2016
- **Trainer** in "**one day Latex workshop**" at Dept. of Industrial and systems Engineering, **IIT Kharagpur**. December 9th, 2016

Extracurricular Activities

Painting (Oil, Acrylic and water) : Completed 5th year painting exam (Graduated) from 'Bangiya Sangeet Parishad', India. 2017

National Service Scheme (NSS) : I was an active member in a unit of GCETTB, WB, India 2013 – 2014

Programming Contests : Winner in Collectiva Programming Contest. September, 2012

National Cadet Corps (NCC) : Successfully completed *A-Certificate*. December, 2005

Personal Details

- Nationality: Indian
- DOB: 5th April, 1992
- Gender: Male

Yours sincerely,
Atanu Dey.