Atanu Dey

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Research Interest

- Sentiment Analysis using Lexicon and Machine Learning-based techniques.
- Natural Language Processing (NLP), Machine-Learning (ML) and Deep-Learning (DL).
- Multi-modal sentiment analysis techniques.
- Mathematical technique of Machine-Learning and Deep-Learning Models.

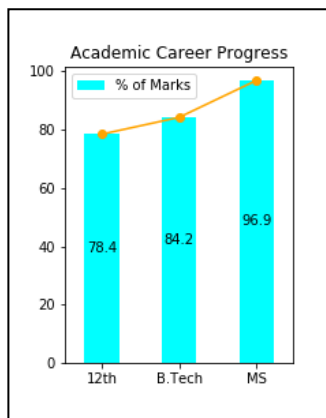## Education

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.
Courses taken: Recommender System in E-Business, Decision Modeling, Production Planning and Inventory Control, Natural Language Processing, Machine Learning.

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

Higher Secondary (12th Standard), April, 2009
Jujersa P.N. Manna Institution, Howrah
West Bengal Council of Higher Secondary Education, India. **Marks–74.8%**
Specialization: Science.

Experiences

E-Commerce Quality Data Scientist, *HP Inc., Bangalore, India* March, 2019 – Present
*Project 1: **QPS (Quality Predictive System)***
- 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.
- Developing an IDP (Intelligent Dispatch Process) by finding accurate issues from the conversation of agent and customer using Deep Neural Net.

*Project 2: **Eagle (Automated quality analysis of consumer review)***
- Proactive product and service quality analysis using "sentiment analysis" on consumer reviews.
- To understand the "what customer wants?" (customers' expectation) which provides meaningful insights to improve the quality of product and service.

*Project 3: **Early warnings Analysis***
- Analysis of product's quality before launching or just in 1st week of launching using NLP (Natural Language Processing) and ML (Machine Learning).
- Many sources of consumer reviews are used for this project such as "tech-blogs" data, internal HP beta-testing data, and historical case-log data.

Junior Data Scientist, *Tookitaki Technologies Pvt. Ltd., Bangalore, India*   April, 2018 – February, 2019
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, *E-Business Centre of Excellence Lab, IIT Kharagpur.*   April, 2016 – March 2018
Faculty contact: ***Prof. Mamata Jenamani***
- E-Business Centre of Excellence project, sponsored by Ministry of Human Resource Development (MHRD), Govt. of India.
- Working Area: Sentiment Analysis using python.

Research Associate, *BCI – HCI Lab, IIT Kharagpur.*   June, 2015 – March, 2016
- Research on Brain Computer Interface to investigate states of mind and mental workload using EEG devices.
- Working on Virtual Keyboard Standardization of Indian Languages for smart phone.

Software Engineer, *Capgemini India Pvt. Ltd., Hyderabad, India*   September, 2014 – June, 2015
- Insurance domain project "Phoenix", Client "XL - CATLIN". Platform – Guidewire, Java.

Major Projects

- **Automated Quality Analysis & Early Warning Analysis**   March, 2019 – Present

  - *Finding product and service quality from the consumer reviews using NLP techniques, ML algorithms and sentiment analysis approaches.*
  - To understand the "what customer wants?", finding customers' expectation from their experience review.
  - *I am leading both the project. I am plying a role of data-scientist cum manager for these projects.*

- **Reconciliation Management System**   April, 2018 – February, 2019

  - *Solving Reconciliation Problem for Banks using NLP and ML.*
  - *Find out different breaks in the time of reconciliation.*
  - *Clients are "OCBC" and "HSBC" bank.*
  - *I lead the project.*

- **Sentiment Analysis of Consumer Reviews**   July, 2016 – Feb, 2017

  - *Part of E-Business Centre of Excellence Project and also my MS thesis.*
  - *Faculty Contact – Prof. M. Jenamni & Prof. J. J. Thakkar.*
  - *Institute – IIT Kharagpur, India.*
  - *Lexicon and Learning-based approaches are prosed during this period of the research.*

- **Embedded System for the Calculation of Mathematical Functions**   September, 2012 – June, 2014

  - *B.Tech Final Year Project*
  - *Faculty Contact – Dr. Santanu Halder & Dr. Abul Hasnat.*
  - *Institute – Govt. College of Engg and Textile Technology, Berhampore, West Bengal, India.*
  - *Trigonometric and Algebraic functions are considered for this research.*

Publications (For Sentiment Analysis, NLP & ML)

Journals (Published):

1. **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.

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.*

Conferences (Published):

1. **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**)

2. **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.*

Academic Achievements ─────────────────────────────

- 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

- 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

Certifications

- Oracle Certified Professional Java Programmer (JAVA SE- 6).   November, 2014
- Capgemini Fresher Learning Program- Java Technologies   September, 2014 – November, 2014
  Core JAVA, Advance JAVA, RDBMS, JDBC, HTML, JavaScript, JSP, Spring, JPA.

Position of Responsibilities

- ***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

Technical Skills

- Languages   :   C, Java, Python, VHDL, SQL
- Software Packages   :   Latex , Matlab, Xilinx
- Platforms   :   Windows and Linux
- Skills   :   Natural Language Processing, Sentiment Analysis, Machine Learning
- Google Scholar Link :   https://scholar.google.com/citations?hl=en&user=nxTq1GIAAAAJ
- GitHub Link   :   https://github.com/atanudeyiitkgp
- LinkedIn Link   :   https://www.linkedin.com/in/atanu-dey-38a168aa/

English Proficiency Test

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

Extracurricular Activities

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

National Service Scheme (NSS) : 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

References

- Dr. Mamata Jenamani
  Professor,
  Department of Industrial and Systems Engineering, IIT Kharagpur
  Email: mj@iem.iitkgp.ac.in
- Dr. Jitesh J Thakkar
  Associate Professor,
  Department of Industrial and System Engineering, IIT Kharagpur
  Email: jt@iem.iitkgp.ac.in

Declaration

I hereby declare that the particulars furnished above are true to the best of my knowledge and belief.

Place: Bangalore, India   Yours sincerely
                                                                                                                         Atanu Dey