

Partha Pratim Saha

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Research Areas: **Responsible & Explainable AI (XAI)**, **AI-Language Agents (Agentic AI)**, **fair & ethical Large Language Models**, **Natural Language Processing**, **Reasoning in AI**, **Conversational Systems**

EDUCATION

- **Masters of Technology in Data Science & Engineering(DSE)** Pilani, India
• *Birla Institute of Technology and Science(BITS) Pilani* *Sept 2019 - March 2022*
Final GPA: **9.08/10 with Distinction**
Cohort Rank: top 5% out of 600 in DSE, 2022
Relevant Courses: Natural Language Processing, Machine Learning, Deep Learning, Data Science, Maths, Statistics, Data Mining, Big Data Systems [[Transcript](#)]
Dissertation Research: I proposed a novel Collaborative federated learning architecture for personalized GPT-like systems.
- **Bachelor of Technology in Computer Science & Engineering(CSE)** Kolkata, India
• *West Bengal University of Technology* *August 2006 - July 2010*
Final GPA: 8.49/10
Cohort Rank: top 5% out of 70 in CSE, 2010
Relevant Courses: Maths, Statistics, Algorithms, AI, Probability, Data Structures, Programming [[Transcript](#)]

PUBLICATION

- **Partha Pratim Saha, Naresh K. Sehgal, Miad Faezipour, Collaborative Federated Learning Cloud Based System:** 2024 International Conference on Internet Computing & IoT (ICOMP'24) Computer Engineering, & Applied Computing (CSCE), July 22-25, 2024, Las Vegas, USA. [[Paper](#)] [[Video](#)] [[Short present](#)] [[Long present](#)]

SKILLS SUMMARY

- **NLP + AI:** AI Agents, Conversational Systems, Generative AI, Trustworthy and Explainable AI(XAI), Experience in training Large Language Models(LLMs) using huggingface hub, Hybrid and multi-hop RAG
- **LLM:** Worked on Multi-modal AI models to contribute to open and transparent LLMs, Working on Reasoning in LLMs, Model evaluation and benchmarking, Llama-Index, LangChain
- **Deep Learning:** Experience in working on deep learning models such as Autoregressive Generative Models, Neural Network, CNN, RNN, Transformer, GPT
- **Machine Learning and Data Science:** Text and Multimodal Data curation, Regression, Classification, Clustering, Tree-Based Algorithms, Bagging, Boosting
- **Programming Languages:** Python, Java, C, Objective-C
- **Frameworks:** PyTorch, Scikit, Numpy, Pandas, NLTK, SpaCy, PyTorch, TensorFlow, Keras, Flask, NodeJS
- **Tools:** Kubernetes, Docker, GIT, PostgreSQL, MySQL, SQLite
- **Domains:** Cancer Genomics, Bioinformatics and Biomedicine, Real Estate, Finance, and Banking
- **Cloud Platforms:** Worked on Inference systems and deployment, Azure, AWS, IBM Cloud, Watson ML, Amazon EC2

AWARDS AND ACHIEVEMENTS

- Got acceptance and will attend to [Duke Machine Learning summer school](#) 2025
- My **Proposal** on developing Empathetic & Situationally aware LLMs got **accepted** into [Impact Scholar Program](#)
- Accepted in [University of Chicago Data Science Institute \(DSI\) Summer School'24](#) and attended AI + Science Research program with Eric and Wendy Schmidt AI in Science ([Schmidt Futures](#)). [[Certificate](#)]
- Received MLx **Generative AI Scholarship** Grant from [Oxford ML summer school](#) [[Certificate](#)]
- Got acceptance and attended [Athens Natural Language Processing Summer School](#) 2024
- Got acceptance and attended [Neuromatch Academy in Deep Learning](#). [[Certificate](#)]
- Accepted and attended **Data Science and Deep learning** and attended [diiP Summer School](#), Paris, 2024
- Awarded a scholarship and attended **ICML** conference, 2021
- Attended **NAACL 2022** conference as a student volunteer
- Remotely attended AI Summer School at [New York University\(NYU\)](#), 2022
- Got selected and attended the **Google Developer's program**, Google India, 2019
- Received **Distinction** in Master Degree program from BITS Pilani, 2022
- Awarded **Udacity Bertelsmann Technology scholarship by Google** for AI Track in ML, 2021
- Awarded a scholarship to attend **CLPsych by ACL**, 2022

SIGNIFICANT RESEARCH PROJECTS

- **Wipro Ltd.- IBM Research, Research Project: Conversational Dialog System** Bangalore, India
AI Lead Data Scientist May'21 - Present
 - **Goal:** Develop a conversational chatbot by removing ambiguities in text queries
 - **My contribution:**
 - **Developed a conversational system** Leading and managing a team of 5 members
 - **Implemented 50+ custom intents, entities** and dialog flow with IBM Watson
 - **Impact:** Used by **0.3 million people** worldwide
 - **Tools:** Dialog flow, IBM word alignment models, Postman, NodeJS, IBM Cloud
- **BirlaSoft - Johnson & Johnson(J&J) R&D, Research Project: Medical Search Engine** New Delhi, India
Data Scientist Dec'17 - Aug'19
 - **Goal:** Develop a medical search engine for queries for healthcare
 - **My contribution:**
 - **Used SciBERT as base transformer model with SciSpacy NLP pipeline** techniques
 - **Impact:** Used by **over 0.1 million people** who use Johnson & Johnson products
 - **Tools :** Python, Word2Vec, SciSpacy, Fuzzy Search, Flask
- **Infosys Technologies Limited, Research Project: Alignment & Cancer Genomics in AI** Chennai, India
Senior Systems Engineer Jan'11 - Jul'15
 - **Goal:** Given DNA sequences in FASTQ file, insertions/deletions/substitutions are needed to convert one sequence into another
 - **My contribution:**
 - **Applied Edit Distance and Needleman Wunsch** algorithms
 - Determined the **minimum no of insertions, deletions and substitutions needed** for the given gene sequences
 - **Identified similarities** between DNA sequences - **Identified top 10 genes that drive Multiple Myeloma(MM)** blood cancer
 - **Implemented 3 research papers** to rank genes that are responsible for MM
 - **Impact:** **Biological hierarchy determination** for new species, **Drug Design, Increase in life expectancy**
 - **Tools :** Python, Word2Vec, Numpy, Pandas, Dynamic programming

TEACHING EXPERIENCE - TEACHING ASSISTANT(TA)

- **NLP Applications**, AI ML Masters program, BITS Pilani [Winter 2023]
- **Deep Learning**, AI ML Masters program, BITS Pilani [Fall 2021]
- **Deep Reinforcement Learning**, AI ML Masters program, BITS Pilani [Spring 2021]

Responsibilities: My responsibilities were teaching, code demonstrations during webinars, in-class presentations, labs, quizzes and mid-end semester questions preparation and evaluations, helping the lead instructor on course content preparation, student's doubt clearance post classes.

Achievement: Awarded teaching contracts, **received 2,513.11 (USD) as Honorarium** from the Birla Institute of Technology and Science(BITS), Pilani, a deemed university.