Dr. Joy Bose

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Professional Summary

Data Scientist / machine learning researcher with overall 15+ years of experience, 10+ years of which are machine learning related. Have experience with different ML models, including GenAI and good collaboration and research skills.

Work experience

Ericsson Global, Bangalore, India

Senior Data Scientist (July 2020-Present)
- Worked on a project to generate user surveys for code snippets using Large Language Models, project to identify inefficient radios using machine learning, project for identifying categories of financial variance, project for predicting top ticket resolutions for a given ticket description, project for determining the time for training and running different machine learning models on Azure and AWS, project related to code review using large language models (LLMs), telecom chatbot using LLMs
- Published blog post titled How can AI reduce time spent on categorizing CSPs' financial data? in Ericsson blog. Also got 3 patents filed in European Patent Office, 4 papers published including one journal paper.
- Awards won: Power award (Individual Award) for work on TIPS project in Nov 2022, Act to Accelerate Award (Team Award) for a POC project related to NLP in Turkish language in 2021, AllStars Gold Award in Sep 2024.

Jio Embibe Indiavidual Learning, Bangalore, India

Lead Data Scientist (Jan 2020-June 2020)
- Developed Machine Learning models to analyze and improve student performance in standardized exams using an online learning platform.
- Helped draft a blog post on 1 PL IRT model in Embibe blog
- Worked on project for generation of nudges to help improve the student's learning outcomes with a learning platform
- Paper published in EDM 2020 conference titled "Auto Generation of Diagnostic Assessments and Their Quality Evaluation."

Microsoft India Development Centre, Hyderabad, India

Senior Software Development Engineer, Edge East Team (August 2018-December 2019)
- Worked on project to use Bing team's Virtual DOM to improve the extraction algorithm for relevant images in online news articles for Edge reading view feature, project for building a

client ML model using Keras/Tensorflow and WinML for classifying different web form field types, for use in autofill feature of Edge browser, project to make browser extensions compatible with the Windows store, related to services side.

- Languages used: C++, Python, C#
- One US patent filing in May 2019 related to reading view, 1 paper in IEEE INDICON 2019, one paper in Microsoft MLADS Synapse conference, one Microsoft hackathon project to tag web forms.

Samsung Research and Development Institute, Bangalore, India

Senior Chief Engineer, Data Intelligence Group (Nov 2011-August 2018**)**
- Lead of a 4-member project to classify calendar events on a smartphone and make personalized recommendations. Preprocessed data using NLP techniques (stemming, tokenizing, bi-gram processing) for both English and Korean calendar events.
- Used feature selection techniques and analysis of data to compress model and increase accuracy to around 94% in both languages.
- Machine learning research (PoC) projects worked on:
    - Mapping attention level to DOM elements in web pages using Neurosky BCI kit.
    - System to detect bias (using a bias lexicon) in real time while reading news articles in web browsers, and recommending unbiased news articles on the same topic.
    - System to increase click through rate of web push notifications by predicting when the user is likely to open a webpage, based on past behavior and context factors
    - SMS encryption/decryption system based on user gestures based on heteroassociative Neural Network.
- Awards won: Star IP Award, 2013, Best Paper Award in Track 4 of IEEE INDICON 2015, IP Team Catalyst Award, 2016, Best Paper Award in IEEE Discover 2016, Tech Paper Shepherd Award, 2017, Top 10 finalist, Intrapreneurship C Lab Contest, 2017.

Digital Applications International, Stockport, UK (now part of Dematic)

Software Engineer (Oct 2007-Oct 2011**)**
- Software development for a number of logistics projects using our custom in house Warehouse Management System product, Matflow

Education

King's College, London, UK

MSc in Psychology and Neuroscience of Mental Health (2021-23). Passed with Merit
Recipient of Dean's Award for Outstanding Student Performance in Mental Health in the community

University of Manchester, UK

PhD in Computer Science (2002-07)
Recipient of Overseas Research Studentship for 3 years of PhD. Published 3 papers in international and 3 in UK level conferences, 1 IEEE Journal paper.

Motilal Nehru National Institute of Technology (MNNIT) Allahabad, India

Bachelor of Engineering, Computer Science and Engineering (1998-2002)
Graduated 1st Class with Honours (Aggregate: 82.04%). Recipient of academic merit scholarship for 3 years, NTSE Scholarship, TCS scholarship to attend HiPC 2001 conference. One of coordinators of technical festival in 2001.

Technical and other skills

Machine Learning Experience: Generative AI and LLMs, Azure ML, AWS Sagemaker and Amazon Q, LLMOps, Prompt Engineering, Transformers, Langchain, SVM, FastText, Neural Networks, decision trees, recommender systems, classification and prediction models (supervised and unsupervised).
Languages: Java (10+ yrs), C (15+ yrs), Python (10 yrs), C++ (2 yrs), MATLAB (5 yrs)
Hobbies and interests: Travelling (Level 10 in Google Local Guides India), NIMHANS Bangalore certified well-being volunteer.

Publications: Selected Papers

1. Bandyopadhyay, S., Bose, J., & Chowdhury, S. R (2025). A Hybrid Framework for Real-Time Data Drift and Anomaly Identification Using Hierarchical Temporal Memory and Statistical Tests. International Journal of Mathematical, Engineering and Management Sciences, 10(3), 777-796. https://doi.org/10.33889/IJMEMS.2025.10.3.039.
2. Nallamothu Pardhasaradhi, Joy Bose, Akshat Vikram, Ashish Verma, Manny Jain. Identification of Inefficient Radios for Efficient Energy Consumption in a Mobile Network. COMSNETS 2024
3. Joy Bose, Ranjani H. G, Serene Banerjee, Venkatesh Umaashankar: Prediction of Throughput Degradation from Trouble Frequencies, given Environmental Unknowns. COMSNETS 2022
4. Soma S. Dhavala, Chirag Bhatia, Joy Bose, Keyur Faldu, Aditi Avasthi: Auto generation of diagnostic assessments and their quality evaluation. EDM 2020
5. Kushal Singla, Joy Bose, Nitish Varshney: Word Embeddings for IoT Based on Device Activity Footprints. Computación y Sistemas 23(3) (2019)
6. Anish Patankar, Joy Bose, Harshit Khanna. A bias aware news recommendation system. ICSC 2019
7. Kushal Singla, Niloy Mukherjee, Joy Bose. Multimodal Language Independent App Classification Using Images and Text. NLDB 2018
8. Anish Anil Patankar, Joy Bose. Bias Discovery in News Articles Using Word Vectors. ICMLA 2017
9. Joy Bose, Amit Singhai, Ankur Trisal, Vinod Keshav, Utkarsh Dubey. A hands free browser using EEG and voice inputs. IJCNN 2015

10. Joy Bose, Tasleem Arif. Encryption in mobile devices using sensors. SAS 2013
11. Stephen B. Furber, G. Brown, Joy Bose, J. Mike Cumpstey, P. Marshall, Jonathan L. Shapiro. Sparse Distributed Memory Using Rank-Order Neural Codes. IEEE Trans. Neural Networks 18(3): 648-659 (2007)

Note: Complete list of patents and papers available on request. Or else, search my name in Google scholar and google patents

US / WIPO Patents with myself as co inventor

Granted US and European Patents
1. EP3750115B1 Machine learning on a blockchain
2. US11295492B2 Electronic device and server related to rendering of web content and controlling method thereof
3. US11030448B2 Method for recommending one or more actions and an electronic device thereof
4. US10235587B2 Method and system for optimizing an image capturing boundary in a proposed image (also US10769470B2)
5. US10210598B2 Electronic device for displaying a plurality of images and method for processing an image
6. US9992254B2 Method and system of providing a web feed in a uniform resource identifier

Filed US/ WIPO Patents
1. WO2022229967A1 Reducing interference in a communications network. Published Nov 2022
2. WO2022079724A1 First node, and method performed thereby, for handling one or more categories of data. Published April 2022
3. US20210272017A1 Machine learning on a blockchain. Published Sep 2021
4. US20200364290A1 System and Method for Selecting Relevant Content in an Enhanced View Mode. Published Nov 2020
5. US20200073476A1 Systems and methods for determining defects in visual field of a user. Published Mar 2020
6. US 20180196582A1 Method and Electronic Device for managing data items. Published July 2018
7. US20170344226A1 Electronic Device And Control Method Thereof. Published Nov 2017
8. US20160014057A1 Method And System For Providing Dynamically Customized Web Push Messages In Wireless Network. Published Jan 2016
9. US20150121257A1 Method And Apparatus For Triggering Url Load Request From A Browser. Published Apr 2015
10. US20140223345A1 Method For Initiating Communication In A Computing Device Having A Touch Sensitive Display And The Computing Device. Published Aug 2014