Mayukh Bhattacharyya

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Experience

AI Software Developer Jul 2023 – Nov 2023
Belva AI *Remote NYC*

- Built the backend of **LLM based** phone call platform. Developed core **chat microservice** of the platform on **FastAPI, Mongo, Redis** stack. Built **Langchain**-based conversational agents integrating popular LLM services
- Supported a RAG based legal chatbot built on top of the chat service for a legal marketplace for finding lawyers

Machine Learning Engineer Intern May 2022 – Aug 2022
Snapchat *Los Angeles*

- Developed model evaluation pipelines for **large-scale recommender systems** for Snap's in-house ML platform
- Implemented counterfactual evaluation methods that can emulate real A/B test results from historical data, thus reducing reliance on A/B tests and **saving thousands of hours monthly** in iterative development time
- Adapted ideas from research papers for experiments on internal user data using **GCP and BigQuery**. Integrated the best methods in Snap's in-house ML platform using Apache Beam, which outperformed existing metrics

Algorithm Developer II May 2020 – Aug 2021
Applied Materials *India*

- Worked under the CTO in a focused team on the development an **AI-based** cancer diagnosis product. Worked with multiple stakeholders, **led 2 junior engineers** and collaborated on product roadmap on the way to launch
- Developed **Computer Vision** models with **Pytorch & Tensorflow** for semantic and instance segmentation using weakly supervised techniques. Built efficient data pipelines for model inference on gigascale images on **AWS**

Software Engineer Oct 2019 – Mar 2020
Sigtuple Technologies *India*

- Developed **deep learning** models and pipelines for **object detection and tracking** for AI-based pathology test product, improving detection precision by 30% over existing. Deployed new models on **Kubernetes** in GCP

Software Engineer Jul 2017 – Oct 2019
Samsung Research *India*

- Developed core **C/C++** products for large format displays. Developed unit testing framework for legacy codebase
- **Led the research and development** of gaze estimation and object detection-based Ad recommendation system for outdoor displays. Used crowd gaze as implicit feedback for suggesting better Ads to be played on screen

Publications

- DeCAtt: Efficient Vision Transformers with Decorrelated Attention Heads [CVPR 2023]
- SERF: Towards better training of deep neural networks using log-Softplus ERror activation Function [WACV 2023]
- Deciphering Environmental Air Pollution with Large Scale City Data [IJCAI 2022]
- Hybrid Style Siamese Network: Incorporating style loss in complementary apparels retrieval [CVPR 2020]

Education

SUNY Stony Brook University, *MS in Computer Science* Aug. 2021 – May 2023. NY

Jadavpur University, *BE in Electrical Engg* Aug. 2013 – May 2017, India

Projects

reco | *Python, Cython, C++* 2017 – 2022

- Created a comprehensive Python library of Recommender Systems with core modules of Collaborative Filtering, SVD, Factorization Machines, and Wide & Deep Networks, which has been downloaded over 14,000 times
- Wrote underlying core in C based Cython making it one of the fastest among contemporary similar packages

Miscellaneous

- Top 0.1% in Kaggle's ML Competitions and Notebooks leaderboards.
- 4th Place in FashionIQ (Image Captioning) Challenge, CVFAD Workshop, CVPR 2020.
- Best Paper Award, AI For Good, IJCAI 2022.

Technical Skills

Python, C++, Java, JavaScript, SQL, PySpark, FastAPI, Flask, PyTorch, Tensorflow, XGBoost, Scikit-Learn, Numpy, OpenCV, Scipy, Spark, Apache Beam, MongoDB, DynamoDB, Redis, Kubernetes, ElasticSearch, AWS, GCP, Docker, Git, Machine Learning, Deep Learning, NLP, LLM, Computer Vision, Data Structures, Algorithms, Recommendation Systems