Ashutosh Tiwari

Data Science Grad Student with *six* years of work experience, on OPT, can join immediately

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WORK EXPERIENCE

- **Senior Software Dev Engineer** — Jan. 2019 – Jul. 2021
  SWIGGY — *MACHINE LEARNING PLATFORM, TIME SERIES FORECASTING*
  - Was part of team that worked on Feature Store and pipeline which feeds on-demand features to deployed ML models at production scale(4Bn rows, 1Mn QPS / day). Pipeline supported multichannel ingestion, i.e. Spark, Flink, and user files, etc.
  - Founding member of Forecasting and Correlation Platform which was considered by many teams to forecast concerned time series. These forecasts power critical scaling decisions across organizations in real time.
  - Led DAQ, a tool used to scrape APIs at scale. Used to collect data for analysis/ model training at a scale of 15 M rows daily.

- **Software Development Engineer(ML)** — Sep. 2017 – Jan. 2019
  FLIPKART (a Walmart company) — *SEARCH RELEVANCE, QUERY INTENT, NLP*
  - Was responsible for improvements/inception of search intent models(CRF/Neural Network based), identifying error classes, coming up with solutions, and fixing them. These models power user search and discovery for millions every day.
  - Implemented a FastText based query store classifier, which predicts the category of a tail query.
  - Implemented the first workflow to automate training and auto-deployment of various search models in Flipkart. First was written using Luigi and later migrated to Airflow.
  - Wrote a generic framework using Airflow which at runtime creates generic dags for different ML models and orchestrates their training to deployment flow, including data and model validations.
  - Implemented large scale (4Bn+ datapoints) pipelines using Cascading/HDFS to extract data from user events and then transform it to be used for training these models.

- **Software Development Engineer** — Sep. 2016 – Sep. 2017
  GROUPON — *BACKEND ENGINEERING*
  - Worked on a component called Cyclops, an interface between Customer representatives and internal services

- **Software Engineer** — Sep. 2015 – Aug. 2016
  NETSPEED SYSTEMS (Acquired by Intel) — *GRAPH ALGORITHMS, NETWORK ON CHIP*
  - Led engineering efforts on modules like Polarity based Arbitration, Multi-Cast Filtering, Structural Latency Breakdown etc.

RESEARCH EXPERIENCE / INDEPENDENT STUDY

- Implementing novel training frameworks that result in unbiased (or fair) recommendation systems from "biased" datasets at IUNI with Prof. YY Ahn and Prof. S Kojaku as part of my Independent Study. Summer 2022 - Summer 2023
- Was part of NLP Lab@IUB with Prof. D Cavar. Contributed to design of TieML and Events' Timeline modelling. Fall 2021

TEACHING EXPERIENCE

- Teaching Assistant for Network Science (INFO-I 606) with Prof. YY Ahn — Spring 2022, Spring 2023
- Teaching Assistant for Machine Learning (CSCI-B 555) with Prof. R Khardon — Fall 2022

SELECTED PROJECTS

Investigating Bias Progression in Journalism | *Bias Manifolds, Bias Progression, Measuring Bias, Word2vec* — Code/Report

BiasNet | *Deep Reinforcement Learning, PyTorch, Actor Critic Algorithm, On-policy Model Free* — Code/Report
- Learning to fight in Street Fighter II with induced relational bias from differential game scenes

DeepFoodie | *Python, Tensorflow, Self Supervised Deep Clustering, Deep Learning, Transfer Learning* — Code/Report
- Clustering dishes on basis of their ingredient embeddings. These ingredient embeddings are generated by a NN.

Humana Mays Healthcare Analytics Case Competition | *Boosted Trees, Feature Engineering* — Code
- 11th rank on leaderboard. Hosted by TAMU and Humana Mays, 2021.

Continuous Dominant Set Repair | *C++, Graph Algorithms, Guha and Khuller's Algo., Greedy* — Code
- Repairs a broken link in Continuous Dominant Set in $O(\Delta^2)$, where Δ being the avg cardinality of connected graph.

TECHNICAL SKILLS

Graph Neural Networks, Fairness Aware Modeling, Computational ML, NLP, Computer Vision, DL, Spark, Python, Scala, C++
frameworks & tools: Pytorch Geometric, Pytorch, Tensorflow, Sklearn, Numpy, Pandas, Matplotlib, HDFS, Spark, Kafka, Flink, AWS Sagemaker, DynamoDB, Faiss, Django

EDUCATION

Indiana University, Bloomington (OPT/EAD start date July 3, 2023, STEM eligible) — Bloomington, IN
Master of Science in Data Science (Computational and Analytical Track) 3.87/4.0 — *Aug. 2021 – May. 2023*
National Institute of Technology — Patna, India
Bachelor of Science in Computer Science 8.32/10.0 — *Aug. 2011 – Jun. 2015*