Ashutosh Tiwari

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Education

Indiana University — Bloomington, IN
Master of Science in Data Science (Computational and Analytical Track) 3.83/4.0 — *Aug. 2021 – May. 2023*

National Institute of Technology — Patna, India
Bachelor of Science in Computer Science 8.32/10.0 — *Aug. 2011 – Jun. 2015*

Research Experience / Independent Study

- Working on **"User Intent as a Network"** with Prof. YY Ahn, Prof P Kantak and Prof FB Yara. Project is funded by Kelly Business School. Summer 2022 - Present
- Working on **"Fairness Aware AI from Biased Models"** at CNetS with Prof. YY Ahn and Postdoctoral Fellow Sadamori Kojaku using novel training methods. Summer 2022 - Present
- Worked in NLP Lab@IUB for fall 2021. Contributed extensively to design of TieML and Events' Timeline modelling. Fall 2021

Work Experience

Senior Software Dev Engineer — Jan. 2019 – Jul. 2021
SWIGGY — *DATA SCIENCE PLATFORM, TIME SERIES FORECASTING*

- Worked on Feature Store and pipeline which feed on-demand features to deployed ML models at production scale.
- Founding member of Forecasting and Correlation Platform which is used by teams to forecast concerned time series.
- Led DAQ, which is a tool used to scrape APIs at scale. Used to collect data for analysis/ model training.

Software Development Engineer(ML) — Sep. 2017 – Jan. 2019
FLIPKART (a Walmart company) — *SEARCH RELEVANCE, QUERY INTENT, NLP*

- Was involved in improvements/inception of search intent models(CRF/Neural Network based), identifying error classes, coming up with solutions, and fixing them.
- Worked on Fast text based query store classifier, which predicts the category of a query.
- Wrote the first workflow to automate training and auto-deployment of various search models. 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.
- Used Cascading/HDFS to extract data from user events and then transform it to be used for training our 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*

- Worked on many modules like Polarity based Arbitration, Multi-Cast Filtering, Structural Latency Breakdown etc.

Teaching Experience

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

Selected Projects

Quantifying user intent | *Graph Neural Networks, Complex Network Simulation, PyTorch, Research*

- Working on User Impression to quantify their intent and draw conclusions from "network of intents". Funded by Kelly Business school.

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

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

Humana Mays Healthcare Analytics Case Competition | *Boosted Trees, Feature Engineering* — Code

- 11th rank on leaderboard. Hosted by TAMU and Humana Mays, 2021.

AnalyticsVidhya Solutions | *Python, Tensorflow, Torch, Time Series, Feature Engineering, Catboost* — Code

Technical Skills

Graph Neural Networks, Computational ML, NLP, Computer Vision, DL, Akka, Distributed Systems, Spark, HDFS, Python, Scala, Java, C++

Frameworks/Libraries/Tools: Pytorch Geometric, Pytorch, Tensorflow, Sklearn, Numpy, Pandas, Matplotlib, AWS, Neo4j

Relevant Courses so far

Computational ML(B555), Deep Learning(E533), Reinforcement Learning(B659), Computer Vision(B657), Statistics(S520), Independent Study (Working on Fairness Aware AI and Bias manifolds)