

# Ashutosh Tiwari

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## EDUCATION

### Indiana University (Graduating May 2023)

Master of Science in Data Science (Computational and Analytical Track) 3.86/4.0

### National Institute of Technology

Bachelor of Science in Computer Science 8.32/10.0

Bloomington, IN

Aug. 2021 – May. 2023

Patna, India

Aug. 2011 – Jun. 2015

## PUBLICATIONS

Have submitted at [NetSci](#) as first author on Fairness Aware Graph Recommendation (double-blinded) [pending decision notification, Feb 28, 2023]

## RESEARCH EXPERIENCE / INDEPENDENT STUDY

- Implementing novel training frameworks that result in unbiased (or fair) models from "biased" datasets at [IUNI](#) with Prof. YY Ahn and Prof. S Kojaku as part of my Independent Study. Summer 2022 - Present
- Working as a paid RA for, "User Intent as a Network" with Prof. YY Ahn, P Kantak and FB Yara. Project is funded by Kelly Business School. Goal is to be able to quantify and thus act upon that "intent" network. Summer 2022 - Fall 2022
- Was part of [NLP Lab@IUB](#) with Prof. D Cavar. Contributed 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

- 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.

## 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

**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.

## TECHNICAL SKILLS

Graph Neural Networks, Fairness Aware Modeling, Computational ML, NLP, Computer Vision, DL, Spark, Python, Scala, C++

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

## RELEVANT COURSES

Computational ML(B555), Deep Learning(E533), Reinforcement Learning(B659), Computer Vision(B657), Statistics(S520), Advanced Database Systems(B561), Independent Study (Working on Fairness Aware AI)