Masum Billal

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EDUCATION

University of Dhaka **Dhaka, Bangladesh**
CSE *BSC*

Summary

- Pursuing career in data science, mostly in machine learning.
- Worked as software engineer and machine learning engineer for over 3 years.
- Involved in machine learning since the publication in 2015.
- From mathematical and competitive programming background.

EXPERIENCE

Auleek **Dhaka, Bangladesh**
Machine learning engineer *October 2018 - May 2019*

- **Hestia**
  - Used deep learning in tensorflow to extract features (door, wall, window etc) from floorplan images.
  - RnD on interior design automation, such as structural groups of furnitures and finding the most optimal configuration.
  - Implemented mesh generation for different kind of object shapes, mesh combining such as union or intersection, checking if an object can be placed in an arrangement.

Reve Systems **Dhaka, Bangladesh**
Software Engineer *March 2017 - September 2018*

- **e-Veterinary Services**
  - Worked full-stack from Spring Boot framework to thymeleaf frontend templating, bootstrap and javascript.
  - Used JPA for hibernate-like ORM manipulation.
  - Followed agile development process for meeting tight deadline.
  - Live server of project: `http://evet.gov.bd/login`
- **IP Log**
  - Worked on networking and socket protocols for receiving and processing all incoming and outgoing packets in a network.
  - Used multi threading for avoiding packet loss and prevented buffer overflow during packet receiving.
- **Surveillance**
  - Worked on backend of this Struts based project.
  - Implemented features such as duplicate number detection, home or office detection etc based on geolocation.
  - Did RnD on geolocation, 2G/3G/GSM protocols and distance estimation models from signal strength and related parameters.
  - Implemented trilateration as part of this project.

Threat Equation PTE LTD. **Dhaka, Bangladesh**
Software developer and data analyst *April 2016-September 2016*

- **Threat Equation**
  - Worked on backend of a Django dashboard.
  - Pared server logs for feeding data into the learning model for predicting vulnerability in the application.
  - Used libraries such as Chart.js to show visualization of predicted results and related data in dashboard.

Achievements and voluntary experience

2009: Medal in regional mathematical olympiad, Dhaka, Bangladesh.

2010: Medal in regional and national mathematical olympiad, Bangladesh.

2011-2015: Trainer (specially for number theory) in national and IMO math camps.

2012: Participated in Dhaka regional ICPC, rank 18.

2012: Participated in Inter-University Programming Contest, Islamic University of Technology, Bangladesh, rank 13.

2013: Participated in Dhaka regional ICPC, rank 17.

2013: Participated in Inter-University Programming Contest, North South University, Bangladesh, rank 9.

Publications

2019: Topics in Number Theory: An Olympiad Oriented Approach *Masum Billal, Amir Hossein*

2015: Similarity Aggregation for Collaborative Filtering, AIST Conference *Sheikh Muhammad Sarwar, Masum Billal, Mahmudul Hasan, Dimitry I. Ignatov*

2014: A Nice Theorem in Multiplicative Functions, Issue 63, Eureka, Cambridge Mathematical Society *Masum Billal*

2012: Exponent GCD Lemma, Issue 6, Mathematical Reflections *Masum Billal*

PROJECTS

Localizer *2019*

- A self-contained tool for localizing objects in images.
- Used darkflow to implement state-of-the-art YOLO algorithm for object detection in tensorflow.

Improving Collaborative Filtering Based Recommender Systems *BSc Thesis, 2016*

- Developed a new recommender system.
- Achieved F-1 score of almost 75% on movielens dataset.
- Introduced, implemented ideas of aggregating multiple metrics and tested the hypothesis.
- Currently work on progress to improve it even further.

Otaku Store *2016*

- Worked full stack for building a Django framework based e-commerce site.

A Recommender System *2016*

- Developed a recommender system based on Multinomial Naive Bayes for learning purpose.

Others

Github: `https://github.com/fifaboy`

LinkedIn: `https://www.linkedin.com/in/billalmasum93/`

Blog: `https://karushib.wordpress.com/`