Masum Billal

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Education

BSc, *CSE,Department of Computer Science and Engineering,University of Dhaka*, Bangladesh.

Work Experience

2019 **Senior Data Scientist, August** 2019 **to present**, *Shohoz*, Dhaka.

My work at Shohoz.
- Successfully completed data pipelines, analytics and visualization and scalable data storage solution for Corona Tracer Bangladesh, a joint venture by Bangladesh government and Shohoz. Tech stacks: `PySpark, Cassandra, Bokeh, Pandas, Holoviews`, etc. This project is live at `http://tracer-admin.ctbd.corona-dghs.xyz/`
- Built data pipelines in AWS, Azure (`python`) using message queue services such as Service bus/Event Hub/Kafka or machine learning pipeline services.
- Hands on exploratory data analysis of real user data using tools such as `pandas, PySpark, Scikit-learn, Tensorflow, PyTorch`, etc.
- Developed some fraud detection services e.g. automated syndicate detection in ride sharing.
- Developed an automated user profiling system for quest planning.
- Developed automated priority dispatching services.
- Used data mining techniques for provider distribution/trend analysis/recommendation.

2019 **Machine learning engineer and senior programmer, October** 2018 **to May** 2019, *Auleek*, Dhaka.

My work at Auleek.
- Developed an application in `python` that uses deep learning to identify different components of a floor-plan image.
- Worked on mesh generation/union and object placement in a floor-plan in Unity3d/C#.

2017 **RnD Software engineer, March** 2017 **to September** 2018, *Reve systems*, Dhaka.

My work at Reve.
- Developed a web application as part of a govt. project using `Java SpringBoot, Thymeleaf, JPA` along with vanilla JS (full stack). Project site: `http://evet.gov.bd/login`
- Built a multi-threaded `C++` application that captures all packets that are received in a network.

2016 **Software developer**, *Remote Job*, Threat Equation PTE Ltd., Singapore.

My work at Threat PTE.
- Used `django` framework to build a web dashboard (full stack).
- Used machine learning algorithms on server logs to predict whether it indicates an attack (if so, what type).

Pet Projects

Seeding in k-means clustering
Unsupervised learning, *Research*, Python, I tried to improve the `k-means` clustering algorithm in this project.
`https://github.com/proafxin/clustering`

Localizer
Object detection, *Personal project*, Python, This project is a deep learning based localization application. It can be trained using given images and detect the objects in test images.
`https://github.com/proafxin/Localizer`

Improving collaborative filtering
Machine learning, *Research on recommender Systems*, C++, Python, In this project, I developed a recommender systems with F-1 score of almost 75%. This was part of my BSc. thesis.

Media recommender
Machine learning based web application, *Personal project*, Django, This is a web application that provides personalized feed based on user preferences and past history.
`https://github.com/proafxin/media-recommendation`

Online library
Web application, *Personal project*, Dotnet core, This is a dotnet core MVC based web application for online library..
`https://github.com/proafxin/library`

Achievements and voluntary experience

2013 **Inter-University Programming Contest**, *North South University, Bangladesh*, Rank 9.

2012 **Inter-University Programming Contest**, *IUT, Bangladesh*, Rank 13.

2013 **ICPC**, *Dhaka Regional, Bangladesh*, Rank 17.

2012 **ICPC**, *Dhaka Regional, Bangladesh*, Rank 18.

2010 **Medal in math olympiad**, *Bangladesh Mathematical Olympiad*, National, Regional.

2009 **Medal in math olympiad**, *Bangladesh Mathematical Olympiad*, Regional.

2011 − 2015 **Trainer at math camps**, *Bangladesh Mathematical Olympiad*, National, Extension and IMO math camps.

2019 **Mathematical programming**, *Global Rank 132 on Hackerrank mathematics section*.

Publications

2020 **Integer Sequences: Divisible, Lucas and Lehmer Sequences**, *Masum Billal, Samin Riasat*, To be published in Springer Nature soon.

2018 **Topics in Number Theory: An Olympiad Oriented Approach**, *Masum Billal, Amir Hossein*, Amazon, ISBN-10: 1719920311.

2015 **Similarity Aggregation for Collaborative Filtering**, *AIST Conference*, Sheikh Muhammad Sarwar, Masum Billal, Mahmudul Hasan, Dimitry I. Ignatov.
`http://link.springer.com/chapter/10.1007/978-3-319-26123-2_23`

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

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

2016 **10th Bangladesh Mathematical Olympiad: Selected Problems and Solutions**, *Bangladesh Math Booklet,* 2015.
`https://karushib.wordpress.com/2016/05/29/bangladesh-booklet-of-math-problems-2015/`

Interests and Hobbies

Research Optimizing algorithms or finding new ones. Studying on topics I am interested in for interesting results. Mathematics, Algorithms, Cryptography, Machine Learning etc.

Programming Creating and solving problems. Proposed some problems for Hackerrank and some inter university contests.

Mathematics Finding new results and creating or solving new problems.

Gaming Playing Dota 2, Assassin Creed Origins etc.

Others

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

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

References

Farhad Alam Bhuiyan, Data Science Lead, Shohoz, Bangladesh. Email: `farhad.alam@shohoz.com`

Mahbub Majumdar, Professor and Chairperson, Department of Computer Science and Engineering, BRAC University. Email: `majumdar@bracu.ac.bd`