



# Masum Billal

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## Education

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

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## Work Experience

2019 **Senior Data Scientist, August 4 to present, Shohoz, Dhaka.**

At Shohoz, I am responsible for building a data pipeline in Azure, user profiling and clustering, data mining on a particular service, fraud analysis, priority dispatching and exploratory data analysis e.g. using PySpark. Some of the services I have written are already part of Shohoz ecosystem e.g. periodical user profiling. I have also worked on AWS based data pipeline using Kafka as message queue service.

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

During my time at Auleek, I used deep learning in tensorflow to extract features from floor-plan images, worked on mesh generation and manipulation e.g. union/intersection, object placement in a given floorplan, etc.

2017 **Software engineer, R&D, March, 2017 to September, 2018, Reve systems, Dhaka.**

At Reve, I worked on variety of projects. I was part of a three man team responsible for a govt. project which can be found here: <http://evet.gov.bd/>. I also worked on a project called *IP log* where my job was to receive and process all incoming and outgoing packets from a network interface. Multithreading was necessary to prevent packet loss.

2016 **Data analyst and software developer, Remote Job, Threat Equation PTE Ltd., Singapore.**

My role was to predict vulnerability from server logs after training them on previously fed data. Then I had to present the predictions and related information in the dashboard for visualization.

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## Pet Projects

Seeding in **Unsupervised learning, Research**, Python, I tried to improve the **k-means** clustering algorithm in this project.  
k-means clustering <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

- 2019 **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](http://link.springer.com/chapter/10.1007/978-3-319-26123-2_23)
- 2014 **A Nice Theorem in Multiplicative Functions**, *Eureka, The Cambridge University Mathematical Society*, Issue 63, Masum Billal.
- 2012 **Exponent GCD Lemma**, *Mathematical Reflections*, Issue 6, Masum Billal.
- 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.

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## Others

- LinkedIn: <https://www.linkedin.com/in/billalmasum93>
- Blog: <https://karushib.wordpress.com/>

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## References

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