Masum Billal

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Education

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

Projects and Experience

2016 **Data Analysis**, *Web server log analysis and prediction of vulnerability*, Platform: Python.

I did this project under **Threat Equation PTE Ltd, Singapore**. Analyzed web server logs to predict attacks on a particular site. For the internal logs, accuracy was 100% with mean absolute error 0%. Though accuracy would be reduced for external logs.

2016 **Web Application**, *Dashboard*, Platform: Python, Javascript Framework: Django, Rest api, ChartJS.

This was a project I initially worked on under Threat Equation PTE LTD. as well. The objective was to build a dashboard using **Django** that would collect data from a plugin and show using javascript or some other tools.

2016 − 2017 **Improving Collaborative Filtering Based Recommender Systems**, *Recommender System*, Platform: Python/C++, BSc Thesis (ongoing).

The aim of this thesis is to improve accuracy of recommender systems based on collaborative filtering and develop new models for measuring similarity or accuracy or recommended ratings.

2016 **Machine Learning**, *A movie recommender system*, Platform: Python, Tools: *pandas, scikit-learn, numpy etc*, In this project I have predicted movie ratings using **Naive Bayes**.

https://github.com/fifaboy/rec-mnb

2017 **Artificial Intelligence**, *Belief Propagation Simulator*, Platform: C++, This project was a simulation of the **belief propagation**, an established technique in artificial intelligence..

https://github.com/fifaboy/belief-propagation

2017 **Machine Learning**, *A machine learning library for C++*, Platform: C++, In this project (incomplete), I am writing a machine learning library containing some popular algorithms in machine learning and data mining..

https://github.com/fifaboy/cppmllib

2016 **E-commerce web application**, *Otaku Store*, Platform: Python, Framework: Django.
This was an academic project for building an online anime store. `https://github.com/fifaboy/otaku-store`

Achievements

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.

Publications

2016 **Topics in Number Theory: An Olympiad Oriented Approach**, *Masum Billal, Amir Hossein*, Currently under review by Springer.

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**, *Eureka, The Cambridge University Mathematical Society*, Issue 63, Masum Billal.

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

2015 **Combinatorial Geometry In Olympiad**, *Accepted for Mathematical Reflections in* 2015, Masum Billal, Nur Muhammad Shafiullah.

2016 **A Nice Lemma In Congruence: Thue's Lemma**, *Under review by Crux Mathematicorum, Canadian Mathematical Society*, Masum Billal.

Skills

Programming languages	C, C++	Level:	Programming contests
	Python, Java, PHP	Level:	Academic project.
Tools	HTML, Javascript, MySQL, Jinja2, LaTeX, Git, Bootstrap etc		

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 Setting problems. Problemsetter at Hackerrank.

Mathematics	Finding new results and creating new problems.
Publication	Publishing articles or papers on journals.

▬ Others

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

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

▬ References

○ *Mahbub Majumdar*, Professor, Computer Science & Engineering Department, BRAC University, Buidling-5, Floor-4th, Room: UB50402
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Email: `majumdar@bracu.ac.bd`

○ *Farhad Alam Bhuiyan*, Software Engineer
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