Masum Billal

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Education

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

Experience

2017   **Software engineer, R&D**, *March* 2017 *to present*, Reve systems, Dhaka.
Currently I am working here as software engineer in R&D section (backend team).

2016   **Data analyst and software developer**, *Remote Job*, Threat Equation PTE Ltd.,Singapore.
I worked here as a software developer in Django, Python.

Projects

2016 − 2017   **Improving Collaborative Filtering Based Recommender Systems**, *Recommender System*, Platform: Python/C++, BSc Thesis.
The aim of this thesis was to improve accuracy of recommender systems based on collaborative filtering and develop theory/model for measuring similarity or accuracy or recommended ratings.

2016   **Data Analysis**, *Web server log analysis and prediction of vulnerability*, Threat Equation PTE Ltd..
I analyzed web server logs to predict attacks on a particular site. For the server logs generated from a plugin (an application of the same company), accuracy was 100% with mean absolute error 0% (only for **internal logs**, may be reduced for external ones).

2017   **Web, R&D, Machine learning, Surveillance**, *Reve systems (June-July)*, In this project, my job was to develop an application that can accurately predict alternative number of a user from their history, Later, I also had to study on GSM networks and develop models to estimate distance and exact location of a user. It had some more interesting features as well.

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`

2017 **C++**, *Networking, Socket and protocol programming*, Reve systems, My job in this project was to receive packets from a network interface and parse related information from those packets. There were some other features along with making sure it was optimized such as packets had to be written in files for decoding.

2017 **Web security**, *Penetration testing and log analysis*, Reve systems.
I have also worked on security side. Did some penatration tests on some of our live systems, but I am more interested in my focused areas like development.

2017 **Web**, *Optimization*, Reve systems.
I have worked on repository optimization in java. Also, other applications mentioned above needed better scaling.

2017 **C++**, *Geolocation, Trilateration*, Reve Systems.
In this project, I developed a system to predict the location of a device given information about three or more cell towers that device was connected to. The predicted location is around 50 meter far from original location (though it depends on some variables).

2016 **Web Application**, *Dashboard*, Threat Equation PTE Ltd..
My role in this project was to build a dashboard using **Django, REST, ChartJS** that would collect data from the plugin and provide visualization and analysis results in the dashboard.

2016 **E-commerce web application**, *Otaku Store*, Platform: Python, Framework: Django.
I worked on this project for an academic course. My objective was to build an e-commerce website for a fast growing community of anime lovers.
`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

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.

Skills

Programming	C, C++	Level:	Programming contests
languages	Python, Java, PHP	Level:	Academic project.
Markup/Script	HTML, CSS, Javascript, MySQL, Javascript, Jinja2		
Others	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.
Dislike	Front end development.
Gaming	Playing Dota 2, Fifa etc.

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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