

Resume of **DR. B. M. MAINUL HOSSAIN**

- AFFILIATION** Associate Professor
Institute of Information Technology (IIT)
url: <http://www.iit.du.ac.bd/>
University of Dhaka.
- CONTACT INFORMATION** E-mail: mainul@iit.du.ac.bd, mainul.iitdu@gmail.com
Post: Room#101, Institute of Information Technology (IIT), University of Dhaka, Dhaka 1000.
Cell: +880 1911489984
- EDUCATION** **Ph.D. in Computer Science, 2014**
University of Illinois at Chicago, USA. (www.uic.edu)
Dissertation Topic: *Enhancing Parallelism and Scalability of Database-Centric Applications in Presence of Database Deadlocks.*
- M.S., Computer Science & Engineering, 2007**
University of Dhaka, Dhaka, Bangladesh
GPA: 4.0 out of 4.0 (www.wes.org verified)
- B.Sc., Computer Science & Engineering, 2005**
University of Dhaka, Dhaka, Bangladesh
GPA: 3.97 out of 4.0 (www.wes.org verified)
- PROFESSIONAL EXPERIENCE** **Dept. of Computer Science, Univ. of Illinois at Chicago, USA (~5 years)**
Research Assistant: January 2011 – April 2014
Teaching Assistant: August 2009 – December 2011
**Responsible for grading the exams and projects of undergraduate and graduate level students, conducted the lab classes of programming languages, worked in various research projects.*
- Institute of Information Technology, University of Dhaka**
Associate Professor: February 2018 to till date.
Assistant Professor: September 2015 to February 2018.
Lecturer: July 2008 – September 2015
**Responsible for teaching, grading and instructing on courses like Discrete Mathematics, Object Oriented Programming, Operating Systems, DBMS, Secured Software Design, Machine Learning etc.*
- Bordingvista Ltd, Dhaka, Bangladesh (~.5 years)**
url: <http://www.bordingvista.com/>
Software Engineer: March 2008- July 2008
**Responsible for implementing enterprise level software for various clients located in Denmark.*

Uniq Software & Systems Ltd, Dhaka, Bangladesh (~1.5 years)

url: www.uniq.com

Software Engineer: October 2006- March 2008

**Responsible for implementing enterprise level software for Japanese government for health care systems.*

INDUSTRY
EXPERIENCES
AS INRENS

Microsoft Corporation, Redmond, WA, USA

Software Engineer Intern: May 2013- August 2013

My job responsibilities were to design, develop, and maintain automation systems for use in development and testing cycles; Creating tools to help review source code for trouble spots, debugging and isolating problems, and executing creative tests to find new bugs while regression testing recent fixes.

Accenture Technology Lab, San Jose, CA, USA

Research Intern: May 2012- August 2012

My responsibility was to investigate various research facets related to software architecture in enterprise systems. I worked on various distributed data management platforms to achieve scalability with higher performance.

Accenture Technology Lab, Chicago, IL, USA

Research Intern: May 2011- August 2011

My job assignment included research in automated testing of rule-based applications focusing on the non-deterministic behavior inherent in those applications. I also worked in projects regarding the optimization of virtual machines migration.

MAJOR
RESEARCH
PROJECTS

REDACT

URL: <http://www.cs.uic.edu/~drmark/REDACT.htm>

Description:

To prevent database deadlocks automatically, we created a novel approach and we rigorously evaluated it. For a realistic case of over 1,000 SQL statements, all hold-and-wait cycles are detected in less than 15 seconds. We build a tool that implements our approach and we experimented with three applications. Our tool prevented all existing database deadlocks in these applications and increased their throughputs by approximately up to three orders of magnitude.

STEPDAD

URL: <http://www.cs.uic.edu/~drmark/stepdad.htm>

Description:

We created a novel approach for Systematic TEsting in Presence of DAtabase Deadlocks (STEPDAD) that enables testers to instantiate

database deadlocks in applications with a high level of automation and frequency. We implemented STEPDAD and experimented with three applications. STEPDAD reproduced a number of database deadlocks in these applications that is bigger by more than an order of magnitude on average when compared with the number of reproduced database deadlocks using the baseline approach.

CarFast

URL: http://www.cs.uic.edu/~drmark/index_htm_files/CarFast.pdf

Description:

A fundamental problem of software testing is how to achieve higher coverage faster, and it is a difficult problem since it requires testers to cleverly pinpoint test input data to steer execution sooner toward sections of application code that contains more statements. We created a novel fully automatic approach for ensuring that test Coverage is Achieved higheR and FASTer (CarFast).

RUGRAT

URL: <https://sites.google.com/site/rugratproject/>

Description:

We propose a novel approach for generating random benchmarks for evaluating program analysis and testing tools. Our approach uses stochastic parse trees, where language grammar production rules are randomly instantiated to generate programs that meet overall program configuration goals.

PERLATO

URL: <http://www.cs.uic.edu/~drmark/perlato.htm>

Description:

We create, evaluate and deploy: 1) new theories, algorithms and techniques for automatically obtaining models that approximate executions of rule-driven applications, thus paving a way for effective and efficient concurrency analysis tools; 2) a novel way in which feedback can be designed for Rule Management Platforms (REMPs) to optimize the core of REMPs for better performance, and 3) a novel use of rule scheduling to both enhance the performance and ensure reliability of the rule-driven applications.

HONORS AND AWARDS

*Finalist of the USCC US Cyber challenge 2011 and attended the 2011 the US Cyber Challenge (USCC) Virginia Regional Cyber Security Boot Camp held in August 1st through the 5th. (<http://www.uscyberchallenge.org/>)

*One of the team members of the University of Illinois at Chicago team for Google Code Competition held on Jan 27, 2012 at Chicago and won the second best project prize.

*Finalist of the ITA Fall challenge 2010 and 2012 (two times), organized by Illinois Technology Association, where I represented the University of Illinois at Chicago. (http://illinoistech.org/page.aspx/Fall_Challenge).

*Recipient of University of Dhaka Talent-pool scholarship and full tuition waiver for excellence in B.Sc. (Honors) in the Faculty of Science, University of Dhaka, Bangladesh.

*Recipient of Government scholarship and full tuition waiver in the Department of Computer Science & Engineering, University of Dhaka, Bangladesh, for excellence in H.S.C examination, 1998, Dhaka Board.

TECHNICAL SKILLS

Languages:

JAVA, Python, C, C++, R, HTML/JavaScript, .Net, PHP

MAJOR PUBLICATIONS

Kishan Kumar Ganguly, Nadia Nahar, **B M Mainul Hossain**, "A machine learning-based prediction and analysis of flood affected households: A case study of floods in Bangladesh", International Journal of Disaster Risk Reduction (IJDRR), Volume 34, 2019, Pages294-283 , ISSN 4209-2212.

Khandaker Mamun Ahmed, Prianka Mandal, **B M Mainul Hossain**, "Text to Speech Synthesis for Bangla Language", International Journal of Information Engineering and Electronic Business(IJIEEB), Vol.11, No.2, pp. 1-9, 2019. DOI: 10.5815/ijieeb.2019.02.01 (Received: 13 September 2018; Accepted: 14 December 2018)

Abdus Satter and **B M Mainul Hossain**, "*Vulnerabilities Assessment of Emerging Webbased Services in Developing Countries* ", International Journal on Information Engineering and Electronic Business, IJIEEB, Accepted on July 2016 to be published.

Mark Grechanik, **BM Mainul Hossain**. *Enhancing Performance And Reliability of Rule Management Platforms*, Proceedings of the 6th ACM/SPEC International Conference on Performance Engineering, Austin, Texas, USA, February, 2015

Ishtiaque Hussain, Christoph Csallner, Mark Grechanik, Qing Xie, Sangmin Park, Kunal Taneja, **BM Mainul Hossain**. *RUGRAT: Evaluating program analysis and testing tools and compilers with large generated random*

benchmark applications, Journal: Software: Practice and Experience, 2014

BM Mainul Hossain, Mark Grechanik, Ugo Buy, Haisheng Wang. *REDACT: preventing database deadlocks from application-based transactions*, Proceedings of the 2013 9th Joint Meeting on Foundations of Software Engineering, St. Petersburg, Russia, August 18-26, 2013

Mark Grechanik, **B. M. Mainul Hossain** and Ugo Buy. *Testing Database-Centric Applications For Causes of Database Deadlocks*, Sixth IEEE International Conference on Software Testing, Verification and Validation, Luxembourg, March 2013.

Sangmin Park, Ishtiaque Hussain, Christoph Csallner, Kunal Taneja, **B. M. Mainul Hossain**, Mark Grechanik, Chen Fu and Qing Xie. *CarFast: Achieving Higher Statement Coverage Faster*, ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE), Research Triangle Park, NC, USA, November 2012.

Ishtiaque Hussain, Christoph Csallner, Mark Grechanik, Chen Fu, Qing Xie, Sangmin Park, Kunal Taneja and **B. M. Mainul Hossain**. *Evaluating program analysis and testing tools with the RUGRAT random benchmark application generator*, 10th International Workshop on Dynamic Analysis (WODA), Minneapolis, MN, USA, July 2012.

Islam, M.D.S.; Rahman, M.L.; Khan, M.A.H.; **Hossain, BM M.**; Karim, M.R.; *Digital Signature: Does It Really Work for Electronic Documents?* Proceedings of IEEE INMIC, National University of Computer and Emerging Sciences, Lahore, Pakistan, 24-26, 473- 478 pp., December 2004.

RESERACH
AREAS

Machine Learning, Computer and Internet Security, Software Testing

REFERENCES

Dr. Md. Shariful Islam
Professor & Director
Institute of Information Technology
University of Dhaka
Email: shariful@iit.du.ac.bd
Phone: +880 1754 100160

Dr. Mohammed Shafiul Alam Khan
Associate Professor
Institute of Information Technology
University of Dhaka
Email: shafiulalam@gmail.com
Phone: +880 1748890280



Dr. B. M. Mainul Hossain
Associate Professor
Institute of Information Technology (IIT)
University of Dhaka