

Ahmed Tahsin Zulkarnine

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Education

Doctor of Philosophy, Criminology, Simon Fraser University, British Columbia, Canada 2015- To Date (Ongoing)

- *Specialization in "Cyber Crime"*
- *Thesis Title: "The Evolution, Structure and Disrupt Strategies for Hacker's Network in Dark Web"*

Master of Science, Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada 2010-2012

- *Thesis title: "Design structure and Iterative Release Analysis of Scientific Software"*
- *CGPA: 3.90/4.0*

Bachelor of Science, Computer Science and Information Technology, Islamic University of Technology, Gazipur, Dhaka, Bangladesh 2002-2006

- *CGPA: 4.35/5.0 ~ 3.68/4.0*

Awards and Distinctions

- *International Research Award, University of Lethbridge, Alberta 2010-2011*
- *SGS Entrance and Continuing Award, University of Lethbridge, Alberta 2010-2012*
- *Advantage Award, University of Lethbridge, Alberta 2010-2011*
- *Organization of Islamic Conference (OIC) undergraduate scholarship (covered tuition, food and accommodation), 2002-2005.*
- *Participated in main team representing the Islamic University of Technology at ACM ICPC Asia Regional 2004 and NCPC(Bangladesh Government) 2004.*
- *Stood 2nd and 3rd in IUTPC 2004 and 2005 (Islamic University of Technology Programming Contest) respectively.*

Research Interests

Cyber Crime, Dark Web, Tor Network, Cyber Security, Software Architecture, Software Engineering, Software Evaluation, Scientific Software, Algorithms, Web Application Frameworks, Cloud Computing.

Publications

- *A. Zulkarnine, M.Sc. Thesis "Design Structure and Iterative Release Analysis of Scientific Software" at University of Lethbridge, 2012.*

- *S. Hossain and A. Zulkarnine, "Design structure of scientific software - a case study," in Invest on Visualization-Proceedings of the 13th International DSM Conference, 2011, pp. 129–141.*

Research Experience

Research Assistant, Simon Fraser University, British Columbia, Canada 2015 - To Date (Ongoing)

- *We are working on "Dark Web Project" in collaboration with National Defense (Canadian Military) and Royal Canadian Mounted Police (RCMP) in order to better understand the dark web networks (tor or tor like networks) and building up a web crawler, which can extract terrorist/extremist/hacking contents from these networks.*

Research Assistant, Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada 2010-2012

- *We implemented a DSM partitioning algorithm using sparse matrix data structure CRS, and its timing was better than those obtained from the most widely used C++ library "boost".*
- *We computed several architectural complexity metrics, compared releases and total release costs of a number of open source scientific research software.*
- *Integrated column Jacobian column coloring toolkit DSJM with widely used AD software ADOLC and CppAD in order to find out the integration effort for scientific software using COCOMO II model.*

Teaching Experience

Teaching Assistant: CRIM 380s "Introduction to Cyber Crime", Department of Criminology, Simon Fraser University, British Columbia, Canada - Fall 2015.

- *Various computer crimes, email spam, software crimes, attacks (botnets, hacking as a service), organized crime, encryption dark web, legal issues, identity theft, personal cybercrimes including cyberstalking, cyberbullying, human trafficking, child exploitation.*

Teaching Assistant: CSPC 3620 "Data Structure and Algorithms", Department of Math and Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada - Spring 2012.

- *Efficient algorithm design and algorithm analysis. Abstract data types and data structures. Algorithm design and problem-solving techniques for sorting problems, tree-based problems, and graph-based problems.*

Teaching Assistant: CSPC 3740 "Programming Languages", Department of Math and Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada - Fall 2011.

- *A comparison of programming languages and their implementations. One language from each of the following families: functional, declarative/logic, Object-Oriented. Topics selected from: garbage collection, heap management, procedural languages, historical developments.*

Teaching Assistant: CSPC 2620 "Fundamentals of Programming II", Department of Math and Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada - Fall 2010.

- *Introduction to object-oriented programming techniques: classes, objects, and methods. Generic programming. Recursion. Abstract data types: lists, stacks, queues, priority queues, binary trees. Algorithms for searching and sorting, and algorithm analysis.*

Teaching Assistant: CSPC 1620 "Fundamentals of Programming I", Department of Math and Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada - Spring 2011.

- *Introduction to problem-solving and algorithms. Machine representation of data. Implementation of algorithms in a programming language. Fundamentals of programming concepts including branching and loops. Top-down programming and modular design. Arrays. Records. Techniques for constructing elegant and robust programs.*

Teaching Assistant: Help session instructor, Department of Math and Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada - Spring 2011, Fall 2011, Spring 2012.

- *Help students with assignments and other course problems for courses CSPC 1620 "Fundamentals of Programming I" and CSPC 2620 "Fundamentals of Programming II".*

Community Involvement / Administrative Activity

- *Elected as **Vice President Internal**, University of Lethbridge Graduate Student Association (ULGSA) for term 2012-2013.*

Employment

- **Senior Software Developer**, BasicGov System Inc., Vancouver British Columbia, Canada. July 2014 – Aug 2015.
- **Senior Web Application Developer**, ActiveConversion and FP iMarketing, Calgary, Alberta, Canada. April 2013 – June 2014.
- **Web Application Developer**, Commerx Corporation, Calgary, Alberta, Canada. July 2012 – March 2013.
- **Research and Teaching Assistant**, Department of Math and Computer Science, University of Lethbridge, Lethbridge, Alberta, Canada. June 2010 - to date.
- **Network Quality Engineer**, Network Quality, Orascom Telecom Bangladesh Limited (Banglalink), Dhaka, Bangladesh. January 2010 - June 2010.
- **Network Quality Junior Engineer**, Network Quality, Orascom Telecom Bangladesh Limited (Banglalink), Dhaka, Bangladesh. August 2007 - December 2009.
- **Junior Software Engineer**, Software Development, Brotecs Technology Limited, Dhaka, Bangladesh. September 2006 - April 2007.

Selected Industrial Projects

- *Architect, designed and developed Cart and Payment Processing Framework for BasicGov that enables Governments to integrate with Payment Gateways (Bank and Payment Processors) in Cloud (Salesforce.com).*
 - *Currently used by Minnesota State Government (with US Bank), City of Elgin, IL (with Monexa Payments) and Department of Public Safety, Massachusetts (with HP Pay Services).*
- **Multi-tier web application** for a number of clients including Calgary Interface Food Bank, Impact Society, Calgary Stampede Parade, Calforex Interpay solutions, etc using different **PHP MVC Framework**
- *C/C++ software "**Statistical Toolkit for Software Code Base (STSCB)**" for computing architectural complexity metrics, compare releases and total release between any two releases.*
- *Java web applications (**DSS-IS and PEO Portal**) that serves client base of leading recruiting service provider "Diversified Staffing Services" in Canada using Spring Framework.*
- *Developed **MSSQL Adapter and PHP Data Object (PDO) Adapter** for PHPRum Framework so that the database abstraction layer can handle transaction similar to all other database.*

- **Numerous commercial and organizational websites** using programming and scripting languages: PHP, ASP.NET, AJAX, ASP.NET, Perl, etc and using database: MySQL and MsSql. For more details visit <http://www.tahsinz.com>

References

Available Upon Request