

# Atulan Zaman

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## Skills Overview

### Programming

Object Oriented Programming	Java and C# skills from research work on 'Alloy' constraint solver, academic and personal projects
Scripting	Perl and Bash scripting expertise from designing testing framework with perl source-code for Blue Coat Systems Inc.
Logic Programming	Creating predicate logic and closed models using Prolog and Alloy domain specific language for research and personal projects
Embedded Programming	Programming kernel level applications with C and C++ and hardware level FPGA designs using VHDL for Altera DE2 and Xilinx ARM Processor
Web Design	Using HTML, CSS, XML parsing and PHP with an Apache and MySQL server backend to program features for dynamic corporate website for DataSoft Systems Bangladesh Ltd. <a href="http://www.datasoft-bd.com">http://www.datasoft-bd.com</a>

### Domain Specific Skills

Model Checking & Algorithms	Inferencing properties of graph models using formal logic predicates and writing graph algorithms to implement visualization features
Testing Framework Design	Industry standard testing framework design experience during 8 months co-op term at Blue Coat Systems JUnit test suite creation for research and private projects

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## Research Internship Experience

Jan 2012 - Ongoing	<b>Undergraduate Research Assistant</b> , <i>University of Waterloo</i> , Waterloo, ON. Working with Dr. Derek Rayside on extending the Java based graph model visualizer for 'Alloy'. <a href="http://alloy.mit.edu/alloy/">http://alloy.mit.edu/alloy/</a>  Inferencing model properties such as relation arity, skolemization and type hierarchy dependency using formal logic and creating visually pleasing layout and draw algorithms  Extensive use of several java drawing libraries eg. <code>java.awt.*</code> , to implement graphic features and visual simplification techniques  The visualization project is currently ongoing and is a candidate for publication in journal
May 2010 - Aug 2010	<b>Research Project Associate</b> , <i>DataSoft Systems Bangladesh Ltd</i> , Dhaka, Bangladesh. Research experience working under Dr. Maqsdul Alam of University of Hawaii on jute genome synthesis research, in collaboration with DataSoft, primarily in creating report generation tools with Perl and Bash scripting.  Worked on creation and maintenance of a "Rocks" Linux Cluster Computer with 28 cores, for efficient processing of gene mapping and sorting tools

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## Work Experience

- Sept 2011 - Jan 2012 **Automation Framework Engineer**, *Blue Coat Systems Inc.*, Waterloo, ON.  
Individual responsibilities included extending the perl based dynamic automation testing framework to create a new real-time web reporting module for the daily automated test runs  
Active programming experience in object oriented perl and bash, relational database querying using SQL as an extension for the reporting module project  
Interaction with senior programmers in design compatibility analysis and code review
- Jan 2011 - April 2011 **Quality Assurance Engineer**, *Blue Coat Systems Inc.*, Waterloo, ON.  
Engineering test suites for proxy server appliance using the perl based testing framework.  
Understanding of different network protocols and ad-hoc data propagation to resolve and fix bugs

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## Career Interests

- Machine Learning & AI Interested in application of self taught knowledge and exploration of machine learning, artificial intelligence, learning algorithms and principles of cognitive science primarily from reference books and online courses as a hobby
- Models & Logic Continue current research interest and explore further implementations of Alloy models and their powerful SAT solving engine in broader disciplines, potentially in the area of Artificial Intelligence

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## Relevant Academics

- OS and Kernel Programming Completion of academic project to program a 'Space Invader Game' on a Xilinx ARM processor using kernel level C and concepts including scheduling, memory management, concurrency and driver development
- Compilers Created a compiler and simulator for VHDL using Java.  
Project included implementation of advanced object oriented programming practices such as 'Visitor Pattern' of interface design, and exploring several parser generator tools such as 'Parboiled'

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## Accolades

- Academic Scholarship Received Engineering scholarship & International Student Scholarship for Academic Excellence, 2009
- United Nations Awarded the Volunteer of the Year Award 2008/2009 for UN Youth & Student Association of Bangladesh for successfully managing several awareness campaigns and events and showing exceptional creativity
- Boy Scouts Attended International Jamborees in Thailand, Japan and have led a team for International Jamboree in South Korea during high school extra-curricular activities

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## Faculty Reference

- Derek Rayside Assistant Professor, University of Waterloo  
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<https://ece.uwaterloo.ca/~drayside/>