

MILINDA PATHIRAGE  
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## EDUCATION

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### **PhD in Computer Science**

*Indiana University*, Bloomington, IN

*August 2011 — Current*

### **BSc of Engineering in Computer Science — GPA 3.672/4.2**

*University of Moratuwa*, Katubedda, Sri Lanka

*May 2008*

## RESEARCH INTERESTS

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Data Intensive Distributed Computing, GPGPU Computing, Programming Languages and Models for Distributed computing, Distributed Stream Processing, Data Mining and Machine Learning

## SKILLS

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Distributed Systems, Cloud Computing, GPGPU, SOA & Web Services, Workflows, Programming Languages, HPC

Java, Python, JavaScript, C, C#, CUDA, Clojure, Rust, Ruby, Scheme, Go

Windows Azure, Amazon Web Services, Apache Hadoop, Apache Giraph, Apache Axis2, Play Framework, WSO2 Carbon

## SELECTED COURSES

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B521 - Principles of Programming Languages

B522 - Foundations of Programming Languages

P523 - Programming Language Implementation

B524 - Parallelism in Programming Languages

P536 - Advanced Operating Systems

B649 - Parallel Architectures

## CAREER HISTORY

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### **Research Assistant**, *Data to Insight Center, Indiana University*

*Fall 2011 — Present*

In his first year as a research assistant, Milinda worked on investigating use of Cloud Computing for pleasingly parallel scientific computing applications. Now he is investigating use of GPU clusters and Cloud platforms for large scale text data mining involving around 10 million digitized books.

Selected Contributions:

- Windows Azure based pleasingly parallel task execution framework.
- OAuth2 based security implementation for Hathitrust Research Center software stack.

### **Technical Lead and Product Manager**, *WSO2 Inc.*

*May 2008 — July 2011*

Milinda designed and implemented the first version of the WSO2 Business Process Server during his first year at WSO2. Then he led the WSO2 Business Process Server team for about 2 and 1/2 years. He won 'WSO2 Outstanding Contributor' award in two consecutive years for his contributions to WSO2 Business Process Server and WSO2 Carbon platform. Before founding WSO2 BPS project, Milinda contributed Apache Axis2/C related projects at WSO2 and implemented Python bindings for Axis2/C web services client.

Selected Contributions:

- Designed and implemented first version of WSO2 Business Process Server.
- Designed and implemented WSO2 Business Process Server as a Service.

- Designed the initial version of WS-Human Task based human interaction module for WSO2 BPS and contributed to its implementation.
- Contributed several major releases of WSO2 Carbon platform
- Implemented Python bindings for Axis2/C client API.
- Improved WSO2 WSF/PHP key management support.

**Software Engineering Intern**, WSO2 Inc.

Sep 2006 — Apr 2007

Milinda contributed Apache Axis2/C project during his 8 months as a intern at WSO2.

Selected Contributions:

- Improved Apache Axis2/C performance by 300% by fixing major bug in UUID generation code and doing other code optimizations.
- Improved WSDL2C code generation module by contributing fixes and new features for Apache Axis2/C 1.0 release.
- Implemented automated test framework for WSDL2C code generation module.

**PMC Member and Committer**, Apache Software Foundation

2007 — Current

Milinda contributed to Apache Axis2, Apache Axis2/C, Apache Rampart/C, Apache ODE and Apache Airavata projects as a core member of the community. Milinda is currently working on Apache Giraph project during his free time.

- Re-designed Apache Airavata GFac framework which handles grid job submissions and management based on 'Chain of Responsibility' pattern to improve its extensibility and reusability.
- Implemented initial version of Apache ODE management console.
- Contributed to Apache Rampart/C certification management implementation and implemented support for WS-Trust specification in Rampart/C.
- Contributed to Apache Axis2/C's WSDL2C code generation module and to various other modules including performance improvement related patches.

## SELECTED PUBLICATIONS

Eric Holk, Milinda Pathirage, Arun Chauhan, Andrew Lumsdaine, Nicholas D. Matsakis. **"GPU Programming in Rust: Implementing High-level Abstractions in a Systems-level Language,"** in *18th International Workshop on High-level Parallel Programming Models and Supporting Environments (HIPS)*. 2013.

Milinda Pathirage, Srinath Perera, Indika Kumara, Denis Weerasiri, Sanjiva Weerawarana. **"A Scalable Multi-Tenant Architecture for Business Process Executions,"** in *International Journal of Web Services Research (IJWSR)*. April 2012.

Milinda Pathirage, Srinath Perera, Indika Kumara, Sanjiva Weerawarana. **"A Multi-tenant Architecture for Business Process Executions,"** in *Proceedings of the 2011 IEEE International Conference on Web Services*. 2011.

Kowalczyk S. T., Y. Sun, Z. Peng, B. Plale, A. Todd, L. Auvi, C. Willis, J. Zeng, M. Pathirage, S. Liyanage. **"Big Data at Scale for Digital Humanities: An Architecture for the HathiTrust Research Center,"** in *Big Data Management, Technologies, and Applications, Wen-Chen Hu and Naima Kaabouch (eds)*. 2013

Chandrasekar, K., M. Pathirage, S. Wijeratne, C. Mattocks, and B. Plale. **"Middleware alternatives for storm surge predictions in Windows Azure,"** in *3rd Workshop on Scientific Cloud Computing (ScienceCloud '12) at HPDC '12*. 2012

## AWARDS AND HONORS

<b>Google Summer of Code</b> , For open source contribution to Apache Airavata	2012
<b>Outstanding Contributor</b> , WSO2 Inc.	2010
<b>Outstanding Contributor</b> , WSO2 Inc.	2009
<b>Google Summer of Code</b> , For open source contribution to Apache ODE	2008

## ACTIVITIES

<b>Mentor</b> , Google Summer of Code	2010
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