

# Indika Deepal Jayasinghe

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**Objective**      As a highly motivated and skilled software engineer, architect and researcher, my objective is to consistently strive to gain a higher level of knowledge and obtain a research oriented career position of high technical impact in distributed computing; to contribute in the development of applications for next generation middleware, services and cloud computing.

**Education**      **Georgia Institute of Technology**      2008 - Present  
PhD Student in Computer Science      Advisor: Dr. Calton Pu

**University of Moratuwa, Sri Lanka**      2000 - 2005  
BSc. Computer Science and Engineering

**Publications**      **Book: Apache Axis2 Web Services**      Published in February 2011  
Create secure, reliable, and easy-to-use web services using Apache Axis2

**Book: Quick Start Axis2**      Published in May 2008  
Practical guide to develop Web service with Apache Axis2

## Refereed Publications

- Qingyang Wang, Simon Malkowski, Yasuhiko Kanemasa, **Deepal Jayasinghe**, Pengcheng Xiong, Motoyuki Kawaba, Lilian Harada, and Calton Pu. *The Impact of Soft Resource Allocation on n-Tier Application Scalability*. IPDPS 2011.
- Simon Malkowski, Markus Hedwigy, **Deepal Jayasinghe** and Calton Pu. *CloudXplor: A Tool for Configuration Planning in Clouds Based on Empirical Data*. ACM SAC 2010.
- Simon Malkowski, **Deepal Jayasinghe**, Markus Hedwigy, Junhee Park, Yasuhiko Kanemasaz, and Calton Pu. *Empirical Analysis of Database Server Scalability Using an N-tier Benchmark With Read-intensive Workload*. ACM SAC 2010.
- S. Perera, C. Herath, J. Ekanayake, E. Chinthaka, A. Ranabahu, **D. Jayasinghe**, S. Weerawarana, G. Daniels: *Axis2, Middleware for Next Generation Web Services*. ICWS Aug. 2006. pages 833-840.
- **D Jayasinghe**, R Wewagedara, A Jayasekara, V Jayarathne: *Client Transparent Fault Tolerant System for SOAP based Web services*. IICT 2004.

## Invited Papers

- Simon Malkowski, Markus Hedwigy, **Deepal Jayasinghe**, Junhee Park, Yasuhiko Kanemasaz, and Calton Pu. *A New Perspective on Experimental Analysis of N-tier Systems: Evaluating Database Scalability, Multi-bottlenecks, and Economical Operation*. CollaborateCom 2009.

## Selected Magazine Articles

- FAWS for SOAP-based Web services -IBM Developer Works.
- The Axis2 Deployment model, Part 1: Six ways the Axis2 deployment model is more user friendly - IBM Developer Works.
- Axis2 Execution Framework -www.developer.com
- Invoking Web Services using Apache Axis2 -http://today.java.net
- Web Services are Not Slow - WSO2 Oxygen Tank.

**Research Experience**      **Georgia Institute of Technology**      Graduate Research Assistant  
Atlanta, GA      2008 - Present  
My research focuses on (1) creating an extensible, flexible and modular framework to facilitate and to automate large scale experiment evaluations on computing clouds; (2) use the framework to analyze and resolve system scalability and performance issues when running n-tier applications on clouds; (3) performance comparisons and tuning various database clustering technologies using large scale experiments.

**Work Experience**      **IBM T.J. Wastson Research Center**      Summer Research Intern  
Hawthorne, NY, USA      May 2010 - Aug 2010  
Improving performance, scalability, and availability of cloud based enterprise applications through

structural constraints aware virtual machine placement. This problem led to three main contributions: first, analyzing the complexity of the problem, design and implement three approximation algorithms; second, modeling applications and datacenters with structural constraints; third, systematically evaluate the efficiency of the approach.

**IntercontinentalExchange**

Atlanta, Georgia, USA

Summer Research Intern

May 2009 - Aug 2009

Implemented an Automated test generation approach to measure round trip latency for different types of transports, message rates, message sizes, artificial message loss, different network topologies, with and without firewalls. Designed and Implemented an automated and auto-scaling approach to generate trading data using commercial Cloud, and empirical analysis of Cloud behavior for homogeneous application co-location vs Single application on one instance.

**WSO2 Inc.**

Colombo, Sri Lanka

Technical Leader

2005-2008

Actively involved in open source development by contributing to Apache software foundation. Architected and further developed Apache Axis2. Involved with conference speaking, on-line and on-site customer training on Web services and related projects.

**Lanka Software Foundation**

Colombo, Sri Lanka

Software Engineer

2004-2005

Contributed to initial designed and development phase of Apache Axis2 - The leading open source SOAP processing framework.

**Department of Computer Science and Engineering**

University of Moratuwa

Teaching Assistant

Six months

Instructed C programming language class.

**OPRO Lanka**

Colombo, Sri Lanka

Software Engineer Intern

2002-2003

Designed and developed a Character Encoder for Japanese characters (UTF8, Shift JIS, and EUC JP).

**Conference Presentation**

- *Speaker* Apachecon US 2009, Oakland, CA, USA.
- *Speaker* Apachecon US 2008, New Orleans, USA.
- *Speaker* Colorado Software Summit-2007, Colorado, USA.
- *Speaker* Apachecon US 2007, Atlanta, Georgia, USA.
- *Speaker* Apachecon EU 2007, Amsterdam, Netherlands.
- *Speaker* XML 06, Boston , USA .
- *Speaker* Apachecon Asia 2006, Colombo, Sri Lanka.
- *Speaker* Apachecon US 2006, Austin Texas , USA.
- *Speaker* Apachecon US 2005, San Diego ,USA.

**Computer Skills    Computer Languages**

Java, JRuby, javascript, Delphi, C, C++, Lisp, Shell script, HTML, CSS, XML, XSL, SQL

**Web Services**

All major Web services standards including WSDL, SOAP, WS-Policy and other WS-\*

**Apache Tools**

- Apache Axis2 (one of the primary architects/developers) and all Web Service tools, Apache Tomcat, Apache Synapse, Apache ODE(WS-BPEL) and Apache Abdera (APP).
- Project Management tools: Maven, Ant.

**Software**

Intellij IDEA, Eclipse, IBM DB2, IBM Websphere, Jboss, MySQL, Apache Derby, Hypersonic SQL.

## **Platforms**

Linux(Debian,Ubuntu), Fedora, Sun Solaris, Windows XP.

## **Achievements**

### **Membership**

- Member - Apache Software Foundation.
- PMC Member - Apache Web Services and Apache Synapse.
- Associate Member - Institute of Engineers, Sri Lanka.

### **Mentor**

- Google summer of Code 2005, 2006, 2007, 2008 and 2009.

## **Projects**

### **ELBA**

2008 - Present

Automated Design/Configuration Evaluation and Tuning tool. A collaboration research project with Georgia Institute of Technology and HP labs.

### **Apache Axis2**

2004 - Present

Open source Web Service framework ([www.apache.org/axis2](http://www.apache.org/axis2) ). Contributed in designing, developing and implementing since the first day of the project.

### **Apache Axiom**

2004 - Present

An XML Infoset implementation, implemented to support both PUSH(SAX) and PULL(StAX) parser technology, On demand building and inbuilt support for binary data.

### **WSO2 WSAS**

2005 - 2008

An open source web service application server built on Axis2. Provides a developer a user friendly Web service applications development and hosting environment.

### **WSO2 Registry**

2007 - 2008

A flexible store with SOA Governance, Life cycle Management, Community awareness, version management and dependency management support.

### **Sahana (Phase1)**

2004 - 2005

Disaster Management system which was developed to manage resources and provide better services to Tsunami affected people in Sri Lanka and other Asian countries.

### **FAWS -Fault Tolerant System for SOAP based Web services**

2003 - 2004

A client-transparent Fault tolerant system for SOAP based Web services in a distributed network. One year group research project.

## **References**

**Available upon request**