Sai Charan, Koduru

Autodidactic polyglot, hacker, thinker and researcher.

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Experience

Intern, Microsoft Research.	Jun 2013 – Sep 2013
Research Assitant, University of California, Riverside.	Mar 2011 – present
Senior Software Engineer, Yahoo! Inc.	Jul 2010 – Feb 2011
R&D Software Engineer, Nokia.	Apr 2008 – Jun 2010

Interests

Compiler/Language support for Multi-core/GPU programming and performance tuning, Distributed programming for BigData applications, run-time monitoring & tuning of parallel systems. Dynamic programming languages & Cryptography.

Education

Ph.D., Computer Science, University of California, Riverside. *Advisor: Dr. Rajiv Gupta*.	Mar '11 – present
M.Tech., Computer Science, *Summa Cum Laude*, Sri Sathya Sai University, India.	2008
M.Sc., Math & Computer Science, *Summa Cum Laude*, Sri Sathya Sai University, India.	2006
B.Sc.(Honors), Math, *Summa Cum Laude*, Sri Sathya Sai Institute of Higher Learning, India.	2004

Publications & Talks

Programming Applications with Very Large Data Sets, Invited talk. COSMIC Workshop, CGO 2013, Shenzhen, China. February 24th, 2013.

An Empirical Analysis of the Bug-fixing Process in Open Source Android Apps, Pamela Bhattacharya, Liudmila Ulanova, Iulian Neamtiu, and Sai Charan Koduru, 17th European Conference on Software Maintenance and Reengineering (CSMR 2013). March 5th – 8th 2013

N-Dimensional Baker Maps for Chaos Based Image Encryption, Sai Charan & V. Chandrasekaran, Proceedings of IEEE ICETiC 2009, pp 31-34 (Oral track). January 8th – 10th 2009

Random-Walk based Baker maps for Chaos Based Image Encryption, Sai Charan & V. Chandrasekaran, IPCV 2008 Monte Carlo Resort, Las Vegas, Nevada, USA. (link to proceedings). July 14th – 17th 2008

Integrated Confusion-Diffusion Mechanisms for Chaos Based Image Encryption, Sai Charan & V. Chandrasekaran, IEEE CIT 2008, Sydney, Australia (link on IEEE Xplore). July 8th – 11th 2008

A Block DCT Based Optical Character Recognition System, Sai Charan & G.V. Prabhakar Rao, Poster Presented at International Conference: NexGen IT for Societal Advancement & Integration, Prashanthi Nilayam, India. July 15th – 17th 2006

Invited article for Nokia internal blog: 'WrechScience', on development tools and practices.

Technical Skills

Languages C, OOP with C++, JavaScript, HTML, Perl, Python, UML. Working knowledge in Matlab, Lisp, and Linux shell scripting. Familiar with Qt Application framework.

Toolkit Git, emacs, Eclipse, Apache Web Server, MySQL & jQuery.

Agile Development Worked with Scrum methodologies since April 2008. Brief stint as Scrum Master.

Projects

Graduate & Doctoral

Language Support for Applications with Very Large Data Sets. Ongoing

Distributed Shared Memory for Large Dynamic Data Structures. Summer '12 – Fall '12

Automated run-time resource optimization for multi-core systems. Summer – Winter '11

Investigation of Packet Size Distributions during busy periods using network traces. Fall '11

An Empirical Study on Bug Categorization in Android Applications. Spring '11

Mult-Dimensional Baker Maps for Chaos based Image Encryption (M.Tech. thesis). Summer '07 - Fall '08

Block DCT based Optical Character Recognition *for Telugu script* (M.Sc. thesis). Winter '06

Garage

LLVM frontend for the open-source V8 JS engine: supervised M.Tech.(CS) thesis for SSSU students.

Gitweb side-by-side diff in JS (default ships only with Unified diff).

Nokia Voice Messaging Pioneering contributer to Nokia Voice Messaging platform PoC – now approved to become a Nokia platform for emerging markets.

SaveURI Firefox extension – for Firefox 2.0+ (link on addons.mozilla.org); more at Github & Gists.

OAuth Implemented an OAuth library in Python from RFC (for fun & learning).

Yahoo! Inc.

Yahoo! Store Customer personalization & social features for the Award winning Yahoo! Store.

RTML Compiler Extended the RTML compiler to support multi-image directive for store fronts.

Yahoo! Store Paranoid Yahoo! Store SPOC for security, audit & PCI review.

PCI Compliance Enhancements & technical audit for new feature PCI compliance & payment security.

Nokia

Low Disk Space Notifier Design and development of Low Disk Space service provider middleware module for Nokia's Client Platform for Qt/S60.

Device Search Cross-platform search engine based on CLucene, ported to the Symbian platform with total ownership of harvester plugins. Designed, implemented, productized & maintained the Qt/C++ engine. Automated the testing & performance benchmarking of the engine via Perl/Python scripts. My role was a developer cum tech-lead.

Ovi Settings Designed and implemented subsets of the Ovi Settings application on S60 in C++. Complete responsibility for designing the subsystems. Ovi Settings is a control panel for customizing Ovi web preferences from the mobile.

Nokia Account Client Enabler Security Module Complete ownership for design and development of security framework for Nokia's SSO Qt enabler for Windows (ships with Nokia Ovi Suite 2.0+).

NoA SSO Qt Enabler Designed, implemented and managed a team for a cross-platform test suite.

Honors & Awards

Youngest Member, Nokia Technical Committee – an elite body headed by the Director of Technology, Nokia Bangalore, responsible for reviewing emerging technologies and their relevance to Nokia; early prototyping of pertinent technologies and recommending their adoption in products.

Nokia Kudos awards for turbo boosting the performance of Device Search project & for independent research and shipping of Nokia's SSO project. Dec '09 & Mar '10

President of India, Dr. A. P. J. Abdul Kalam *Gold Medal* for excellence in M.Tech (CS). Nov 2008

Sri R.V. Janakiramaiah *Gold Medal* for excellence in M.Sc. (Math with specialization in CS). Nov 2006

Justice P.N. Bhagawati *Gold Medal* for excellence in the B.Sc. Honors (Mathematics). Nov 2004