

# Sai Charan, Koduru

*Autodidactic polyglot, hacker, thinker and researcher.*

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## EXPERIENCE

Research Assistant, University of California, Riverside.	Mar 2011 – present
Researcher (Intern), Microsoft.	Jun 2013 – Sep 2013
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, run-time monitoring & tuning of parallel systems. Dynamic programming languages & Cryptography.

## EDUCATION

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

## PUBLICATIONS

*ABC<sup>2</sup>: Adaptively Balancing Computation & Communication in a DSM cluster of Multicores for Irregular Applications*, Sai Charan Koduru, Keval Vora, Rajiv Gupta, IPDPSW, High-Level Parallel Programming Models and Supportive Environments (HIPS 2014). 19<sup>th</sup> May '14

*Programming Large Dynamic Data Structures on a DSM Cluster of Multicores*, Sai Charan Koduru, Min Feng, Rajiv Gupta, 7th International Conference on PGAS Programming Models ([PGAS 2013](#)). 3<sup>rd</sup> – 4<sup>th</sup> Oct '13

*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 5<sup>th</sup> – 8<sup>th</sup> 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 8<sup>th</sup> – 10<sup>th</sup> 2009

*Random-Walk based Baker maps for Chaos Based Image Encryption*, Sai Charan & V. Chandrasekaran, IPCV 2008 Monte Carlo Resort, Las Vegas, Nevada, USA. [IPCV 2008](#)). July 14<sup>th</sup> – 17<sup>th</sup> 2008

*Integrated Confusion-Diffusion Mechanisms for Chaos Based Image Encryption*, Sai Charan & V. Chandrasekaran, IEEE CIT 2008, Sydney, Australia ( [IEEE CIT 2008](#)). July 8<sup>th</sup> – 11<sup>th</sup> 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 15<sup>th</sup> – 17<sup>th</sup> 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
Automatic Adaptive Balance of Computation & Communication.	Winter '13 – Spring '13
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 <i>Telugu script</i> (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 contributor 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](http://link.on.addons.mozilla.org)); more at [Github](#) & [Gists](#).

*RateMyProfilePic*: Simple facebook application (running on AWS) to rate/vote profile pictures.

*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.

*Client Platform Service Framework* Re-design and development of phone widget installer's registry.

*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.

*Ovi Setup prototype* Co-created and maintained a rapid prototyping framework in JavaScript which enabled easy prototyping of any UI screens. In the process we contributed functionality to Nokia's WRT Toolkit.

## HONORS & AWARDS

*CGO 2013 Travel Grant* to present our research at the 2013 International Symposium on Code Generation & Optimization (CGO) workshop, [COSMIC](#) at Shenzhen, China. Feb 2013

*Dean's Distinguished Fellowship 2011* for the Graduate program at the University of California, Riverside.

*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

## EXTRA CURRICULAR ACTIVITIES

*Research Mentoring* Supervised M.Tech.(CS) students' research projects and course work at my *Alma Mater*.

*System & Network Administration* Four years experience as lead system & network administrator for Windows and Linux systems & student webmaster, DMACS (Department of Mathematics & Computer Science), SSSU. Designed & implemented Active Directory Services on Windows Server 2003 for DMACS, SSSU.

*Dev Forum* Organized bi-monthly Dev Forum at Nokia to discuss and solve interesting problems/issues.

*Communications Team Lead* Student team lead for the wireless communications group for Grama Seva (Rural Development) activities of University.

*External Reviewer* [IET](#), [Signal Processing](#) (cryptography track).