

S. P. T. Krishnan

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DOB : 22/12/1976
Nationality : Indian; Singapore PR
Languages : English, Tamil, Hindi, Telugu

**OBJECTIVE:**

Seeking a challenging career with R&D component in a world-class company that provides ample opportunities for career growth, and welcomes innovations.

Domains of interest/experience: Systems security, HPC (Linux Clusters), Linux Kernel Development, Data mining, RTOS/Linux based embedded systems.

EXECUTIVE SUMMARY / CAREER HIGHLIGHTS

- M.S. (by Research) from NUS, Singapore
- Ph.D. (part-time) in progress...
- Awarded "Red Hat Certified Engineer of the year 2007, Asia Pacific"
- Recognized as "Role Model" for a Research Engineer by I²R
- Red Hat Certified Engineer
- Built and deployed a 16+1 node Linux cluster independently.
- Experienced in Systems security, HPC, embedded, and Data Mining domains
- 6+ years in Research & Dev., Software Engineering, and System Administration.
- Certifications: Wi-Fi security, LSB, SDLC Management, Effective Project Presentation Skills and Commercial Law & Intellectual Property Management.

EDUCATIONAL HISTORY:

PhD (current, part-time)

Major: Computer Science (High Performance Computing)
ECE, National University of Singapore, Singapore.
01.2005 (started)

M.S. (by Research)

Major: Computer Science (by Research)
Research Area(Topic): Process migration (Secure Digital Content Distribution)
School of Computing, National University of Singapore, Singapore.
09.1999 – 06.2001

B.E.

Major: Electronics and Communications Engineering.
University of Madras, Tamil Nadu, India.
1994 – 1998

GRADUATE MODULES

- Real-Time Systems
- Multi-Processor Systems
- Evolutionary Computation
- Advanced topics in Programming Languages and Systems
- Cryptography Techniques and Data Security
- Neural Networks
- Pattern Recognition

SELECTED PUBLICATIONS

Invited chapters:

- SPT Krishnan, Bharadwaj Veeravalli, and Lawrence Wong, "Wireless LAN Security and Privacy", To appear as a Chapter in Encyclopedia of Wireless and Mobile Communications, CRC Press, Taylor & Francis Group, USA, 2007.
- SPT Krishnan, Bharadwaj Veeravalli, and Lawrence Wong, "WiMAX Architecture, Protocols, Security and Privacy", Encyclopedia of Wireless and Mobile Communications, 2008.

Journal publications:

- P Carninci et al, The Transcriptional Landscape of the Mammalian Genome, Science, 309:1559-1563, 02 Sept. 2005
- B Mohanty, SPT Krishnan, S Swarup, VB Bajic, Detection and Preliminary Analysis of Motifs in Promoters of Anaerobically Induced Genes of Different Plant Species, Ann Bot-London, Jul 18; [Epub ahead of print], 96(4):669-81, 2005
- M. Brahmachary, S. P. T. Krishnan, Judice L. Y. Koh, Asif M. Khan, Seng Hong Seah, Tin Wee Tan, Vladimir Brusic, Vladimir B. Bajic: ANTIMIC: a database of antimicrobial sequences. Nucleic Acids Research 32(Database-Issue): 586-589 (2004)

Conference publications:

- Bijayalaxmi Mohanty, S.P.T. Krishnan and Vladimir. B. Bajic. Core Promoters Analysis of Rice Genome. Poster no. 025 presented at The 5th International Symposium of Rice Functional Genomics held at Epochal Tsukuba, Japan from 15-17 October, 2007.
- Judice L.Y. Koh, S.P.T Krishnan, Seah Seng Hong, Paul T.J. Tan, Asif M. Khan, Mong Li Lee, Vladimir Brusic. BioWare: A framework for bioinformatics data retrieval, annotation and publishing, in ACM SIGIR Workshop on Search and Discovery in Bioinformatics (SIGIRBIO), Sheffield, UK, July 2004.

EXPERIENCE:

07.2001 – Until Now (6+ years)
Senior Research Engineer
Institute for Infocomm Research (I²R)
Singapore

The various projects that I am currently working on can be grouped together under systems security domain. In particular, I am working on mobile device security, wireless security, network data mining, simulation & visualization, software self healing (self-patching), intrusion detection & prevention systems, and advanced honey pots.

Additionally, I have worked on several projects that can be categorized under the domains of High Performance Computing, machine-learning & data-mining and data-warehousing. To highlight a few; I built a 16 node Beowulf cluster (independently), several web-based machine-learning & data-mining systems and web-database systems.

09.1999 – 06.2001 (~2 years)
Research Scholar (Master Degree) @ School of Computing, NUS.
Attached to Kent Ridge Digital Labs (KRDL)
Singapore

The research area was computer process migration and its applications in securing digital distribution channels. Implementation was done on Win2K OS / x86 architecture. Some of other techniques as part of the system design were unique encryption and decryption, smart card validation etc

01.2000 – 06.2001 (1.5 years; Runs concurrently with above)
System Administrator (part-time)
Kent Ridge Digital Labs (KRDL)
Singapore

The responsibilities were to install, configure and maintain servers based on Solaris, Linux and Windows OS. Application software like email server, bugzilla – a bug reporting and tracking software were handled. Oracle database, veritas backup system, software and hardware RAID were also maintained.

05.1998 – 08.1999 (1.25 years)
Embedded Software Engineer
Instrumentation and Embedded Resource Centre,
Pentafour Communications Limited (PCL), Pentafour Group, India

Responsible for embedded software projects. Designed and developed embedded software on micro-controllers Intel 8051, 80196 and Motorola 68HC11. Projects were implemented in respective assembly languages and embedded 'C'. Implemented hard/soft Real-Time systems using operating systems like pSOS, VxWORKS and RTX-51. Also conducted software seminars for corporate customers.

SELECTED PROJECTS:

@i2r:

- Wireless/Mobile security project

Two main recent projects are on wireless security and mobile security. In the wireless security, I was part of a team which built an enterprise-class research prototype comprising of a wireless controller and several access point. In the mobile space, I am working on attacks and defenses against major mobile operating systems and platforms.

- Linux HPC / HTC project

The aim was to build a Linux Beowulf cluster. I built and rolled-out the entire cluster starting from h/w assembly, OS (NPACI Rocks) installation to application development/deployment. Some deployed applications include mpiBLAST, clustalw-mpi and a PVFS-based multimedia server.

- Machine-Learning and Data-Mining systems

Machine learning projects involving building of web-based systems for DNA signal processing/interactions and data-clustering systems based on SOM.

- Data-warehousing systems

The three major projects under this category are Bioware, PPDB and ANTIMIC. Bioware is a web-based biological data-warehousing system which allows users to create small specialist databases online. PPDB and ANTIMIC are web-based databases for plant promoters and specialist proteins.

@National Blood Programme (voluntary)

- www.donorweb.org

I am currently the chairman of donorweb.org, a voluntary portal of the National Blood Programme. I am leading a team of IT professionals from diverse backgrounds with the mission of using IT for blood donor recruitment, renewal and recall.

I have developed and/or deployed the following systems:

- SMS Gateway using kannel.org open-source SMS & WAP gateway.
- Email Gateway using GNU Mailman.
- Web portal using wordpress personal publishing software.
- Singapore Blood Stock Indicator using JFreeChart library and JSP.
- Bloodmobiles calendar using EasyPHPCalendar.
- Forums using vBulletin message board.
- Several projects using PHP, MySQL, Perl, JS, HTML & Forms.
- System & Network administration.

@PCL:

- Communication Gateway for Process control Systems
 - 04.99 – 07.99.
 - The system collects information from 3 different PLCs each one following different protocols, i.e., Allen-Bradley DF1, MODBUS and Proprietary respectively, through RS 232 Serial ports and forwards this to Plant Wide Process LAN which follows TCP/IP protocol.
 - Developed using pSOS 'C' on x86.
 - Tools used: pRISM+ for pSOS.
 - Team size: 2.

- Real Time Control System for an industrial Plant
 - This system is designed for typical water treatment plant control automation; this system also provides data logging and programmable set points.
 - RTX-51 & 'C' on Intel 8032 micro-controller.
 - Tools used: KEIL's Micro Vision, In Circuit Emulator.
 - Team size: 3.

@University/Post-Secondary

- Auditing of users in UNIX OS
1996, B.E. (2nd year).

The application audits and archives the login-activity of all users in a UNIX system and requires only normal user privileges. The application is real-time in that it can remind users when they exceed their allotted session timing. When executing under root privileges the system can also terminate their sessions. Pentagon educational services awarded "Best project of the Month" to this project. The implementation was done using Bourne shell and awk script on SCO UNIX.

- Contacts database in BASIC
1994, 12th standard.

The application facilitates the user to store and retrieve detailed contact information of their contacts permanently in a disk file. Variable-Time on-screen reminder service for special occasions was also implemented. Extensive searching facilities (comparable to a scaled down dBase) adds value to the whole system. Implemented using BASIC on MS-DOS OS.

SKILL SET

Software Development:

- Languages: C, C++, Perl, Python, Ruby, Java, F77 and Basic
- API: C and C++ std. lib., Win32 API and MFC
- Web: HTML + Forms, CGI-Perl, PHP
- IDE: VS.NET, Komodo, Tornado for VxWORKS, Prism+ for pSOS
- Assembly: ARM, Intel (8085, 8086, 8051, 80196) and Motorola 68HC11
- RDBMS: MySQL, Oracle + forms, FoxPro
- OS: Linux, OpenBSD, Windows, Solaris and UNIX
- Embedded and RTOS: Symbian, Windows Mobile, VxWORKS, pSOS and RTX-51
- Applications: Microsoft Office, Lotus 123 among many others.

Certifications and courses:

- Red Hat Certified Engineer (RHEL3)
- Enterprise System Monitoring and Performance Tuning
- Wi-Fi security
- Linux Standard Base
- Software Development Management
- Effective Project Presentation Skills
- Commercial Law and Intellectual Property Management
- Scientific Skills Writing
- Certified Bio Perl Programmer

- English typewriting, Higher Grade; 1994.

AWARDS, PROFESSIONAL AND SOCIAL ACTIVITIES:

Awards and Recognitions:

- Red Hat Certified Engineer of the year, APAC - 2007
- "Role Model" for a Research Engineer at I²R, Singapore for the year 2001-02.
- NUS "Research Scholarship" for pursuing "M. S. (by Research)" in Computer Science from 09.1999 - 06.2001.
- Nominated for Singapore Presidents' Social Service Award 2004.
- Indian President's Award, Scouts & Guides movement.
- English Oratorical Competition (2nd price), District Level.

Professional Activities:

- Reviewer/IPC:
 - IEEE Transactions on Computers
 - IEEE International Conference On Networking 2007
 - IEEE Congress on Evolutionary Computation 2007 (pc)
 - IEEE Intl. Conference on Computational Intelligence and Security 2007 (pc)
- Thawte Web-Of-Trust Notary

Social Activities:

- Volunteer with Singapore Red Cross.
- Organized 10 blood donations drives in I²R and University; Regular Blood donor.
- Senior Secretary, NSS in University.
- Participation in World Aids Day 1992, Government of TN, India.