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Pradeep Kashyap Ramaswamy

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Education

Madison, WI — **University of Wisconsin—Madison** — **Sept 2016 - Dec 2017**

- **Master of Science** in *Computer Science*, GPA: **4.0 / 4.0**
- **Courses**: OS, Topics in DBMS, Advanced–OS, Algorithms, Data Science.

Mysore, India — **Sri Jaychamarajendra College of Engineering** — **Aug 2010 - May 2013**

- **Bachelor of Science** in *Computer Science*, GPA: **9.49 / 10**
- **Courses**: Data Structures, Digital Design, Computer Organization & Architecture, OOP, Software Engineering, Algorithms, Graph theory, Compilers, Finite Automata, OS, Networks– I & II, Graphics.

Employment

R&D Engineer Software–I — **Broadcom** — **July 2013 - Aug 2016**

I worked as Firmware Engineer on BRCM Wifi chipsets and as Linux driver developer on MIPI-DSI compliant display unit. My responsibilities included feature development, bug fixing and productization of chipsets.

- Developed new features and fixed bugs for productization of BRCM mobile display units.
- Implemented and productized multiple VSDB algorithms (VSDB–Virtual Simultaneous Dual Band–enables multiple wireless host interfaces on a single hardware) on 4358 and 4359 WiFi chipsets.
- Bring up of VSDB in 43201 low-power chip, from ground up. Ownership of MSCH (Multi-Channel Scheduler) and VSDB algorithms in 43012. Implemented VSDB Soft-AP+STA, VSDB-RSDB (Real SDB) Mode-Switch and ASDB (Adaptive SDB) algorithms from ground up.
- Implemented Auto-SHM (Shared Mem) feature by converting configuration values hard-coded in macros to structure members to avoid ROM abandons. Python Scripts.

Projects

- **Spark vs. Heron: Streaming Benchmark**—GitHub—10/2016 to 12/2016**:** A benchmarking suite to compare the performance of stream processing systems. Project concluded in results demonstrating Heron performing better than Spark. **Java**. Under the guidance of Prof. Jignesh M. Patel.
- **Operating System Projects** in XV6 kernel—GitHub—09/2016 to 12/2016**:** 1) Multi-level Feedback Queue Scheduler. 2) Bash-like Shell implementation 3) Shared Pages support in kernel. 4) Kernel thread support 5) File System checker 6) Checksum protected file support. **C**.
- **Sudoku solver**—GitHub—04/2013**:** Set-Operations ($\cup$, $\cap$, $\setminus$) based approach to solve Sudoku puzzles. With n empty cells and dXd grid (9x9 generally), recursive backtracking algorithm takes $O(d^n)$ time. My algorithm took $((n^2+n)/2) * 6d \implies O(n^2 * d)$ time. **C++, Java**.
- **Basic SIC Assembler and Simulator**—GitHub—10/2011 to 11/2011**:** This project provides basic environment to run the hypothetical SIC (Simplified Instructional Computer) programs. **C++**.
- **Four Phased Image Compression**—GitHub—06/2011 to 08/2011**:** An Image (24-bit depth, RGB Image) compression tool which uses four pipelined stages from Compression: Aggregation, Bit Truncation, RLE and Huffman Coding. Compression of 84.37 % upto 99% was achieved. **C++**.
- **Remote System Tracker and Controller**—GitHub—11/2009 to 02/2010**:** A monitoring application which tracks the activities and controls computers in LAN. Features include screen capture, file transfer and remote login. **Java**.

Skills

- **Languages**: C, C++, Java, Python, Shell Scripting.
- **Technology and Software**: GDB, MySQL, HTML & CSS, SVN/Git, Wireshark, gnuplot, dotty, ctags, cscope, Java Servlets, LaTeX.
- **Operating Systems**: Unix variants, Windows.

This page contains additional information about me that are not essential part of the resume.

Awards and Achievements

- Secured 10^{th} rank in Bachelor's CET (Common Entrance Test) among 50,000 students (top 0.02 %).
- Awarded **twice** with *"Award of Recognition"* in Broadcom for the contributions towards VSDB & RSDB for 4358 & 4359 chipsets and, Ownership of ASDB for 4359 chipset.
- Awarded with "FedEx International Scholar of the Year 2016" Scholarship, Mumbai. News link.
- Secured **First** Prize in the following competitions.
  - "Puzzle the Unpuzzled" at IISc by Department of CSA, Bangalore, Mar 2012.
  - "Top Coders" at AIT, Coimbatore, by Department of CS, Sept 2012.
  - C–coding conducted during Cyberia'12 by IEEE SJCE.
  - Night out C-coding contest conducted during Cyberia'12 by IEEE SJCE.
  - C–coding conducted during FOSSCamp'11 by GNU/Linux Campus Club (LCC) SJCE.
  - GLDB (GNU Linux Debugging) conducted during FOSSCamp'12 by LCC SJCE.
  - Gaming (Open Arena) conducted during Even semester event 2013 by LCC SJCE.
- Secured other prizes in the following competitions.
  - **Second** Place in X-Files Paper presentation contest conducted during Technologix'12 by CSI SJCE.
  - **Finalist** (top 7 teams out of 40) in Dennis Ritchie 'C'–coding competition at IISc by Department of Computer Science and Automation, 2012.

Mini–Projects

- **8-bit and 16-bit Huffman Compressor**—GitHub—05/2011 to 06/2011**:** A Generic file compression tool based on Huffman Coding which uses 8-bits and 16-bits as sampling lengths for symbols. **C++**.
- **Online Coding Competition**—GitHub—03/2013**:** An web interface created for conducting C–coding competitions as part of LCC–SJCE. **Java Servlets**.
- **Self-Designed Generic Classes**—GitHub—2011 to 2012**:** This project contains two of the generic classes I have designed: Threads and String. Both of these classes can be used similar to Java Threads (Extend and override run method) and Java Strings (with concatenation, and other operator overloading) respectively. **C++**.
- **Round-Robin Schedule Simulator**—GitHub—12/2011**:** A tools which simulates the schedules of a Round Robin process scheduler. **C++**.

Volunteering and Leadership

- A technical volunteer for LCC (Linux Campus Club)— A student body for promoting the use of open-source tools and technologies
- Conducted technical sessions to promote use of FOSS to students from other departments
- Have taught Computer Science courses like Digital Design, C Programming and Data Structures to Diploma (An associate degree) students.
- Conducted three coding competitions as part of LCC's FOSS camp and FOSS bytes events.
- Donated 20,000 INR every year to "Hoysala Karnataka Sangha" to aid under privileged children for their education.