Atish **Patra**

Mainline Linux kernel Engineer · Kernel Hacker
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Objective

Pursuing a full time position in embedded software development preferably in Linux core OS/kernel/device driver development.

Work Experience

Oracle
Richardson, TX, USA

Mainline Linux Kernel Engineer
Jan. 2016 - PRESENT

- Working on Linux Kernel **scheduler(CFS)** to optimize it for current Sparc architecture based Oracle servers.
- Developed **cpu hotplug** both via sysfs and ldom for Sparc architecture.
- Involved in IPMI driver development that enables the host system to talk to ilom over proprietary interface.
- Completely automated power cycling, firmware installs, serial/ilom access with Python/Pexpect for Oracle servers.

Qualcomm Innovation Center
Boulder, CO, USA

Software Engineer
Aug. 2014 - Jan. 2016

- Involved in developing Linux **device drivers** for a point-to-point Generic Link Layer protocol that support multiple transport plugin for inter processor communication in various Qualcomm chipsets.
- Working on a peer-to-peer **routing protocol** in Linux kernel that supports routing of packets and distributed service directory between different processors.
- Developed debugfs framework for the all the IPC protocol implementations and unit test framework.
- Involved in Snapdragon 820 bring-up for all inter-processor communication modules.

Qualcomm Technologies Inc
Boulder, CO, USA

Summer Intern
Jun 2013 - Aug. 2013

- Developed a host side **kernel mode USB driver** in windows for Inter Processor Communication (IPC) router endpoint on Qualcomm 9x25 chipset.
- Integrated this driver to Qualcomm Messaging Interface (QMI) services (QCSI) and clients (QCCI).

Samsung Research Institue India
Bangalore, India

Embedded Lead Engineer
July 2008 - July. 2012

- A cross platform, cross-browser web-based video streaming client was developed for surveillance cameras.
- Digital rights management framework was developed for Android platform and integrated with application framework and OpenCore (Multimedia Framework).

Events & Talks (main)

Linux Plumbers Conference 2017
Los Angles, USA

MC Runner
Sep. 2017

- Proposed and Organised **Scheduler Workloads** micro-conference

Open Source Summit (OSS)
Los Angles, USA

Presenter
Sep. 2017

- Presented **"Understanding the Impact of the Scheduler on your Application"**: Slides (https://goo.gl/FXCdAX).

Education

Master of Science in Computer Engineering, GPA: 4.0/4.0
Aug. 2012 - May. 2014

Texas A&M University
College Station, TX, USA

- Thesis: "User Interest Management and Personalization in Multiple Application domain."

Bachelor of Technology, Electrical Engineering, GPA: 8.67/10
Aug. 2004 - May. 2008

National Institute of Technology, Rourkela
Rourkela, India

- Thesis: "Remote Voice Control and Security."

Research Expierence

User Interest Management and Personalization in Multiple Application domain
Jan. 2013 - May. 2014

Graduate Research Assistant
Center for the Study of Digital Libraries, Texas A&M University

- Developed a framework known as User Interest Modeling and Personalization (UIMAP) which builds a model by identifying and aggregating an individual user's interest expressed through their interactions with different applications at different times.
- To understand the importance of each application towards the user's real interest, various machine learning algorithms such as Multilayer Perceptron **(MLP)**, Support Vector Machine **(SVM)** and Weighted K-Nearest Neighborhood **(WKNN)** techniques are implemented to compare their ability to combine these kinds of heterogeneous interest indicators into a single model.

Remote Voice Control and Security *Aug. 2007 - May. 2008*

Control System Laboratory, NIT Rourkela

Undergraduate Student

- Design and development of system with speech recognition algorithm using HMM on DSP Board in C++ for remote users to operate devices based on their voice commands.

Publications

Peer-reviewed Conferences & Workshops

Unified Relevance Feedback for Multi-Application User Interest Modeling

Sampath Jayarathna, Atish Patra, Frank Shipman

Proceedings of the 15th ACM/IEEE-CS Joint Conference on Digital Libraries, 2015

Mining user interest from search tasks and annotations

Sampath Jayarathna, Atish Patra, Frank Shipman

Proceedings of the 22nd ACM international conference on Conference on information & knowledge management, 2013

Embedded design of a remote voice control and security system

BD Subudhi, AK Patra, N Bhattacharya, P Kuanar

TENCON 2008-2008 IEEE Region 10 Conference, 2008

Guiding Robots using Mobile Phone

Atish Kumar Patra, SJ Ray

27th International Symposium on Automation and Robotics in Construction, 2007

SELECTED ACADEMIC PROJECTS

Alphabet Adventures: An Interactive Early Education Game for Android Tablets *Spring 2014*

- An Android based application that sketches the proof of concept for an interactive game application for teaching children the fundamental building blocks of education.

Implementation of Tagless Cache Coherence Directory Scheme in large scale CMP system *Spring 2013*

- Implemented on Gem5 with ALPHA ISA and two level cache hierarchy in 4 32 cores.
- In Gem5, cache coherence is implemented in SLICC using ruby memory model for MOESI protocol
- Bloom Filters are used to avoid storage of TAG which resulted in less area and energy consumption.

Music recommender system based on Mood, Location and Activity *Spring 2013*

- A python based Framework for suggesting music based on various parameters such as mood, location and activity extracted from twitter data using SVM classifier and Cosine Similarity.
- Proposed various marketing and network activities to raise awareness.

Peer-to-Peer Search for Ubiquitous Mobile Devices *Fall 2012*

- Developed an Android based decentralized Peer-to-Peer model search among peer devices to provide a more personalized and relevant search results of a given query.

Implementation of (TFTP) server and a LRU based Proxy Server by following IETF RFC 1350 and HTTP RFC-1945 *Fall 2016*

- Berkeley TCP/IP and UDP sockets were implemented using C programming.

Skills

Proficient C, Linux Kernel/Driver Development, Java, Python.

Familiar ARM/Sparc/x86 architecture, Operating System internals

HandsOn
- Development/debugging with JTAG, T32, objdump.
- Performance analysis with ftrace, perf, eBPF.

Honors & Awards

- **QualStar Diamond** award for excellent contribution during Snapdragon 820 bring-up.
- Annual Employee Rating **1**(2010) & **2** (2011 & 2012):Awarded to top **5%** among all the peers for year long performance in three years consecutively.
- Received **"Super Saver"** and **"Business Contribution"** award at Samsung annual function 2011 because of innovative Single DRM Stack solution on Android.