

Nayan Deshmukh

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EDUCATION

Year	Program/Board	Institute	CGPA/%
2014-18	B.Tech, Computer Science and Engineering	Indian Institute of Technology, Kanpur	9.4/10.0
2014	Class XII (Central Board for Senior Education)	Vidhya Mandir SSS, Kota	93.2%
2012	Class X (Central Board for Senior Education)	St. Jude's HSS, Khargone	10.0/10.0

EXPERIENCE

Samsung Electronics HQ

Software Engineering Intern, Cloud Lab

Suwon, South Korea

May'17 - July'17

- Worked on the NFV MANO software stack which is part of Samsung's network virtualization solution
- Worked with various open-source technologies like OpenStack, OpenSource MANO, Docker, Kubernetes
- Contributed to Open Network Automation Platform (ONAP) and compared its features with Samsung's solution

Mesa(Xorg)

Open Source Contribution, mentored by Christian König (MTS Engineer, AMD)

[Code]

Jun'16-Mar'17

- Implemented luma keying as part of color space conversion code and bicubic interpolation algorithm as fragment shader
- Reworked the VPDAU mixer implementation so that it uses temporary buffer to allow parallel reads while applying filters
- Implemented DRI3 helper code for PRIME GPU offloading and utilized it to avoid copying of frames to reduce the I/O load in the video pipeline

PUBLICATIONS

DFCM++: Augmenting DFCM with Early Update and Data Dependency-driven Value Estimation CVP(ISCA'18)

Nayan Deshmukh, Snehil Verma, Prakhar Agrawal, Biswabandan Panda, Mainak Chaudhuri

SELECTED PROJECTS

Quantifying the OS Kernel-induced Memory System Interference

Undergraduate Project, Prof. Mainak Chaudhuri

[Report]

Jul'17-Present

- Build an infrastructure which allows tracing user as well as OS kernel instructions for multi-threaded server workloads
- Replayed these traces through the Multi2Sim microarchitecture simulator modeling an eight-core chip- multiprocessor to study the interference between user and kernel code at the memory subsystem

evdev-rs: rust bindings for libevdev

Maintainer, mentored by Peter Hutterer (Senior Software Engineer, Red Hat)

[Code]

May'17-present

- Implemented bindings to use libevdev in Rust, libevdev is a wrapper library for handling evdev kernel devices
- Used zero-cost abstractions of rust to incorporate enum type safety, memory safety without affecting the runtime

Java Compiler in Python (JCP)

Compiler Design, Prof. Amey Karkare

[Code]

Jan'17-May'17

- Implemented a multi-parse Java to x86 compiler from scratch in python using ply, it uses gcc to generate the final binary
- Incorporated advanced features like object-oriented classes, multidimensional arrays, object heap allocation, foreign function interfaces, array bounds checking, short-circuiting for expression evaluation, etc

OTHER PROJECTS

OARS

Build a web application using Ruby on Rails to facilitate the process of academic registration

[Code]

Used docker for development and deployment of the system in production

ZIZO101:

Developed an animatronics head capable of human interaction via speech

[Report]

Used Radxa Rock as the main development board, implemented speech to text using Googles speech API and Artificial Intelligence through Pandorabots

RELEVANT COURSES

A Computer Architecture

A* Computer Systems Security

A* Modern Memory Systems

A* Compiler Design

A* Operating Systems

A* Database Systems

A Theory of Computation

A Computer Networks

A Intro to ML

A* - Awarded for outstanding performance