PRATIK RAJESH SAMPAT

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Education

University of Illinois at Urbana-Champaign **Aug 2022 - May 2024**
Master of Science in Computer Science

PES University **Aug 2015 - May 2019**
Bachelor of Technology in Computer Science and Engineering

Experience

University of Illinois at Urbana-Champaign

Summer Research Assistant **May 2023 - Present**
Advisors: Dr. Tianyin Xu and Dr. Saugata Ghose
- Discovered a fundamental disconnect between CPU bandwidth entitlement interfaces between Cloud and OS. This leads to several performance and efficiency issues for deployed applications
- Working on improving the Linux Bandwidth scheduler to eliminate this expectation gap and automatically tune for ideal CPU entitlement on the fly

Research Assistant **Aug 2022 - Present**
Advisor: Dr. Saugata Ghose
- Graduate researcher in ARCANA Research Group exploring interaction between systems software and memory hardware
- Working on characterizing memory access co-locality and leveraging OS and architecture interactions to make better allocation, prefetching, and eviction decisions

Teaching Assistant **Aug 2022 - May 2023**
- Teaching assistant for CS 233 - Computer Architecture for Fall 2022 with responsibilities that include grading, proctoring, assisting with group assignment and conducting conceptual office hours

IBM, Linux Technology Center

Software Engineer **Aug 2019 - Jul 2022**
- Enabled and enhanced energy management for the IBM Power platform on Linux
- Proposed a weighted probability approach for CPU-idle state selection. Presented in the OS-Directed Power-Management Summit, (OSPM) Italy - May 2020; findings covered in the Linux Weekly News
- Proposed CPU namespace to virtualize and isolate topology information for containerized applications. Presented at Linux Conference Australia (LCA) - Jan 2022; news covered in Phoronix

Software Engineering Intern **Jan 2019 - Jun 2019**
- Enabled the IBM Power architecture on the gem5 open-source simulator
- Assisted in bringing-up and booting a full system multi-threaded Linux kernel on the simulator which aided in evaluating software stack interactions with the Power architecture prior to fabrication

Carnegie Mellon University

Summer Undergraduate Intern **Jun 2018 - Jul 2018**
- Profiled the Linux Operating System to extract the kernel view of memory and analyze access patterns
- Simulated a memory prefetching algorithm based on N-grams and evaluated its performance with the state of art in a simulated environment

Scapic (acquired by Walmart)

Software Engineering Intern **Jun 2017 - Jul 2017**

- Assisted a mixed reality startup in building an in-browser, marker based augmented reality feature for their no-code product

Microsoft Innovation Labs

Intern - PES University **Jun 2016 - Jul 2016**

- Prototyped a Virtual reality sandbox experience and created an interface using 3D depth processing of the Microsoft Kinect Camera

Technical Proficiency

Programming Languages: C / C++, Python, Bash Scripting
Technologies: Linux Operating System, Energy Management, Containers, Mixed Reality

Publication

Vinay, A., **Sampat, P. R**., Belavadi, S. V., Pratik, R., Rao, B. S. N., Ragesh, R., Murthy, K. N. B., & Natarajan, S. (2018, March 1). Face recognition using interest points and ensemble of classifiers. IEEE - Recent Advances in Information Technology (RAIT), Indian Institute of Technology, Dhanbad, India

Honor and Awards

- Linux & Power Significant Contributor Open Source Recognition Program, IBM **Dec 2021**
- Exemplary Rookie, General Manager awards, IBM **Sep 2021**
- Winner - India Systems Development Labs Hackathon, IBM **Jan 2020**
- Prof. CNR Rao Merit Scholarship, PES University **Feb 2019**
- Winner - Endeavour'17 Entrepreneur strategy competition **Nov 2017**
- Second runner up - Microsoft HashCode 2k17 Hackathon **Nov 2017**
- First runner up - Honeywell Power of connected Hackathon **Jun 2017**
- First runner up - Microsoft Hashcode 2k16 Hackathon **Nov 2016**
- Second runner up - Pluralsight Smarter Than Yesterday Hackathon **Aug 2016**
- Winner - Intel Anadigix IoT Competition **Aug 2015**

Projects

Haptic Feedback glove **Jan 2016 - Sep 2018**

Indian patent pending: 201841036867

- A force feedback haptic glove designed to provide realistic sensations of the shape and the stiffness of objects in the virtual space
- An algorithm also devised to convert any three-dimensional model, to a haptic space matrix such that each surface is mapped to a force-feedback sensation on the glove

Sound based Augmented Reality Spectacles **Nov 2018**

- A smart-glasses project that re-imagined augmented reality through sound via bone conduction rather than a head-mounted display
- The regular pair of spectacles were retrofitted with an AVR-Arduino microcontroller, a pair of bone conduction speakers, a bluetooth module for communication, and, a capacitive touch interface was designed for the frames