

Rajdeep Bandopadhyay

Firmware Engineer · Aspiring Artificial Intelligence Engineer

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PUBLICATION:

Enhancing Smart Home Security using Co-Monitoring of IoT Devices

ACM Digital Library:

<https://dl.acm.org/doi/abs/10.1145/3323994.3369883>

🐙 github.com/mareep-raljodid 🔗 linkedin.com/in/rajdeep-bandopadhyay/

Work Experience



Sunnyvale, CA

Apr. 2020 - Present

R&D Product Engineer

- Engineered and implemented data reporting modules for Performance Monitors used on Line Side Firmware Drivers (PIC Module) which is used in Control Loops for power balancing the optical amplifiers such as EDFA (Erbium-Doped Fiber Amplifier)
- Updated and optimized the Upgrade Manager application to speed up the upgrade process by 30% (cutting down 20 Minutes)
- Completely redesigned pre-existing SDK and DCO daemon inter-process communication to eliminate misreporting and delays
- Reviewed and proposed more efficient changes for over 5 Pull Requests every week to help speed up the monthly releases
- Implemented Image Downloading Authentication modules that were responsible for secure and reliable over-the-air upgrades
- Proposed, pursued, engineered and integrated new YANG Data Models for a more efficient data-store reporting mechanism

Sunnyvale, CA

Aug. 2019 - Dec. 2019

Firmware Engineer

- Singlehandedly architected and developed a NETCONF application that uses sysrepo to perform performance tests on YANG Models
- Eliminated blockers that includes bugs and integration issues for the DVT team to meet release deadlines
- Delivered ECDSA encryption module responsible for safe booting and upgrading process
- Engineered and developed required firmware modules for FPGA used in certain interdependent projects within DCO
- Managed and engineered Upgrade Manager for the DCO firmware using proprietary Actor Framework [Inter Process Communication]



Undergraduate Research Analyst [COVID-19] (P/T)

- Currently working with a team of professors to analyze Twitter open dataset for tweets related to COVID-19 to acquire insights about the ongoing panic
- Implemented RSBAC, a subset of the RBAC Model, to map permissions for users within the framework. Investigating and analyzing multiple threat scenarios, cyber and physical, on Things Gateway to develop a more secure, reliable, and open-source "Things Framework" using IoT devices
- Maintained responsibilities and delivered paper(s) for publications [Emergency Response System, ACM Publication]
- Defined architecture for the development of the auxiliary android application called "ThingZone"

Cincinnati, OH

Oct. 2018 - Present

This research project is funded by Mozilla and NSF (National Science Foundation)-USA

Education

University of Cincinnati, College of Engineering and Applied Science | GPA: 3.4

Cincinnati, OH

Aug. 2018 - May. 2023

Bachelors of Science + Masters of Science (ACCELERATED) in Computer Science | Member of ACM, ACM-W and WIT

Skills

Languages: C, C++, Python, MATLAB, Visual Basic Script, Rust, YANG, MIPS (Assembly Language)

Tools: JIRA Bug-Tracking, Git, Sysrepo/netopeer2, TensorFlow, Scikit-learn, Linux/Unix systems, Xilinx Firmware

Industry Knowledge: Penetration Testing, Deep Learning, Encryption, IPC Frameworks, FPGA, NETCONF [NMC], DAS-

UBOOT **Operating Systems:** Linux, macOS, Raspbian OS, Unix

Soft Skills: Communication, Self-starter, Team Oriented, Critical Thinking, Problem Solving, Self-motivation

Extra- Curricular & Volunteer Activities

Options Trading: Multiplied my portfolio four-fold over a span of 2 months, striving to keep as a passive income.

2018 - Present

ACM-W: Support female classmates to empower and help all students succeed in Computer Science. Attend weekly meetings.

2018 - Present

Artist: Canvas paintings, Fine-arts and scenery style Acrylic Paintings as a pastime hobby, been painting for 13 years.

2017

Animal Rights Activist: Plan-India volunteer and animal rescuer.

2016

Languages

Native: English, Bengali, Hindi | Working Proficiency: Sanskrit, Punjabi

Awards and Honors

2020 **Recipient**, Dean's List | University of Cincinnati

OH, U.S.A

2018 **Recipient**, Global Scholarship | University of Cincinnati

OH, U.S.A

2017 **Recipient**, Silver Medal | National Merit Search Examination | Ranked in the 95th percentile nationally

JHK, INDIA

2016 **Recipient**, Distinction Diploma Certificate | Bangla-Parisad Institute of Fine Art and Painting

JHK, INDIA

2016 **Finalist**, Geetanjali Associations | Fine Arts and Paintings | Ranked in Top 5 in the Jharkhand, IND

JHK, INDIA