Rajdeep **Bandopadhyay**

Firmware Engineer · Systems Engineer

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Work Experience

UNIVERSITY OF Cincinnati
Remote (OH)
May. 2021 - Present

Research Assistant

- Engineering a GUI for the ODOT project to integrate with the Lexus car system that help provide an interface for the driver to record, save and verify data collected for detecting shoulder drop-off on any given GPS location while the car driving at an average of 50 MPH
- Responsibilities include:
  - Developing GUI with C++ frameworks such as ImGUI, OpenGL, DirectX etc, from the scratch (Using Qt Studio)
  - Writing IPC framework modules and custom driver modules for LIDAR, GPS and Camera in C/C++
  - Co-authoring research papers that are being submitted to journals

Infinera
Sunnyvale, CA
Jan. 2021 -May. 2021

Firmware Engineer

- Architect, engineered and released debug tools and features like:
  - Thread Names for each processes within DVT project
  - Auto-config capabilities for MAKEFILE
  - MAKEFILE dependencies restructuring resulting in 25% faster compilation
- Ported from scripted to declarative pipelines for our Jenkins regression jobs for a more efficient and future-proof along with added features like NXP integration
- Fixed bugs and provided clarifications related to YANG and NETCONF RFCs

R&D Product Engineer
Sunnyvale, CA
Apr. 2020 -Aug. 2020

- 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

Firmware Engineer
Sunnyvale, CA
Aug. 2019 - Dec. 2019

- Singlehandedly architect-ed 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]

UNIVERSITY OF Cincinnati

Undergraduate Research Analyst [COVID-19] (P/T)
Cincinnati, OH
Oct. 2018 - Jan. 2021

- Currently working with a team of professors to analyze Twitter open dataset for tweets related to COVID-19 to aquire 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 responsiblities and delivered paper(s) for publications [Emergency Response System, ACM Publication]

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 (ACCLERATED) in Computer Science | Member of ACM, ACM-W and WIT

Skills

Languages: C, C++, Python, MATLAB, Visual Basic Script, Rust, YANG, MIPS (Assembly Language), BoUML, MAKEFILE, Jenkins (S&D)
Tools: JIRA Bug-Tracking, Git, Sysrepo/netopeer2, TensorFlow, Scikit-learn, Linux systems, Xilinx Firmware, C++ GUI (OpenGL, ImGUI, DirectX)
Industry Knowledge: Penetration Testing, Deep Learning, Encryption, IPC Frameworks, FPGA, NETCONF, DAS-UBOOT, Jenkins Job Pipelines
Operating Systems: Linux, macOS, Raspbian OS, Unix
Soft Skills: Communication, Self-starter, Team Oriented, Critical Thinking, Problem Solving, Self-motivation

Extra- **C**urricular & **V**olunteer **Act**ivities

Options Trading: Technical Analysis, Elliot Wave Analysis and writing Pine-Script custom indicators

ACM-W: Support female classmates to empower and help all students succeed in Computer Science. Attend weekly meetings.   e-
Artist: Canvas arts and scenery style Acrylic Paintings as a pastime hobby, been painting for 13 years.
Animal Rights Activist: Plan-India volunteer and animal rescuer.

Languages

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

Awards and Honors

2020 **Recepient,** Dean's List | University of Cincinnati
2018 **Recepient**, Global Scholarship | University of Cincinnati
2017 **Recepient**, Silver Medal | National Merit Search Examination | Ranked in the 95th percentile nationally
2016 **Recepient**, Distinction Diploma Certificate | Bangla-Parisad Institute of Fine Art and Painting
2016 **Finalist**, Geetanjali Associations | Fine Arts and Paintings | Ranked in Top 5 in the Jharkhand, IND