Devikrishna Radhakrishnan

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Education

2021 - 23* **M.S.**, Computer Science
University of Illinois at Urbana-Champaign

2014 - 18 **B.Tech.**, Computer Science and Engineering **8.46/10**
National Institute of Technology, Calicut, India

2014 **Grade 12**, Higher Secondary Education **98.4%**
Kendriya Vidyalaya Pangode, Trivandrum, India

Research Experience

2020 - Present **University of Illinois at Urbana-Champaign (UIUC)** **Research Intern**
Mentors: **Dr. Sibin Mohan**, *SyNeRCyS Lab*

- Creating a framework using containers to enable hardware-independent execution of real-time applications in an Internet of things (`IoT`) environment.
- Current focus is on designing a predictable mechanism to perform live migration of containers between edge computing nodes in an `IoT` system.

2016 **Indian Institute of Space Science and Technology (IIST)** **Research Intern**
Mentors: **Dr. Vineeth B S**, *Systems and Networks Lab*

- Worked on improving the probability of packet delivery between inter-connected heterogeneous sub-networks in a Delay Tolerant Network (`DTN`).
- The work focused on using different routing protocols in each sub-network and studying its impact on packet loss under a variety of traffic load conditions and network cluster sizes.
- Devised an optimal combination of routing protocols to use which maximize the packet delivery probability in the `DTN`.

Industry Experience

2022 **Red Hat** **Solutions Architect Intern**

- Was part of the *Telco Tigers team* handling the telecommunication clients' `OpenShift` infrastructure.
- Updated their *OpenShift Virtualization demo* repository with new advanced network configurations possible for VMs in `OpenShift Virtualization`.
- Performed and documented the procedure for migration of existing VMs from `Red Hat OpenStack platform` to `OpenShift Virtualization`. This documented procedure is currently being automated to be made available to customers wanting to do this migration.

2018 - 2021 **Oracle** **Applications Engineer**

- Was part of the core server team handling the database for *Oracle Service Cloud (OSvC)* - a leading provider of cloud-based customer service software.
- Developed secure and optimized APIs for managing access to *OSvC's* database and pushed over 200 commits in the last 3 years to its production codebase.

- ◇ Refactored, optimized, and added test-driven development for *Orphan Sweep*, an internal utility used to asynchronously handle dependencies of database operations. The optimizations led to reduction in query run-times by over 15x.
- ◇ Created a microservice that allows customers to cache frequently retrieved data and deployed it into production using `Docker` containers. Service is used by 100+ corporate customers.

2017 **Deloitte** **Software Intern**

- ◇ Worked on *FOCUS* - a public sector project, undertaken by the **State of Delaware (United States)**, to create a system to maintain and track case records of children, who need health care and/or relocation to foster homes.
- ◇ Worked with the **Delaware Children's Department** (kids.delaware.gov) to develop a system for digitization of data using `VisualForce` framework on the Salesforce `CRM` platform.

Awards

2019 **1st prize** in Oracle's Cloud Applications Hackathon
2014 Honoured to be selected (among the **top 100 in India**) to witness the Republic Day Parade from the Prime Minister's box
2014 **11th Rank in India** in AISSCE (National Higher Secondary School Exam)

Selected Projects

2017 - 18 **Analysis of Bitcoin Transactions** **Final Year Project**
Dr. Gopakumar G, *Data Mining*

- ◇ Analyzed the pertinence of the 'Preferential Attachment'(a.k.a., the rich get richer) phenomenon in a bitcoin network by studying its structure and wealth distribution.
- ◇ Demonstrated the presence of the phenomenon using degree distribution analysis, correlation tests, and clustering techniques.

2016 **Experimental Operating System** **Course Project (CS3092)**
Dr. Muralikrishnan K, *Operating Systems*

- ◇ Created an experimental OS (`ExpOS`) that supports Process Management, Memory Management, and System Calls.
- ◇ The OS supports loading and execution of programs that are pre-loaded in the Experimental String Machine (`XSM`).

Teaching Assistant

Spring 2022 CS173 - Discrete Structures, UIUC
Fall 2021 CS124 - Introduction to Computer Science, UIUC
Spring 2018 CS3092 - Operating Systems Lab, NIT Calicut
Fall 2017 CS4098 - Computer Vision using Convolutional Neural Networks (`CNNs`), NIT Calicut

Skills

Languages `C++, C, Java, Python, PHP`
Cloud `Docker, Kubernetes, OpenShift`
Tools `Git, Postman, Apache Jmeter, ONE Simulator, runC, CRIU`
Web `HTML, CSS, JavaScript, MySQL`