

JONATHAN RUFUS SAMUEL

Software Engineering | Research Developer | Open-Source Developer | Systems & Cloud Infrastructure

PROFESSIONAL EXPERIENCE

Systems Administrator & DevOps Engineer for Windows Machines, Application Software Development Engineer *Geneva, Switzerland*

CERN - European Organization for Nuclear Research

September, 2024 - Present

- Currently a Windows Systems Administrator at CERN. Primarily Tasked with migration of over 10000+ machines from CERN's own endpoint management solution (CMF) to Intune and MECM. Other roles include DevOps Engineering for configuration management tooling, as well as software development for integrations software and internal tooling.
- Revamped the Email Alert's Web App using .Net Core, which currently serves for sending email alerts for over 10000+ machines on site.
- Revamped, modernized and reverse-engineered the Nice Admin Review Website, a twenty year old software, commonly used by Administrators at CERN for managing administrative access to PC's under their management.
- Developed a fully configurable notifications service with a simple compiler to dynamically interpret custom configurations into code - Custom Notification template forms for administrators.
- Worked on Packaging, configuration, central application provisioning and management of applications including general office productivity and engineering applications, Administration of CERN Windows server infrastructure and Windows end-point device park of over 10000 devices.
- Orchestrated, Maintained and wrote over 70% of all documentation for both user and supporter facing issues related to Developer Best Practices, Intune and MECM.
- **Tools Used:** C#, Powershell, Microsoft Configuration Manager (MECM), Intune, Azure, Entra, Active Directory, Python, React, Git, Gitlab, OpenShift, OpenStack, Docker, Kubernetes, MSSQL, Influx DB, Grafana, Internal CERN tooling.

SDE Intern - Backend Engineering
Hyperface

Bangalore, India

January, 2024 - July, 2024

- Lead a team of 3 Application Engineers to complete company wide APIGEE updation and migration, spanning over 4 microservices within the Hyperface application suite.
- Wrote Python Scripts for migrating over 2 million bank records to our servers for further data processing and analysis.
- Designed and developed a centralized Cron Tracker Mechanism within our orchestrator service. and Developed the end-to-end functionality for AU Bank's Virtual Card Handling feature, whilst leading a team of 3 Application Engineers.
- Was tasked in mentoring and conducting Knowledge Transfer sessions for 5 Application Engineers based in our Jaipur office. Lead multiple projects with their assistance.
- Handled Information Security issues with Bank Dashboards, including encryption of insecure data fields, fixing enumeration issues, recreating security breaches via Burpsuite, and addition of code to preserve security.
- Developed an Employee Management System as part of training for Java Spring Boot Development. Worked on CRUD operations development, authentication and authorization, testing and migration to Apache Groovy.
- **Tools Used:** Java, Apache Groovy, Java Spring Boot, Spring Security, Apache Kafka, Gradle, Postman, MySQL, Python Scripting, Burpsuite.

Junior Software Engineer & Tech-Lead
River Bend Data Solutions

Hyderabad (Remote), India
May, 2022 - August, 2022

- Developed 'iClinic', a cross-platform patient & hospital management system. Worked on React-Native, NodeJS, Express JS and MongoDB.
- Designed and developed fundamental business logic, including authentication handling, API design, Schema Design and basic DevOps administration.
- Improved App performance by 25% by utilizing React Native best practices, including improved caching and Lazy Loading.
- Nominated as Junior Tech Lead for a period of 2 Months, tasked with junior team management, reporting of progress to senior team, handling of sprint meetings and assigning of work within an Agile Development Setting.
- **Tools Used:** React Native, JavaScript, Node.Js, Express.Js.

Front End Web Developer
Winggit.inc

Bangalore, India
August, 2020 - November, 2020

- Designed and implemented a fully responsive UI for Winggit's e-commerce website, that handles the reselling of used books.
- Delivered website 2 months ahead of schedule, improving predicted sales by 400%.
- **Tools Used:** Python, Django, JavaScript, HTML, CSS & Figma.

RESEARCH EXPERIENCE

Student Research Scientist & Research Developer
VIT Vellore

Vellore, India
February, 2021 - August, 2024

- Worked with Jaskaran Singh, Shreyash Mehrotra and Dr. Baiju B. V. to research on the simulation challenges faced by IoT developers in the field of Fog and Edge Computing, and how to overcome such simulation challenges via open-source development. Published in proceedings of 2023 International Conference on Next Generation Electronics (NEleX). DOI: IEEE Conference Record # 59773, IEEEExplore ISBN NO: 979-8-3503-1908-8
- Worked with Shivansh Sahai and Dr. Swarnlatha P to create Automated Mp3 TagEditor, a tool which scrapes metadata of music tracks from various sources, and classifies them via vector based indexing, whilst automating the entire process to smoothly manage music metadata. Published as a chapter in Handbook of Research on Deep Learning Techniques for Cloud-Based Industrial IoT by IGI Global. DOI: 10.4018/978-1-6684-8098-4.ch012
- Worked with Dr. Yokesh Babu to propose a Zigbee based Commuter Barrier system to prevent commuter accidents on railway platforms in India (work not pursued for publication).
- Worked with Dr. Lokesh Kumar N and Harshit Rastogi on researching and developing cost and resource optimization protocols within container orchestration software like Kubernetes and Docker Swarm (work not pursued for publication).
- Briefly worked with Dr. Margaret Annuncia and Abhimanyu Balachandra on Measuring Human Bias in Football Awards by using a Data-driven Performance Evaluation for Players in Football via Machine Learning. (Prematurely ended due to shift to industrial internship over capstone research project).

IT-CD-DPP Research Group
CERN - European Organization for Nuclear Research

Geneva, Switzerland
September, 2024 - present

- Worked with Siavas Firoozbakht (CERN), Pablo Martin Zamora (CERN) and Michal Kwiatek (CERN) in presenting the transition of CERN's windows infrastructure from its proprietary computer management tool called CMF to Intune and MECM. Contributed by integrating PSADT standard for packing and

testing applications, as well as standardizing the overall workflow among all three management providers.
Workshop Link: Windows device management at CERN: A new era.

Independent Research **Dijkstra**

Geneva, Switzerland; Bangalore, India
August, 2024 - present

- Currently working on "The Saturation of Software Engineering Education in India: Socio-Economic Impacts and Structural Causes", a survey based study on the changing dynamic of Computer Science and Software Engineering Education in India; primarily the saturation of standards and failure of the system to compensate for changing technological landscapes. Currently being researched and written in my spare time with few professors from VIT Vellore and community members at Dijkstra.
- Currently working on "Bridging the Experience Gap: An Open Source Educational Response to India's Computer Science Education Crisis" which goes into validating the possibility of proof of work based learning by leveraging open source as a medium for teaching and practicing computer science and software engineering fundamentals. Currently being actively researched at Dijkstra, targeting conferences in the Educational Technology and Methods space.

EDUCATION

Vellore Institute of Technology B.Tech Computer Science Engineering

September, 2020 - August, 2024
GPA: 8.51 (3.4/4.0)

- Courses: Software Engineering, Network Communications, Microprocessor and Micro-controllers, IoT, Fog & Edge Computing, Digital Signal Processing, Data Visualization, Machine Learning, Information Security Management & Analysis, Data Structures and Algorithms, Full-Stack Development.
- Activities and societies: VIT Music Club, IEEE TEMS
- Research Work (specified in Research Section)

Bishop Cotton Boys' School ISC & ICSE (High School)

June, 2005 - March, 2020
ISC: 93.5% & ICSE: 91.2%

- Activities and societies: Music Team (Piano and Guitar), School Choir, Robotics Team, Elocution Team.
- Headed the Logical Reasoning and Mathematical Event, "EventX", in Bangalore's biggest inter-school Science and IT Fest, Synchronize. (2019-2020)
- Member of the reputed School Choir for a duration of 14 years. (Soprano/Tenor) (2006-2020)
- Member of the School Robotics Team for a duration of 4 years (20012-2016), placed in the Top 10 teams (Ranked 5th) in the All-India Robotics Olympiad (2015) out of 150 teams from all over India.
- Member of Scripture Union Rally Teams. (2014-2018)
- Ranked 3rd for English, in the ISC Board Examinations (95/100).

OPEN SOURCE EXPERIENCE

Open Source Contributor, AppFlowy

April, 2023 - present

- Made a total of 6 Pull Requests addressing various bugs in the code base.
- Drafted 2 technical articles and 3 major documentation changes.
- Handled Unit Test cases for AppFlowy's flutter bloc editor, improved code coverage by 18%.
- Tools Used: Flutter, Dart, Rust, Codecov, Postman

Founder & Chief Maintainer, Dijkstra

February, 2023 - present

- Started an open-source organization that caters to students preparing for jobs within tech.

- A collection of services built to cater towards preparing students for the job market by actively evaluating their profiles and giving personalized feedback based on their goals.
- Lead Software Architect; Developed and currently maintaining an intricate system of services, with over 20 repositories written in various languages and frameworks, from NextJs, TypeScript, Python, FastAPI, Rust & Axum, Go & Gin and Java Spring Boot. This it to expose students to various technologies and frameworks.
- Developed an in house ranking algorithm that aggregates user data from multiple avenues, and ranks them over a 30 place scale to best predict a student's odds at landing jobs within a certain pay grade.
- Led design and student development of various sub-projects including a latex resume builder, a blog mechanism for students, a certificate generator based on their proof of work, a GitHub statistics aggregator and a custom software management tool akin to Jira.
- Main point of contact for overall direction and management of project. Head of DevOps and Software Infrastructure, and am currently maintaining CI/CD, Repository management, collaboration and scrum.
- Currently head Systems Administrator of Azure Cloud Services for Dijkstra. Successfully transitioned API infrastructure from Netlify to Azure Cloud. Containerized and scaled API services via Kubernetes (AKS) and Docker, thereby improving response times from 45s to 2s.
- Actively mentored over 30 students on a rolling basis for software development and best practices over the last year, as well as maintaining documentation, software infrastructure and deployment lifecycles.
- **Tools Used:** TypeScript, Next.js, ShadCN UI, Java, SpringBoot, Rust, Axum, Go, Gin, Node.js, Express.js, JavaScript, Astor, Azure Cloud, AWS (planned), GCP (planned), Docker, Kubernetes, Git & Github, Supabase, MongoDB, PostgreSQL, Postman.

Open Source Software Developer, Apprentice

October, 2023 - December, 2023

- Made a total of 3 Pull Requests for Backend and Frontend Integration.
- Currently working on Frontend Design and Development, as well as documentation for codebase.
- Tools Used: TypeScript, React.js, PostgreSQL, Docker.

Open Source Contributor, CERN Root

November, 2023 - present

- Made a total of 3 Pull Requests addressing documentation issues as well as implementation of unique pointer abstract class.
- Currently working on test cases for proposed changes, as well as translation of Root tutorials from C++ to Python.
- Tools Used: C++, Python.

VOLUNTARY EXPERIENCE

CERN Guide, CERN

February, 2025 - present

- CERN Guide for the Anti-matter Factory (Anti-Proton Decelerator) and the CERN Data Center.
- Help visitors learn and understand more about CERN, it's infrastructure and its mission.

CERN Solvay Student Camp Application Reviewer, CERN

April, 2025 - May, 2025

- One of the reviewers for the Indo-Asia Pacific region for the upcoming Solvay Student Camp.

Student Ambassador, Microsoft

June, 2023 - August 2024

- Made a Microsoft Ambassador due to impact within the student community.
- Tasked with sharing the benefits of Azure's application suite among student developers.

PROJECTS

Dijkstra, Dijkstra

February, 2023 - present

Developed an Application Suite to help students pursuing Computer Science Engineering in 3 tracks, namely DSA for technical interviews, Developmental Work, to handle experience related needs, and mentorship, to better guide students in the process of getting industry ready for the field of Computer Science Engineering. Described further in Open Source Experiences.

Tools Used: TypeScript, Next.js, ShadCN UI, Java, SpringBoot, Rust, Axum, Go, Gin, Node.js, Express.js, JavaScript, Astor, Azure Cloud, AWS (planned), GCP (planned), Docker, Kubernetes, Git & Github, Supabase, MongoDB, PostgreSQL, Postman.

Link: <https://github.com/Dijkstra-Edu>

Mp3 Automated Tag Editor, VIT Vellore

February, 2022 - September, 2022

Worked with **Shivansh Sahai** and **Dr. Swarnlatha P** to create **Automated Mp3 Tag Editor**, a tool which scrapes metadata of music tracks from various sources, and classifies them via a Vector Indexing Machine Learning Algorithm. Built API server using FastAPI and Python, and built out a Desktop Application using React.js, Tauri, Rust and JavaScript. Deployed via Azure.

DOI: 10.4018/978-1-6684-8098-4.ch012

Tools Used: FastAPI, Python, React, Rust, Tauri, Postman, Azure, Docker, SQLite, SASS.

Link: https://github.com/JRS296/Automated_Mp3tag

FFCS API USING TYPESCRIPT, Dyte

July, 2023

Designed and built an API suite with Typescript, Node Js, Express and MySQL, with its primary functionality in being able to handle API calls pertaining to VIT's FFCS System for handling course registration among its students, as part Dyte's technical round hiring process. Built using Typescript and tested using PostMan and Jest Testing framework. Dockerized and published API environment to Docker Hub.

Tools Used: TypeScript, MySQL, Docker, Jest, Postman.

Link: <https://github.com/JRS296/FFCS-TypeScript-API>

TreGen, JRS Studios

February, 2023 - present

Developed a recursive Directory Generator Command Line Interface (CLI) application in Python, and published the same to the PyPi package manager. It is a Simple Python CLI App to generate a directory tree for a given path.

Tools Used: Python, Shell Scripts.

Link: <https://github.com/JRS296/Directory-Tree>

Birthday Manager App, GDSC

February, 2021

A simple Python application to handle automation of Birthday wishes. Built as part of GDSC's technical hiring program.

Tools Used: Python.

Link: <https://github.com/JRS296/BDAY-Manager>

SKILLS

Programming Languages(in decreasing order of experience)

Java • Javascript • TypeScript • Rust • Groovy • C# • Python • SQL(MySQL & SQLite3) • Powershell Scripting • C/C++ • Julia • Matlab • R (R Studio) • Flutter • Golang

Language Frameworks & Technologies

.Net Core • React JS • React-Native • Spring Boot • Git & GitHub • NodeJS & ExpressJS • MongoDB • Tauri • Electron Js • FastAPI • REST API Design • Intune • Microsoft Configuration Manager • Docker • AKS - Kubernetes • ElectronJs • Selenium • Jest • Azure Cloud • AWS Cloud • OpenStack • OpenShift • Linux • Scrum & Agile Methods • DevOps • Systems Design

Languages

English (native), French (A2), Tamil (native)

ACHIEVEMENTS

- Completed Microsoft Azure Administrator Associate (AZ-104) & Azure Fundamentals (AZ-900) Certification offered by Microsoft.
- Currently an Alpha Level Student Learn Ambassador at Microsoft.
- Over 1400 contributions on GitHub, top 4.4% for repositories contributed to (66).
- Systems Design and Algorithm Design Certified by AlgoExpert.
- Mathematics for Machine Learning Specialization offered by Imperial College London & Completed Accelerated Computer Science Fundamentals Specialization offered by University of Illinois (Goldman Sachs ECHP-23 Program)
- Top 3% of Leetcode by Problems Solved
- 5 star Problem Solving in Hackerank
- Senior Core Member at IEEE-TEMS, Mentor to 30 Junior students.
- Open Source Contributor at YAFS - Yet Another Fog Simulator, AppFlowy, CERN Root, Apprentice and Dijkstra.
- Mentor at CERN and Dijkstra to student community, ex-mentor to IEEE-TEMS

LINKS

GitHub: <https://github.com/JRS296>

LinkedIn: <https://linkedin.com/in/jrs2002/>

Website: <https://jrs-studios.web.cern.ch/>

LeetCode: <https://leetcode.com/JRS296/>

Hackerank: <https://hackerrank.com/JRS296>

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CONTACT & OTHER MISCELLANEOUS INFORMATION

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