

# JONATHAN RUFUS SAMUEL

Software Engineering | Research Developer | Open-Source Developer | Cloud Administration

## EDUCATION

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### Vellore Institute of Technology

*September, 2020 - August, 2024*

B.Tech Computer Science Engineering

GPA: 8.58

- 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 Experience Section)

### Bishop Cotton Boys' School

*June, 2005 - March, 2020*

ISC & ICSE (High School)

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.

## PROFESSIONAL EXPERIENCE

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### SDE Intern - Backend Engineering, Hyperface

*January, 2024 - Present*

- 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.
- 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.
- Wrote scripts using Python to handle migration of over 1 million records from bank servers to company servers.
- Fixed Phantom Subscription creation bug, by implementing missed case scenarios.
- Currently working with Groovy on Grails, working on security issues and API migrations.
- 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

*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.

**Student Research Scientist & Research Developer** , VIT Vellore

*February, 2021 - present*

- 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 Machine Learning, whilst automating the entire process. DOI: 10.4018/978-1-6684-8098-4.ch012
- 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. DOI: IEEE Conference Record # 59773, IEEEExplore ISBN NO: 979-8-3503-1908-8
- Worked with Dr. Yokesh Babu to propose a Zigbee based Barrier system to prevent commuter accidents on railway platforms in India. Currently under academic and peer review.
- Currently working 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. Currently under academic and peer review.
- Currently researching on viability of paper on Socio-Economic status of Computer Science Engineering within the job market, and how this may impact the education system down the line. Currently in a discussion phase with professors Dr. Margaret Annuncia, Dr. Swarnlatha and Dr. Yokesh Babu.
- Currently working 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. Currently under development.

**Front End Web Developer** , Winggit.inc

*August, 2020 - November, 2020*

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

**VOLUNTARY AND OPEN SOURCE EXPERIENCE**

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**Student Ambassador**, Microsoft

*June, 2023 - present*

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

**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*

- Built a Full-Stack Educational App, along with an Admin panel for uploading posts on DSA preparatory work & Solutions of Leetcode and Hackerrank Problems, along with other information pertaining to Interview Preparation.

- Started a GitHub organization for the same, currently catering to 30 junior CS students. Currently in development and Testing, set for App Store release in 2024.
- 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.
- Tools Used: React Native JS, NodeJS, ExpressJS, MongoDB, HTML, CSS, Azure Cloud, Docker, Kubernetes (AKS), Lens, Netlify Cloud, Postman, Git and GitHub.

#### Open Source Software Developer, Apprentice

*October, 2023 - present*

- 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.

## PROJECTS

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### 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.

**Tools Used:** React Native JS, NodeJS, ExpressJS, MongoDB, HTML, CSS, Azure Cloud, Docker, Kubernetes (AKS), Lens, Netlify Cloud, Postman, Git and GitHub.

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

### 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 amongst 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>

### 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](https://github.com/JRS296/Automated_Mp3tag)

### 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

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### Programming Languages(in decreasing order of experience)

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

### Language Frameworks & Technologies

React JS • React-Native • Spring Boot • Git & GitHub • NodeJS & ExpressJS • MongoDB • Tauri • Electron Js • FastApi • REST API Design • Docker • AKS - Kubernetes • ElectronJs • Selenium • Jest • Azure Cloud • AWS Cloud • Linux • Scrum & Agile Methods • DevOps • Systems Design

### Languages

English (native), French (A1), Tamil (A1)

## ACHIEVEMENTS

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- 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% 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 (GoldmanSachs 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.

## LINKS

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

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

**Website:** <https://jrs296.github.io/JRS-Studios/>

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

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

**ORCID ID:** 0000-0002-6028-7977

## CONTACT & OTHER MISCELLANEOUS INFORMATION

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