

# SAI CHARAN REDDY K

+91 944 930 1875 ◇ saicharanreddyk@outlook.com

## SUMMARY

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A graduate student in Computer Science, with a strong impulse to work in a challenging environment where my academics paired with my skill-set could be applied and made practical, with keen interest to enrich my knowledge and gain experience in real-world applications.

A quick and self-learner with effective communication who builds positive, cohesive relationship. Strong interpersonal skills with notable written and verbal communication, venerable leadership expertise in planning, communication, decision-making and problem-solving.

## EDUCATION

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<b>Bachelors in Computer Science</b>	2015 - 2019
Birla Institute of Technology & Science-Pilani, KK Birla Goa Campus. CGPA : 4.52/10	
<b>TSBIE, Classes XI-XII</b>	2013 - 2015
Sri Chaitanya Junior Kalashala, 972/1000	
<b>CBSE, Class X</b>	2013
Dream World School, CGPA : 10/10	

## ELECTIVES/TECHNICAL SKILLS

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<b>Languages</b>	C++, Python, Visual Basic
<b>IDEs</b>	Visual Studio, SlickEdit, Eclipse
<b>Tools</b>	Docker, Hadoop, ElasticSearch, Mesos, Kubernetes, JIRA-BitBucket
<b>Cloud Platforms</b>	Amazon Web Services (AWS), Microsoft Azure
<b>Subjects</b>	Object-Oriented Programming, Data Structures & Algorithms, Operating Systems, Principles of Programming Languages, Database Systems & Computer Networks
<b>Electives</b>	Real Time Systems, Data Storage Technologies & Networks, Cloud Computing, Machine Learning, Neural Networks & Fuzzy Logic
<b>Technical Proficiency</b>	Linux, Git, Networking Concepts (Topologies; OSI Model; TCP/UDP/FTP/HTTP/SMTP Protocols; DNS; Routing; Socket Programming), OS (Virtualization, File Systems, Threads, Scheduling Algorithms, Memory Access), RDMBS (MySQL) and OODB, RAID, SAN & NAS Concepts, Data Access and Storage Windows APIs

## INTERNSHIP/WORK EXPERIENCE

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<b>Software Development Engineer I - Tally Solutions</b>	since April 2021
<ul style="list-style-type: none"><li>Working on expanding the existing functionality of e-Invoice exchange to facilitate eWayBill and build an exchange between Tally Client &amp; Government eWayBill APIs for additional eWayBill actions.</li><li>Worked on resolving compiler warnings across the entire code base of Tally.</li><li>Trained employees within Tally on C++ &amp; Multi-threading concepts, won an award for the same.</li></ul>	
<b>Software Engineer Trainee - Tally Solutions</b>	September 2020 - March 2021
<ul style="list-style-type: none"><li>Was trained on Tally Product (TallyPrime) on both the Front (TDL) and Back ends (Underlying C++ for the TDL, Memory manager, Windows APIs for Data Access &amp; Storage, Event Controller).</li><li>Built additional reports using TDL (Tally Definition Language) for the product and added graphs into Tally Reports in Browser (TRiB) project to extend the user-experience of reports existing in the Tally Client.</li></ul>	

- Was mentored in Penetration Testing concepts, and built a simple Visual Basic based Key-logger with functionalities of recording keystrokes and mouse clicks. Event-triggered snapping of screenshots was added post the internship period.
- Packaged the program into an application with added functionality of automated mailing at regular/event-triggered intervals for remote retrieval of data.
- Additionally, was also involved in collecting data for a white-paper on comparative study of various services offered by five major public cloud service providers: AWS, MS Azure, Google, IBM & Oracle Clouds.
- As a part of drive to introduce interns to cloud, was familiarized with Azure ML Workspace and worked on a sample prediction models for Finance Markets based on existing data-sets on the Azure.

## **MAJOR PROJECTS**

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### **1. Safety Analysis of Industrial Cyber-Physical Systems Modeled in AADL** May 2019 - March 2020

- Safety-critical Industrial Systems were identified and modeled in Architecture Analysis and Design Language (AADL), an architecture description language.
- Error (Propagation) Models were built into these AADL models for the Safety Tests including Fault Tree Analysis, Fault Impact Analysis & Functional Hazard Analysis
- Worked on performing Graph Transformations on the instantiated AADL models, to identify critical components and mitigate the faults (using fault-tolerant designs including Triple Modular Redundancy (TMR) with Voter(s), Circuit-Breaker Pattern), reducing the probability of error propagations in the AADL models using Story-Driven Modelling (SDM) tools.
- The framework, on its completion, will provide identification of critical components and return potential solutions to establish/improve the fault-tolerant design.

### **2. Digital Maturity Assessment of Hospitals in India**

Undergraduate Thesis

June 2019 - December 2019

- Aimed at understanding the percentage of Digitization over traditional Paper-Driven records, surveyed Hospitals across geographies in India, and evaluated data based on Confidentiality, Integrity and Availability (CIA) triad
- Built a framework for performance evaluation of each organisation surveyed based on metrics sampled and performed comparative analysis of my results with similar studies conducted across European Union and North America

## **MINOR PROJECTS**

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### **1. Performance Analysis of MapReduce Tasks**

- On a Wikipedia text data dump, a MapReduce task of word-count was performed in AWS Elastic MapReduce (EMR) clusters (with varying node count upto 32 nodes) to understand horizontal scaling in MapReduce tasks.
- Analysis was performed with varying number of Mappers and Reducers as well as modification of word-count program to understand the aspects of performance overheads and optimization.

### **2. Comparative Study of Performance in various Virtualized Scenarios**

- To understand the performance costs of various virtualisation scenarios, performance analysis was done on a native machine (non-virtualized scenario), a Virtual Machine and a Container
- A CPU intensive task (a modified version of Geekbench CPU Benchmarking suite), an I/O intensive task (IOZone Benchmarking suite) and a CPU plus I/O intensive task (untarring a large archive) were sampled and analysed using Elasticsearch (Kibana, MetricBeat).

3. **Comparative Study of Real Time Scheduling Algorithms in Cheddar and Refinement for Discrete Use Cases**
  - Cheddar is an open-source real-time scheduling simulator written in AADL, which was used to plot and understand the schedulability of various existing algorithms and modify them for discrete scenarios.
4. **Building Documentation of Scheduling Algorithms in Linux Kernel**
  - Linux Kernel v5.0.2's Completely Fair Scheduler (CFS) and Real-Time Schedulers (Round-Robin & First-Come First-Serve) documentation was built using Source Code in C.
5. **Performance Analysis of Containerizers in Mesos**
  - Three different containerizers included in Mesos, an open-source cluster manager, were studied with respect to behavior in high workload scenarios.

## POSITIONS OF RESPONSIBILITY

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**Administrator - Campus-wide P2P Chat and File-Sharing Hub** January 2016 - December 2019

- Administrator for a campus-wide peer-to-peer file-sharing and chat hub that facilitated quick and easy to use communication among students, based on Direct Connect (DC) protocol.
- Involved in hosting and running the hub 24\*7 for 3000+ students, catering to students' needs as demanded in functionality of the hub as a go-to place for any kind of information resources.
- Worked on Lua scripts, for functions such as noticeboards, mini-games, polls, etc that could be plugged into PtokaX Direct Connect Hub server application, which was used to host the hub.

**Core Member - Centre for Technical Education (CTE)** August 2016 - May 2017

- Volunteered in organizing classes and events for 250+ students in the BITS Pilani, Goa Campus (BPGC) in the in-house mentoring program, CTE.
- Involved in scrutinizing of Mentorship applications and ensuring of proper conduct during the period of course offering, examination and awarding certification.

**Network Representative - Council for Student Affairs** August 2015 - July 2016

- Elected as Network Representative by a huge majority, served as the point of contact for 185+ students of the hostel for any Network related issues between them and the Network Administrators of BPGC.
- Represented the aforementioned students at the Student Affairs Senate, Council for Student Affairs and Student Welfare Division meetings.

## PERSONAL PROFILE

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<b>Date of Birth</b>	15 April 1997
<b>Address</b>	C/O Thimma Reddy P, R.No.105, #997, 7th Main, Tulasi Theatre Road, Marathahalli Village, Bangalore, Karnataka - 560037
<b>Languages known</b>	English, Telugu and Kannada.
<b>Interests</b>	Interactive story-driven entertainment and puzzles, video gaming
<b>GitHub</b>	<a href="https://github.com/konqeror369">https://github.com/konqeror369</a>
<b>LinkedIn</b>	<a href="https://linkedin.com/in/saicharanreddyk">https://linkedin.com/in/saicharanreddyk</a>
<b>Website</b>	<a href="https://saicharanreddyk.com">https://saicharanreddyk.com</a>