Sumanth V Rao

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Education

PES University — Bangalore
Bachelor of Technology - Computer Science and Engineering — Aug 2016 - Jul 2020
- **GPA** - 9.57/10.00
- **Courses** - Data Structures & Algorithms, Operating Systems, Computer Networks & Security, Big Data, Cloud Computing, Compiler Design, Automata Theory, Data Science, Machine Learning.

Sri Kumaran Children's Home Composite Pre-University College — Bangalore
12th grade, 93.8% — Jun 2014 - Mar 2016

Experience

Citrix Systems — Bangalore
Software Engineer, Software Engineer Intern — Jan 2020 - Present
- As a part of the Licensing team, I helped containerize automation test suites for different License Server components, working with tools like Docker, Kubernetes and Jenkins.

The Zulip Open Source Project — Remote
Open Source Contributor, Google Summer of Code Participant — Jun 2019 - Present
- Core contributor to multiple Zulip projects, working with languages like Python (Django & mypy type system), JS, Shell scripting, Handlebars.
- Google Summer of Code Mentor, 2020 - Worked with two students, guiding them and reviewing their work.
- Google Summer of Code Student, 2019 - Worked on improving the functionality and performance of Zulip's terminal client application.

Data Analytics Course, PES University
Undergraduate Teaching Assistant — Aug 2019 - Nov 2019
- Responsible for designing and evaluating programming assignments and quizzes in R and Python, conducting special talks and holding office hours to interact with students.

Microsoft Innovation Lab, PES University — Jun 2017 - July 2017
- Built an ANN model to annotate moderate-advanced words with definitions as they occurs in a real-time video, using Python - Scikit Learn & NLTK libraries.

Research Project

Smart Home Automation System *Center for Information Security, Forensics and Cyber Resilience (ISFCR), PES University* — Oct 2019 - Present
- Developed a scalable, platform-agnostic Smart Home Automation solution to control existing home infrastructure, using voice as the primary means of input.
- The solution presents a practical way to tackle current challenges in Smart Home IoT market by proposing an architecture which minimizes cost, allows for interoperability and is secure, by design.

Tech Stack: Actions on Google, Alexa Skills, Node.js, HassOS, STRIDE Threat Model

Scholarships

Recipient of **CNR Rao Merit Scholarship** (awarded to the top 20% of students in the batch) with a 15% fee waiver for all seven semesters of study, PES University.

Course Projects

Indian Cricket League prediction model using Spark — Sep 2018 - Nov 2018
- Developed two score-wicket prediction models (Bayesian & Decision Tree model) to simulate the outcomes of Indian Premier League cricket matches during the 2018 season, using ball-by-ball data from previous years.

Tech Stack: Apache Spark MLLib - Scala & PySpark

C++ Mini-compiler Apr 2019 - May 2019

- Built a compiler for basic constructs in the C++ language - capable of Lexical, Syntax and Semantic Analysis, and Code Optimisation.

Tech Stack: C language, LEX, YACC

Simple, Persistent File System using FUSE Oct 2018 - Nov 2018

- Built a File System using FUSE software interface, capable of basic File I/O and directory operations. Further, it supports performing operations on nested files, in a persistent manner.

Tech Stack: C, FUSE software interface, Linux system calls

MovieBuddy - Movie Recommendation System Aug 2018 - Nov 2018

- Compared different recommendation system models (Content-Based & Collaborative Filtering, Restricted Boltzmann Machine) to find common movie interest among a group of people, to help socially connect similar users.

Tech Stack: Python - TensorFlow & Surprise libraries

Big Integer Library May 2018

- Implemented a C library capable of performing arithmetic operations on integers of arbitrary length.

Tech Stack: C language, Make utility, Algorithm - Karatsubha fast multiplication

Database Management System Feb 2018 - Apr 2018

- Build a secure and practical DBMS for an orphanage *AnathaShishu Navasa, Bangalore* which helps the administration manage donation and adoption details with an easy to use frontend for data entry and query.

Tech Stack: PostgreSQL, PHP, JS, HTML

AWARDS

Winners, *Pravega* IBM Hackathon *Indian Institute of Science* Jan 2019

Built a module to determine the authenticity of news articles by considering the combined scores from a binary classification model (LSTM with Ensemble Learning) and a fact-checking model.

Tech Stack: IBM Watson's NLP APIs, Python - Keras, Pandas

Winners, *Idea to Pitch* Contest *Center of Entrepreneurship and Innovation , PES University* Jun 2018

The contest marked the culmination of a week-long residential Bootcamp where teams went through the entire life-cycle of a startup - validation of ideas, creation of a business model and pitching.

EXTRA-CURRICULAR ACTIVITIES

- Avid mountain trekker, having completed 3 high-altitude treks (Hampta Pass, Valley of Flowers, Bharamatal), between 2018 - 2020.
- Took part in "Samarpana", a 10km marathon to raise funds for Indian army officials & their families, organized by PES University, Mar 2018.
- Completed Junior level in Indian Carnatic Vocal Musical, 2014.

MEMBERSHIPS

- Member of Citrix Orators - Toastmasters International Club, 2020.
- Student In-charge for *Microsoft Innovation Lab, PES University* - Helped organize the flagship Hackathon "HashCode", Oct 2019.

LANGUAGES

Kannada (Native), English (Advanced), Hindi (Intermediate), German (Novice)