**Sandeep Reddy Somu**

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# EDUCATION

# Master of Science - Computer Science & Engineering Graduating Dec 2022

Arizona State University, Tempe, AZ GPA: 4.0 /4.0

**Coursework:** Foundations of Algorithms, Distributed Database Systems, Data Visualization, Statistical Machine Learning, Info Assurance and Security, Advances in Robot Learning, DS and Algorithms, Principles of Programming Languages.

## Bachelor of Technology - Engineering July 2015 – May 2019

National Institute of Technology Durgapur, India

**Coursework:** Operating Systems, Database Management Systems.

# TECHNICAL SKILLS

**Programming Languages :** Python, SQL, Java, C++

**Web Technologies :** HTML5, CSS3, JavaScript, D3 JS, Django

**Databases :** MySQL, SQL Server, Mongo DB, Apache HADOOP, PostgreSQL

**Cloud & Technologies :** AWS, Bitbucket, JIRA, Git, Jenkins

# PROFESSIONAL EXPERIENCE

## Software Engineer, Wipro, Hyderabad, India July 2019 – Aug 2021

* Worked on the design and implementation of web-based applications needed for one of the major American banks.
* Automated their end-to-end processes which include generating their weekly, monthly, and quarterly reports using java-based cloud platform Appian.
* Used Oracle Database for the backend, Agile and Scrum methodologies for timely production releases, and JIRA tool for the smooth feedback of issues and in time resolutions.
* Mastered the skill of working in teams and was one of the two candidates to receive “The Bright beginning” award out of the 200 employees.
* Delivered 1048 EUCs in a span of over 1 and half year with the help of around 200+ teammates.

## Research Intern, Indian Institute of Science Bangalore (IISc), India May 2018 – July 2018

* Tested and implemented a handful of deep learning methods for accurately counting the number of people in photographs captured by drones.
* Worked with the OpenCV and Anaconda frameworks, learning about cutting-edge crowd counting techniques in the process.Also, became familiarized with Robot Operating System, Deep Learning methods, PyTorch and OpenCV.

# ACADEMIC PROJECTS

# Spatial hotspot Analysis using Apache Spark

* To conduct range and distance queries on point and rectangle coordinate sets, created a distributed application utilizing Spark APIs and Hadoop File System.
* Using SparkSQL, applied spatial statistics to spatial temporal data to find hotspots; identified the 50 most important yellow taxi pick up locations in PHX.

# Auto-Scaling AWS Iaas Framework

* Built an Elastic Iaas Framework that auto-scales based on the number of requests an AWS Cloud-hosted application receives.
* AWS EC2 cluster was used to deploy a deep learning model for image classification, and the auto-scaling functionality was demonstrated by adjusting the number of image inputs.
* Utilized AWS Cloud Resources like AWS EC2 for deploying image classification model, AWS S3 for storage, and AWS SQS for auto-scaling. Based on the number of inputs in the SQS queue, AWS EC2 instances bootup, completes the classification task, and shut down automatically making the application end-to-end elastic.
* Developed the whole framework in multi-tiered architecture using NodeJS IAC on AWS from scratch.

# Rotating and balancing a pad via Robot Manipulator

* The whole idea is to make the robot manipulator simultaneously balance and rotate the pad without any link between the manipulator edge and the pad. Made use of the Q-learning Reinforcement algorithm to achieve this task.
* Used PANDA – Robotic manipulator, Gazebo simulator, MoveIt – Motion planning framework and ROS Noetic software framework.

# Selection of Bridge type using Machine Learning Algorithms

# Developed and implemented One-Vs-All multi-class classification and Neural Networks for determining the optimal bridge type for a specific location in India.

# The factors weighed in for the determination are soil type, river properties, lanes, etc. which were used as attributes for both models. The data for this training is collected from nearby bridges to my university and the other half were taken from Wikipedia and got an accuracy of 88%.