

# RAHUL RANGARAJAN KANNAN

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## EDUCATION

### Master of Computer Science

North Carolina State University, Raleigh, NC

Aug. 2021 – May 2023

**GPA – 4.0/4.0**

**Coursework** – Automated Learning and Data Analysis, Database Systems, Design and Analysis of Algorithms.

### Bachelor of Technology, Information Technology

Sri Venkateswara College of Engineering, India

Aug. 2017 – May 2021

**GPA – 9.646/10**

**Coursework** – Data Science, Big Data Analysis, Deep Learning, Computational Intelligence, Database Management, Data Structures, Algorithms, Software Engineering, Cloud Computing, Object-oriented Analysis and Design, Web Programming, Computer Networks.,

## TECHNICAL SKILLS

<b>Languages</b>	:	Python (NumPy, Pandas, TensorFlow, Keras, SciKit-Learn, OpenCV, Matplotlib, SciPy), Java, C, C++.
<b>Databases</b>	:	SQL, Oracle, MongoDB, SimpleDB, Firebase.
<b>Development</b>	:	HTML5, CSS3, JavaScript, jQuery, GIT.
<b>Frameworks</b>	:	Flask, Django, JDBC, NodeJS, React.
<b>Others</b>	:	Anaconda, OpenCV, AWS (EC2, S3), VCL, MS Office.

## ACADEMIC PROJECT EXPERIENCE

### AI-powered Real-time Vehicle Tracking Application

May 2020 – May 2021

- Developed a **complete surveillance application** to **track vehicles in real-time** using unique attributes extracted from CCTV footage.
- Attributes - License plate details, vehicle make, model, color, damage, location, peculiar attachments – Real-time database updates.
- Integration of **7 deep learning algorithms** with **12 distinct predictions** at each step at **24 frames per second** (with multi-threading).
- TensorFlow, Keras, OpenCV, TesseractOCR, YOLOv4, PyTorch, CUDA, AlexNet, MobileNet, KMeans clustering, Firebase.**

### Cryptocurrency Analysis and Forecasting

Sep. 2021 – Dec. 2021

- Implemented **time-series forecasting algorithms** – LSTM, fbProphet, and SARIMA to **predict cryptocurrency** prices.
- Analyzed trends in prices and investment risk involved using data **preprocessing** and **visualization** techniques in **Python**
- Comparison study of the algorithms – LSTM performed better with error metrics – MAE 0.093, RMSE 0.121, R2 0.784.
- Pandas, Matplotlib, Seaborn, Sklearn, TensorFlow, Keras, Statistical inference – Moving averages, Correlation, KDE, histogram.**

### Customer Loyalty Marketplace Application

Sep. 2021 – Dec. 2021

- Developed an **interactive database system application** for managing customer **loyalty programs** for different brands with advanced features such as triggers, procedures, automated logging, version management, transaction management, wallet, reward rules, and tiers.
- Implemented using **Java** with **JDBC** connection between frontend and **Oracle SQL** database – **SCRUM** approach.

### Self-Driving Car Simulation using Convolutional Neural Networks

Nov. 2018 – Mar. 2019

- Implemented **CNN** to drive autonomously **only based on vision** in GTA V (**game**) with 97.8% training and 90% validation accuracy.
- Trained from 20+ hours of gameplay video – Advanced Lane detection, Vehicle and Obstacle detection, and Collision avoidance.

## RESEARCH PROJECT EXPERIENCE

### Real-time Attention Span Tracking Application

Oct. 2020

2020 IEEE MIT Undergraduate Research Technology Conference (International)

Boston, MA

- Lead Author** of the Research paper titled “Real-time Attention Span Tracking in Online Education” presented at the conference.
- Developed an **advanced proctoring system** using Computer Vision and Machine Learning algorithms to prevent cheating in online classes and exams using input feed from webcam and microphone – 250ms inference time and 84.62% accuracy.
- Integrated functions using Multi-threading – Blink rate, Eye-gaze, Emotion, Body posture, Background noise, and Facial Recognition.
- TensorFlow, Keras, OpenCV, Viola-jones Haar cascade classifier, EAR, SRC, SVM, CNN, PCA, Dlib, PoseNet, PyAudio, CUDA.**

## WORK EXPERIENCE

### Teaching Assistant for CSC 447 – Introduction to Cloud Computing (Fall 2021)

Sep. 2021 – Dec. 2021

Department of Computer Science – North Carolina State University

Raleigh, NC

- Graded homework and projects, held lab/office hours, assisted students with AWS and VCL, Resolved issues in discussion forums.
- Class size – 40 students, Overall class average – **90.38%**.

### Machine Learning Engineer Intern

Aug. 2020 – Dec. 2020

Hueint Private Limited

Chennai, India

- Reduced manual work by 30% by developing an **Automated Timetable scheduler** using Genetic algorithms for Hueazia.
- Co-developed an **AI question generator** algorithm using Natural Language Processing and NLTK in python.

### Software Developer Intern

May. 2019 – June 2019

Doyen System Private Limited

Chennai, India

- Developed a website with **voice-enabled chatbot** using ALAN AI for a news application which improved user accessibility by 25%.

## ACHIEVEMENTS

### Finalist of Smart India Hackathon – 2020 (National Level Hackathon)

Aug. 2020

- Selected as **Top 5** from over 450,000 students all over India.
- A **Memorandum of Understanding** was signed between SVCE and the Govt. of Madhya Pradesh through this project.

### Budding Engineer Award – SVCE (Institution Level Award)

Aug. 2018

- Meritorious academic performance (**First Rank holder** of IT department) and significant Research and Project Contributions.