

# ROHITAA RAVIKUMAR

• +1 (832) 430-9277 • rr71@rice.edu • linkedin.com/in/rohitaar • Houston, Texas

## EDUCATION

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Rice University, Houston, Texas

May 2024

**Master's in Electrical and Computer Engineering (Computer Vision), GPA: 4/4**

Relevant Coursework: Introduction to Machine Learning || A Practical Introduction to Deep Machine Learning || Deep Learning for Vision and Language || Introduction to Computer Vision || Digital Image and Video Processing

SSN College of Engineering, Anna University, Tamil Nadu, India

August 2021

**Bachelor of Engineering - Electronics and Communication Engineering, CGPA: 8.76/10**

## SKILLS

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**Languages- Programming:** Python, SQL, C/C++, MATLAB || **Lingual:** English, Hindi, Tamil, Telugu, French

**Software:** Pytorch, Keras, TensorFlow, Sci-kit Learn, OpenCV, Pandas, Numpy, Matplotlib

## EXPERIENCE

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Cognizant Technology Solutions India Pvt Ltd., Tamil Nadu, India

September 2021 – July 2022

*Programmer Analyst Trainee*

- Designed a project to re-engineer the existing database to a data warehouse using the Extract, Transform, and Load process.
- Participated in technical training sessions on DBMS, Python.

Solarillion Foundation, Tamil Nadu, India

August 2019 – May 2022

*Undergraduate Research and Teaching Assistant*

- Researched and developed low-cost real-world algorithmic solutions for clustered microgrids and load optimization.
- Mentored, helped, and led two students with research work.

National Institute of Technology Karnataka (NITK), Tamil Nadu, India

May 2020 – August 2020

*Research Summer Intern (Remotely)*

- Developed transfer learning methods for instance nuclei segmentation of histopathology images.
- Evaluated the performance of FCN-8, FCN-16, U-Net deep learning model using evaluation metrics.

Council of Scientific and Industrial Research (CSIR), Tamil Nadu, India

May 2019 – June 2019

*Image Processing Intern*

- Built a real-time background removal, image pasting algorithm in Python using PIL and RGB Model.

## SELECTED PAPERS

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**Deferrable Irrigation Load Optimization in Rural Microgrid Clusters**

July 2020 – November 2021

2022 IEEE Conference on Technologies for Sustainability (SusTech)

Riverside, CA, USA

- Presented an intelligent algorithm to obtain peak efficiency using deferrable load servicing while reducing overall costs.

**Intelligent Deep Learning-Based Pothole Detection and Reporting System**

September 2020 – August 2021

2021 IEEE International Conference on Electrical, Computer and Communication Technologies (ICECCT)

Tamil Nadu, India

- Automated object identification using CNN, Mask-RCNN, YOLOv3 algorithms, and hardware system consisting of Raspberry pi, GPS module, and buzzer as its main components for reporting the detected pothole.

**Irrigation Load Optimization for Enhanced Agricultural Productivity in Rural Microgrid Clusters**

January 2020 - June 2020

2020 Annual IEEE Global Humanitarian Technology Conference (GHTC)

Seattle, WA, USA

- Proposed a robust architecture for clustering pre-existing microgrids in close proximity to enhance the irrigation efficiency of the system leading to improved agricultural productivity along with alleviated overall costs.

## PROJECTS

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**Cairdio - Simplifying Heart Health Screening**

January 2023 – Present

- Developing a deep learning-based method for automatic diagnosis of cardiac diseases from Phonocardiogram (PCG) signals.
- Pre-processed the PhysioNet 2016, PhysioNet 2022 dataset and trained ResNet model for classifying heart sound recordings into normal or abnormal.

**Mechanistic Interpretability of Transformer Circuits**

November 2022 – December 2022

- Reverse-engineered an auto-regressive decoder only NLP model for text generation on IMDB and wikitext dataset.
- Analyzed the outputs of each layer for different combinations of layers, types of layers, hyperparameters.

**Smart Street Light Management System for Energy Conservation**

December 2019 – April 2020

*Internal Hackathon Finalist for Smart India Hackathon (SIH 2020) Hardware Edition*

- Assembled a device to control the intensity of street lights using LDR, PIR motion sensor, Zigbee communication technology, and a camera for human detection using the Faster RCNN model with the help of TensorFlow object detection.

## CERTIFICATIONS

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- Deep Learning A-Z™: Hands-On Artificial Neural Networks – Udemy
- Machine Learning A-Z™: Hands-On Python – Udemy

## HONORS

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Rice University – ECE Future Star Scholarship