

## Education

---

University of California, Santa Cruz. 2022-2024  
*Masters in Electrical and Computer Engineering*  
Visa Status: **Student F1 Visa**

Anna Univeristy; RMD Engineering College, Chennai 2014-2018  
*Bachelors of Engineering, Electronics and Communication*  
Cumulative GPA: 8.14/10 [3.47/4] (WES Certified)

## Work Experience

---

- **Machine Learning Scientist II** Oct 2021- April 2022  
Lytx  
Bangalore, Karnataka, India
  - \* Development of low resource intensive DL/ML model designed for edge devices
  - \* DL model pruning for efficient training/deployment of models onto hardware
  - \* Development of ML/DL models for mmwave radar
- **Research Associate** Dec 2017- Sep 2021  
NeuRonICS Lab, DESE Department.,  
Indian Institute of Science, Bangalore
  - Real-Time Object Detection and Localization in Compressive Sensing Video** ICIP 2021  
Research Associate under Dr. Chetan Singh Thakur in collaboration with:  
**Qualcom, USA; tinyVision.ai, USA and IISc, Bangalore**
    - Object detection and localization can be possible directly in the Compressed Domain.
    - Achieved SOTA 46.27% mAP on a GeForce GTX 1080 Ti with an inference time of 23ms.
    - Deployed on a NVIDIA TX2 embedded board with 45.11% mAP with an inference time of 34ms.
  - n-EAR: Neuromorphic Ego motion vehicle Activity Recognition** US Patent App. 17/377,761; 2022  
Research Associate under Dr. Chetan Singh Thakur collaboration with:  
**Wipro Research; IISc, Bangalore**
    - A Neuromorphically inspired attention sampling technique
    - A light weight end to end trainable bio-inspired deep learning two stream architecture that bridges the event data and the conventional frame-based data for egocentric vehicle activity recognition
    - Modded CARLA simulator for event-based data generation/ego-motion tracking
  - N-HAR: A neuromorphic event-based human activity recognition system** ISCAS 2019  
Research Associate with Dr. Chetan Singh Thakur and Dr. Anirban Chakraborty, CEDT, IISc
    - First system to achieve the task of human activity recognition based on the event-based camera data
    - Memory surfaces to make the sparse event data compatible with deep convolutional neural networks (CNNs)
    - Achieved SOTA accuracy of 94.3% using event memory surfaces on our activity recognition dataset.
  - Real-time implementation of proto-object based visual saliency model on NVIDIA TX** ISCAS 2019  
Research Associate with Dr. Chetan Singh Thakur in collaboration with Jamal Lottier, JHU
    - Real-Time Biological proto-object visual saliency model

- Implementation considers the dynamic temporal motion change by convoluting using CUDA
- We have implemented the model on an NVIDIA Jetson TX1 board

**Teaching Assistant and Support** for Deep Learning Certificate Program  
Great Learning, Bangalore

2018-2019

- Responsible for developing content for assignments and in course code-walkthroughs
- Conduct one-to-one online support and doubt clarification sessions
- Review and Evaluate coding assignments

## Publications

---

Real-Time Object Detection and Localization in Compressive Sensing Video

**Sathyaprakash Narayanan\***, Yeshwanth Ravi Theja\*, Venkat Rangan, Anirban Chakraborty, Chetan Singh Thakur  
*IEEE International Conference on Image Processing (ICIP)* 2021.

N-HAR: A neuromorphic event-based human activity recognition system using memory surfaces

Pradhan Bibhat Ranjan, Yeshwanth Ravi Theja, **Sathyaprakash Narayanan**, Anirban Chakraborty, Chetan Singh Thakur  
*IEEE International Symposium on Circuits and Systems (ISCAS)* 2019.

Real-time implementation of proto-object based visual saliency model on NVIDIA Jetson TX

**Sathyaprakash Narayanan**, Yeshwanth Ravi Theja, Chetan Singh Thakur  
*IEEE International Symposium on Circuits and Systems (ISCAS)* 2019.

A Compressive Sensing Video dataset using Pixel-wise coded exposure

**Sathyaprakash Narayanan**, Yeshwanth Ravi Theja, Chetan Singh Thakur  
*arXiv:1905.10054 (arXiv)* 2018.

\*- equal contribution

## Patents

---

Method and system for recognizing activities in surrounding environment for controlling navigation of autonomous vehicle

**Sathyaprakash Narayanan**, Pradhan Bibhat Ranjan, Anirban Chakraborty, Chetan Singh Thakur  
**US Patent App. 17/377,761**

System and Method for exhale controlled Augmentative and Assistive Communication device for communication and controlling IOT device

**Sathyaprakash Narayanan**  
**IN Patent: 201641044496**

## Selected Awards and Honors

---

- |   |      |
|---|------|
| • Awarded <b>Top 20 Innovators of India</b> , by Intel and DST  | 2016 |
| • Represented India in <b>MIT MedHacks</b> , Yale University, CT, USA   | 2016 |
| • Represented India in <b>MIT Loomo hacks</b> , NTU Singapore   | 2016 |
| • Awarded <b>Best Student</b> by ISTE Chapter<br>for overall performance in academic and extracurricular activities | 2017 |
| • Represented India in <b>Hack the North at University of Waterloo</b> , Canada                                     | 2017 |

## Responsibilities

---

**Reviewer**

- **WACV** 2019, 2020, 2022, 2023
- **TPAMI** *IEEE Transactions on Pattern Analysis and Machine Intelligence*