

# Sathyaprakash Narayanan

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🔗 Google Scholar

## Education

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University of California, Santa Cruz. 2022-Present  
*Masters in Electrical and Computer Engineering*

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

## Publications

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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

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System and method for ego-centric activity recognition from vehicle on-board neuromorphic cameras  
**Sathyaprakash Narayanan**, Pradhan Bibhat Ranjan, Anirban Chakraborty, Chetan Singh Thakur  
**US and IN Patent; Application No: IN202141014742**

System and Method for exhale controlled Augmentative and Assistive Communication device for communication and controlling IOT device  
**Sathyaprakash Narayanan**  
**IN Patent: 201641044496**

## Work Experience

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- **Machine Learning Scientist II** Oct 2021- Present  
Lytx-India,  
Bangalore, Karnataka, India
- **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**

**Patent No. IN202141014742**

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**

**2018-2019**

Great Learning, Bangalore

- 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

## **Selected Awards and Honors**

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- Awarded **Top 20 Innovators of India**, by Intel and DST 2016
- Represented India in **MIT MedHacks, Yale University, CT, USA** 2016
- Represented India in **MIT Loomo hacks, NTU Singapore** 2016
- Among global rank of under 50, Amazon DRS Developer Challenge 2016
- Among global rank of under 100, MediaTek Labs The Future of Smart Homes and Offices 2016
- Awarded **Best Student** by ISTE Chapter 2017  
for overall performance in academic and extracurricular activities
- Represented India in **Hack the North at University of Waterloo, Canada** 2017
- Among top 10 in India for Academia-Industry Training(AIT) 2017  
Programme by **Sine IIT-B and Swissnex India, DST and Zurich University of Applied science**
- **Best project of the year**, RMD Engineering College 2018

## **Responsibilities**

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### **Reviewer**

- **WACV 2019, 2020, 2022, 2023**
- **BMVC 2018, 2019, 2020**