

Sathyaprakash Narayanan

🌐 <https://satabios.github.io/portfolio>
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🔗 Google Scholar

Education

University of California, Santa Cruz. 2022-2024
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

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

Work Experience

- **Machine Learning Scientist II** Oct 2021- April 2022
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

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

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

- 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

Responsibilities

Reviewer

- **WACV 2019, 2020, 2022, 2023**
- **BMVC 2018**
- **TPAMI IEEE Transactions on Pattern Analysis and Machine Intelligence**