Sathyaprakash Narayanan

https://satabios.github.io
max.satabiossathya@gmail.com
Google Scholar

Education

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
Cumlative 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 Charkraborty, Chetan Singh Thakur
IEEE International Conferenceon Image Processing (**ICIP**) 2021.

N-HAR: A neuromorphic event-based human activity recognition system using memory surfaces
Pradhan Bibrat Ranjan, Yeshwanth Ravi Theja, **Sathyaprakash Narayanan**, Anirban Charkraborty, Chetan Singh Thakur
IEEE International Symposiumon 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 Symposiumon 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

System and method for ego-centric activity recognition from vehicle on-board neuromorphic cameras
Sathyaprakash Narayanan, Pradhan Bibrat Ranjan, Anirban Charkraborty, 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

- **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 **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

- 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
  for overall performance in academic and extracurricular activities *2017*
- 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*