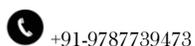


# Santhoshkumar Sukumar



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## Interest:

I am deeply passionate about the intersection of technology and creativity, particularly in the realm of application development. My interests lie in leveraging cutting-edge technologies, such as Deep Learning, Machine Learning, and Computer Vision, to craft innovative solutions that enhance user experiences and address real-world challenges.

## Hands-on:

Deep Learning - Keras & OpenVINO toolkit  
Computer Vision - OpenCV & Python  
Machine Learning - Scikit-Learn  
Implementation - Nvidia GPU machines & Google Cloud Platform

## Education:

PhD	Artificial Intelligence	-	M S Ramaiah University of Applied Sciences	Pursuing (Part Time)
M.E.	Communication Systems	-	Mepco Schlenk Engineering College, Anna University	2005 - 2007
B.E.	Electronics & Communication Engineering	-	K S R College of Engineering, Anna University	2001 - 2005

## Work Experience: 12 years

Associate Consultant	-	CGI, Bangalore	10/2021	-	11/2022
Senior Embedded Software Lead	-	UST, Chennai	03/2019	-	09/2021
Project Engineer	-	HTIC, IIT Madras, Chennai	07/2017	-	02/2019
Teaching Fellow	-	Madras Institute of Technology, Anna University, Chennai	07/2011	-	05/2014
Assistant Professor	-	M S Ramaiah School of Advanced Studies, Bangalore	11/2007	-	06/2011

## Projects:

@ CGI

- Real Time Object Detection & Segmentation with Custom Dataset  
YOLO, SSD, Faster RCNN & Mask RCNN  
Tensorflow 2 Object Detection API, OpenCV\_Python

@ UST

- Real Time Authentication System  
Face Detection, Face Age-Gender Detection, Face Re-Identification, Face Mask Detection, Liveness Detection, ID Card Auto-Alignment & ID Card Text Spotting  
Intel's OpenVINO toolkit, OpenCV\_Python, Keras

@ HTIC, IIT Madras

- Auto-Brightness, Structural Enhancement, Red Color Highlighting & White Balance for Endoscopy Image
- Polyp Segmentation using Generative Adversarial Network
- Optic Disc Segmentation in Diabetic Retinopathy using Traditional Image Processing Techniques  
Matlab, OpenCV\_C++, CUDA, PyTorch

## Funded DRDO Projects:

@ MIT, Anna University

- Development of Algorithms for Enhancement of OCU – For Teleoperation using Augmented Reality
- Role: Project Co-investigator & Algorithm Developer
- Funding: Combat Vehicles Research and Development Establishment (CVRDE), Chennai.  
Matlab, C++

@ MSRSAS

- Development of Optical Flow based Algorithms for Autonomous Navigation of Micro Air Vehicles
- Role: Image Processing Algorithm Developer
- Funding: Aeronautical Development Establishment (ADE), Bangalore  
Matlab

## Research Experience: 3.5 years

Research Scholar	(Part-Time)	-	M S Ramaiah School of Applied Sciences, Bangalore	08/2023	-	till date
Research Scholar	(Full-Time)	-	Madras Institute of Technology, Anna University, Chennai	06/2014	-	06/2017

## Projects:

@ MSRUAS  
Currently research

- Deep Learning based Human Action Recognition for Assistive Guidance in Videos  
Keras, OpenCV\_Python, Matlab

@ MIT, Anna University

- Feature Extraction Techniques for Human Action Recognition & Human Interaction Recognition  
Matlab

## Publications:

- Poorneshwaran JM, Santhosh Kumar Sukumar, Keerthi Ram and Mohanasankar Sivaprakasam, "Polyp Segmentation using Generative Adversarial Network" in *41st International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2019)*, Berlin Germany, July 2019.  
Doi: 10.1109/EMBC.2019.8857958
- Santhosh Kumar Sukumar, Kamalakkannan Ravi, Supriti Mulay, Keerthi Ram and Mohanasankar Sivaprakasam, "Deep Residual Network based Automatic Image Grading for Diabetic Macular Edema" in *40th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2018)*, Honolulu, USA, 2018.  
DOI:10.13140/RG.2.2.24611.02082/1
- S. Santhosh Kumar, and Mala John, "Human activity recognition using optical flow based feature set" in Proceedings of 50<sup>th</sup> IEEE International Carnahan Conference on Security Technology (ICCST 2016), Orlando, Florida, USA, 2016.  
Doi: 10.1109/ICCST.2016.7815694
- Prashanth Chandran, Mala John, Santhosh Kumar S, Mithilesh NSR, "Road tracking using particle filters for advanced driver assistance systems: in Proceedings of 17<sup>th</sup> IEEE International Conference on Intelligent Transportation Systems (ITSC 2014), Qingdao, China, 2014.  
Doi: 10.1109/ITSC.2014.6957884

## Professional Development:

- Udemey
  - Deep Learning for Image Segmentation using Tensorflow 2 - Oct 2023
  - Deep Learning for Object Detection using Tensorflow 2 - Oct 2023
  - Train and Deploy Tensorflow Models using Google AI Platform - Oct 2023
  - YOLOv7 YOLOv8 YOLO-NAS: Object Detection, Tracking & WebApp - Oct 2023
  - OpenCV Complete Dummies Guide to Computer Vision with Python - Feb 2020
  - Machine Learning A-Z™ Hands-On Python & R in Data Science - Dec 2019
  - Deep Learning Computer Vision™ CNN, OpenCV, YOLO, SSD & GANs - Oct 2019
  - Deep Learning A-Z™: Hands-On Artificial Neural Networks - Aug 2019

## Workshops Attended:

- Advanced Machine Learning M S Ramaiah University of Applied Science (MSRUAS), Bangalore - Aug 2019
- Digital Video Analytics and Processing Indian Institute of Technology Madras (IITM), Chennai - Dec 2012
- Document Image Processing Indian Institute of Science (IISc), Bangalore - Jun 2008

## Technical Presentations:

- Delivered Technical Talks
  - Sensors and Their Applications in IoT Based Systems SRM University, Chennai - Jan 2023
  - Demystifying Deep Learning – Research Perspective SRM University, Chennai - Feb 2021
  - Visual Computing using Deep Learning Karunya University, Coimbatore - May 2020
  - Vision based Hand Gesture Recognition System Infinity Labs, UST, Chennai - May 2020
  - Vision based Human Activity Recognition System Infinity Labs, UST, Chennai - Oct 2019
  - Feature Extraction Techniques Video Analytics Workshop, Anna University - Feb 2013
  - Object Extraction Techniques Faculty Development Program, Anna University - Jan 2013