Nagabhushan S N

Contact Information

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Research Interests

v computer vision

- $\diamond\,$ Image and Video Signal Processing
- $\diamond\,$ Deep Video Prediction: Applications and Evaluation
- $\diamond\,$ Machine Learning

Education

Ph.D Indian Institute of Science (IISc), Bengaluru		Aug 2018 - Present	
Dept of Electrical Comm	nunication Engineering		
\diamond Advisor	: Dr. Rajiv Soundararajan		
\diamond CGPA	: 9.59		
\diamond Recipient of Prime	e Minister's Research Fellowship (PMRF)		
B.E PES Institute	of Technology, Bengaluru	Aug 2012 - May 2016	
Dept of Electronics and	Communication Engineering		
♦ Project Advisors	: Dr. Vamsi Krishna, Dr. Sanjeev Gurugopinath		
\diamond CGPA	: 9.93 (Gold Medallist)		
\diamond GATE Score	: 810 (AIR 233)		
P.U.C Govt [Ex-MPL] College, Ballari		Jun 2010 - May 2012	
♦ Specialization	: Science (PCME)		
♦ Class XII Score	: 96% (District Topper)		
\diamond K-CET Rank	: 207		
School - Bala Bharathi, Ballari		Jun 1998 - Mar 2010	
\diamond Class X Score	: 96.8% (District Topper)		

Course Work

Mathematics	: Linear Algebra, Probability and Random Process, Linear and Non-Linear
	Optimization
Electrical	: Computer Vision, Digital Image Processing, Digital Video: Perception and Algorithms,
	Machine Learning for Signal Processing, Detection and Estimation Theory

Certifications

♦ Algorithmic Toolbox by University of California San Diego on Coursera in Oct 2016.

Updated on October 22, 2023

Computer Skills

Programming Languages	: Python, Java, Android, MATLAB
Platforms	: Windows, LINUX, MacOS
Softwares	: LATEX

Industrial Experience

Cisco Systems India Pvt Ltd

- : Software Engineer
- ♦ Team : Software Integration and Orchestration (Advanced Services)
- ◇ Developed modules on top of Cisco Network Service Orchestrator (NSO) to automate configuring customer's network devices.
- \diamond Developed an automation tool to generate Java POJO classes based on network architecture defined in yang files.

Elseem Inc.

 \diamond Role

- \diamond Role : Intern
- ♦ Team : Research and Development
- ◊ Vehicle Tracking System: Developed software for Particle device to interface with GPS module and update location to firebase server. Also developed an android app for the users to track their vehicle using their smartphone.

Academic Experience

PES University (PESU)

- ◊ Visiting Faculty.
- ♦ Mathematics for Machine Learning Jan 2022 semester, Jan 2023 semester.
- ♦ Matrix Theory Jan 2021 semester.

Indian Institute of Science (IISc)

- \diamond Teaching Assistant.
- ♦ Courses: Matrix Theory, Digital Image Processing.

Publications

- \diamond Conferences:
 - > Nagabhushan Somraj, Adithyan Karanayil, and Rajiv Soundararajan. SimpleNeRF: Regularizing sparse input neural radiance fields with simpler solutions. In SIGGRAPH Asia, December 2023.
 - > Nagabhushan Somraj and Rajiv Soundararajan. ViP-NeRF: Visibility prior for sparse input neural radiance fields. In ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH), 2023.
 - > Nagabhushan Somraj, Pranali Sancheti, and Rajiv Soundararajan. Temporal view synthesis of dynamic scenes through 3d object motion estimation with multi-plane images. In IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2022.
 - > Vijayalakshmi Kanchana, Nagabhushan Somraj, Suraj Yadwad, and Rajiv Soundararajan. Revealing disocclusions in temporal view synthesis through infilling vector prediction. In IEEE Winter Conference on Applications of Computer Vision (WACV), 2022.
- \diamond <u>Journal</u>s:
 - ➤ Nagabhushan Somraj, Manoj Surya Kashi, S. P. Arun, and Rajiv Soundararajan. Understanding the perceived quality of video predictions. Signal Processing: Image Communication (SPIC), 102:116626, 2022.

Aug 2016 - Jul 2018

Oct 2020 - May 2022

Jan 2021 - May 2023

Jun 2015 - Jul 2015

Invited Talks

- ♦ NeRF: Neural Radiance Fields
 - ➤ At Qualcomm India Pvt Ltd, Feb 2023.
 - ➤ Guest Lecture for the course, Deep Learning for Computer Vision, 2022.
- ♦ Temporal View Synthesis of Dynamic Scenes
 - ≻ Student Research Seminar Series, IISc, Feb 2022.
- $\diamond\,$ Naturalness Assessment for Video Prediction
 - ➤ Network Seminar Series, IISc, Oct 2020.
- $\diamond\,$ Generative Adversarial Networks (GANs) and their Applications
 - \succ PES University, Jan 2020.

Projects

Face Detection using Aggregate Channel Features

- ♦ Digital Image Processing course project.
- $\diamond\,$ Implemented in Python.
- ◊ Based on paper: Bin Yang, Junjie Yan, Zhen Lei, and Stan Z Li. Aggregate channel features for multi-view face detection. In *IEEE International Joint Conference on Biometrics*, 2014

Intra-Campus Wi-Fi Calling System

- $\diamond\,$ B.E. Final Year Project.
- ◇ Developed a system to make voice calls and transmit messages within a campus using Wi-Fi and without internet. Designed a simple protocol to handle messaging and calls. TCP is used to transmit packets. Applied Voice Activity Detection to suppress non-voice packets thereby reducing delay. Also developed a server to connect calls and an android app for client-side.

Android Apps

- ◊ Finance Manager: Helps managing the finances of individuals, with added features such as statistics, automatic entry of transactions from back messages, export to PDF and backup/restore. This is developed in Java using Android Studio.
- ◊ One Touch Settings: Adds a button panel in notification drawer to control frequently used settings.
- ♦ Google Play Developer Profile: Link.

Honors & Awards

- ◊ Recipient of Prime Minister's Research Fellowship (PMRF), 2020.
- ◊ Recipient of 'You Amaze One' award in Cisco as recognition from Raghuveer Krishna, Manager.
- ♦ Recipient of MHRD scholarship (Govt of India) for all 4 years of B.E.
- \diamond Recipient of MRD scholarship (awarded from the 5th sem onwards), in every semester till B.E. graduation.
- ♦ 1st Place in Circuithon competition conducted by IEEE PES University Student Branch.
- ♦ 2nd Prize in Technical Writing Competition organized as a part of LitFest 2014 in PESIT.
- $\diamond\,$ Volunteered and coordinated the Science Exhibition 'Prakalpa' held in PESIT (2014).

2014 - 17

2019

2016

Peer Reviews

 $\diamond \underline{2024}$:

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> Winter Conference on Applications of Computer Vision (WACV): 4
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 $\diamond \underline{2023}$:

- ➤ Internation Conference on Computer Vision (ICCV): 3
- > International Symposium on Mixed and Augmented Reality (ISMAR): 2
- \succ Winter Conference on Applications of Computer Vision (WACV): 2
- \succ British Machine Vision Conference (BMVC): 5
- \succ IEEE Virtual Reality(VR): 1
- \succ National Conference on Communications (NCC): 1
- \succ Digital Signal Processing (DSP): 1

 $\diamond \underline{2022}$:

- \succ British Machine Vision Conference (BMVC): 6
- \succ International Symposium on Mixed and Augmented Reality (ISMAR): 1
- \succ Journal of Electronic Imaging (JEI): 4

$\diamond \ \underline{2021}$:

 \succ Journal of Electronic Imaging (JEI): 1

♦ <u>2020</u>:

 \succ Journal of Electronic Imaging (JEI): 1 $\,$