

# Nagabhushan S N

## Contact Information

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## Research Interests

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- ◇ Image and Video Signal Processing
- ◇ Deep Video Prediction: Applications and Evaluation
- ◇ Computer Vision
- ◇ Machine Learning

## Education

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**Ph.D. - Indian Institute of Science (IISc), Bengaluru** Aug 2018 - Present

Dept of Electrical Communication Engineering

- ◇ Advisor : Dr. Rajiv Soundararajan
- ◇ CGPA : 9.59

**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
- ◇ CGPA : 9.93 (Gold Medallist)
- ◇ 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)
- ◇ K-CET Rank : 207

**School - Bala Bharathi, Ballari** Jun 1998 - Mar 2010

- ◇ Class X Score : 96.8% (District Topper)

## Course Work

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**Mathematics** : Linear Algebra, Probability and Random Process, Linear and Non-Linear Optimization

**Electrical** : Digital Image Processing, Digital Video: Perception and Algorithms, Computer Vision, Machine Learning for Signal Processing, Detection and Estimation Theory

## Certifications

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- ◇ **Algorithmic Toolbox** by University of California San Diego on Coursera in Oct 2016.

## Computer Skills

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**Programming Languages** : Java, Python, Android, MATLAB  
**Platforms** : Windows, LINUX, MacOS  
**Softwares** : L<sup>A</sup>T<sub>E</sub>X

## Industrial Experience

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**Cisco Systems India Pvt Ltd** Aug 2016 - Jul 2018

- ◇ Role : 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.
- ◇ Developed an automation tool to generate Java POJO classes based on network architecture defined in yang files.

**Elseem Inc.** Jun 2015 - Jul 2015

- ◇ 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

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**PES University (PESU)** Jan 2021 - May 2021

- ◇ Visiting Faculty
- ◇ Offered a course on Matrix Theory in Jan 2021 semester.

**Indian Institute of Science (IISc)** Oct 2020 - Present

- ◇ Teaching Assistant for Matrix Theory and DIP courses.
- ◇ Dept of Electrical Communication Engineering.

## Projects

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**Face Detection using Aggregate Channel Features** 2019

- ◇ Digital Image Processing course project.
- ◇ 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** 2016

- ◇ 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** 2014-17

- ◇ Finance Manager: Helps managing the finances of individuals, with added features such as statistics, automatic entry of transactions from bank messages, export to PDF and backup/restore. This is developed in Java using Android Studio.
- ◇ One Touch Settings: Adds a button panel is notification drawer to control frequently used settings.
- ◇ Google Play Developer Profile: [https://play.google.com/store/apps/developer?id=Nagabhushan+S+N&hl=en\\_IN](https://play.google.com/store/apps/developer?id=Nagabhushan+S+N&hl=en_IN)

## Honors & Awards

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- ◇ 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.
- ◇ 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.
- ◇ Volunteered and Coordinated the Science Exhibition ‘Prakalpa’ held in PESIT (2014).

## Publications

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- ◇ Nagabhushan Somraj, Manoj Surya Kashi, S. P. Arun, and Rajiv Soundararajan. Understanding the perceived quality of video predictions. *arXiv e-prints*, page arXiv:2005.00356, 2021.
  - Under review: Signal Processing Image Communication journal.
- ◇ 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.
  - Accepted: To appear in WACV 2022.

## Invited Talks

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- ◇ Naturalness Assessment for Video Prediction
  - Network Seminar Series, IISc, Oct 2020.
- ◇ Generative Adversarial Networks (GANs) and their Applications
  - PES University, Jan 2020.