Nithin C Babu

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Research Interests

- Image and Video Processing
- Visual Quality Assessment
- Deep Learning

EDUCATION

Indian Institute of Science, Bangalore

Ph. D. in Electrical Communication Engineering

o Research Advisor : Dr. Rajiv Soundararajan

o Research Topic: Visual Quality Assessment of User-Generated and AI-Generated Content

 \circ CGPA: 9.0/10

Government Engineering College, Thrissur

Bachelor of Technology in Electronics and Communication Engineering

Aug 2015 - July 2019

o Project Advisor : Prof. Anish Babu K K

o CGPA: 8.03/10

Kendriya Vidyalaya Thrissur

CBSE Senior Secondary Examination

o Steam: Computer Science

o Percentage: 94.4%

Kendriya Vidyalaya Thrissur

CBSE Secondary Examination; CGPA: 10/10

o CGPA: 10/10

Course Work

- Mathematics: Random Process, Matrix Theory, Linear and Non-Linear Optimization
- Signal Processing: Detection and Estimation Theory, Digital Image Processing, Advanced Image Processing, Computer Vision, Pattern Recognition and Neural Networks, Adaptive Signal Processing

SKILLS SUMMARY

• **Programming**: Python, MATLAB, C++

• Platforms: Windows, Linux

• Softwares: LATEX

Internships and Training

Elvicto Technologies Private Limited, Technopark, Trivandrum

Trivandrum, Kerala

o Smart Sensor Design based on LoRaWAN Technology: Project Intern for one month in designing and developing Smart Sensors based on IoT and LoRaWAN Technologies for Smart City developments.

National Institute of Electronics and Information Technology, Calicut

Calicut, Kerala June 2017 - July 2017

Project Intern

• Embedded System Design using Raspberry Pi Internship: Completed a one-week internship in Embedded System Design and IoT on Raspberry Pi.

Bharat Sanchar Nigam Limited, Thrissur

Thrissur, Kerala

Industrial Trainee

June 2016 - July 2016

• Telecom Technology Industrial Training: Completed a two-week industrial training on 'Telecom Technology'.

Bangalore, Karnataka October 2020 - Present

Thrissur, Kerala

Thrissur, Kerala 2015

Thrissur, Kerala 2013

ACADEMIC EXPERIENCE

- Indian Institute of Science:
 - o Main teaching assistant: E9 241 Digital Image Processing

August 2022 - December 2022

- st Involved in setting up and evaluating assignments.
- * Conducted tutorials on Python / MATLAB coding.
- o Main teaching assistant: E9 241 Digital Image Processing

August 2023 - December 2023

- * Involved in setting up and evaluating assignments.
- * Conducted a special Python / MATLAB vectorization and broadcasting tutorial.

Research Publications

• Conference:

 Nithin C. Babu, Vignesh Kannan, and Rajiv Soundararajan. No reference opinion unaware quality assessment of authentically distorted images. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision* (WACV), pages 2459–2468, January 2023 (paper) (project page) (video) (poster)

• Journal:

Vignesh Kannan, Sameer Malik, Nithin C. Babu, and Rajiv Soundararajan. Quality assessment of low-light restored images:
 A subjective study and an unsupervised model. IEEE Access, 11:68216–68230, July 2023 (paper) (project page)

ACADEMIC PROJECTS

- Adversarial attacks on Perceptual Quality Metrics trained on Authentically Distorted Images and Defense strategies:

 June 20
 - Advanced Image Processing Course Project: Analyzed the effect of adversarial attacks on deep-feature based perceptual
 quality metrics and employed adversarial training to improve performance the of deep-features.
- Learning to See in the Dark:

January 2021

- Digital Image Processing Course Project: Analysis of the paper, 'Learning to See in the Dark' by Chen et al. (CVPR 2018). Used the implementation to learn the basics of deep learning and its implementation in Python using Tensorflow. Analyzed the trained network and solved a limitation of the existing paper.
- Automated Locker Management System for Laundry Services:

2018 - 19

B.Tech. final year Project: Created a fully automated, scalable locker system for Black Swan Dry Cleaners company.
 Here, the customer can drop off his/her garments in the locker and pick them up when finished, being notified by an SMS to his/her mobile phone.

Honors and Awards

- Recipient of Prime Minister Scholarship Scheme 2015-'19 for all four years of B.Tech.
- 0.1% Merit in Mathematics in CBSE Senior Secondary Examination

Test Scores

• Graduate Aptitude Test in Engineering (GATE) 2020 - Score 933/100 (AIR 12 in ECE)

Peer Reviews

- **2024**:
 - Computer Vision and Pattern Recognition (CVPR): 3