Dr. VISHNUKUMAR S.

Associate Professor

Department of Computer Applications

Cochin University of Science and Technology

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Educational qualifications

- **Doctor of Philosophy (Ph. D.)** in Computer Science & Engineering from University of Kerala (2017).

  Thesis Title: An Investigation into Image Super-Resolution Algorithms"
  Supervisor: Prof. Dr. M. Wilscy, Department of Computer Science, University of Kerala.
  Centre: Department of Computer Sciences, University of Kerala, Thiruvananthapuram.

- **Mater of Technology (M. Tech.)** in Computer Science (with specialization in Digital Image Computing) from University of Kerala (2008).

  Dissertation Title: "Adaptive Local Image Registration"
  Supervisor: Prof. Dr. M. Wilscy, Department of Computer Science, University of Kerala.
  Institute: Department of Computer Science, University of Kerala, Thiruvananthapuram.

- **Bachelor of Technology (B. Tech.)** in Information Technology from University of Kerala (2005).

  Institute: *University College of Engineering, Kariavattom, Thiruvananthapuram.*

- **Pre-Degree (Science Group)** from University of Kerala (2001).

  Institute: *Mar Ivanios College, Nalanchira, Thiruvananthapuram.*

- **SSLC** (1999)

  Institute: *St. Joseph's Higher Secondary School, Thiruvananthapuram.*

- **GATE** qualified in Computer Science and Engineering (2006 & 2012).

Experience

- **Associate Professor**, Department of Computer applications, Cochin University of Science and Technology, Kochi, Kerala, India. (06.11.2020 to till the date)
- **Head of Department**, Department of Computer Engineering, Govt. Polytechnic College, Nedumkandam, Idukki, Kerala, India. (28.02.2019 to 05.11.2020)
- **Assistant Professor**, Department of Computer Science and Engineering, Mar Baselios College of Engineering and Technology, Thiruvananthapuram, Kerala, India. (01.07.2010 to 27.02.2019)
- **Lecturer**, Department of Computer Science and Engineering, Mar Baselios College of Engineering and Technology, Thiruvananthapuram, Kerala, India. (01.07.2009 to 30.06.2010)
- **Lecturer**, Department of Computer Science, Rajagiri College of Social Sciences, Kochi, Kerala, India. (04.08.2008 to 30.06.2009)

Research Publications

Journals

1. Koshy George and **Vishnukumar S**. "A Hybrid Approach to Generate Visually Seamless Aerial Mosaicks from Unmanned Aerial Vehicles." **Journal of Intelligent and Fuzzy Systems, IOS Press**, Vol. 36, No. 3, pp. 2075-2083, March 2019. **(SCI Impact Factor: 1.851).**

2. **Vishnukumar S** and M. Wilscy. "Single image super-resolution based on compressive sensing and improved TV minimization sparse recovery." **Optics Communications, Elsevier,** Vol.404, pp.80-93, December 2017 **(SCI Impact Factor: 2.125).**

3. **Vishnukumar S**., Madhu S. Nair and M. Wilscy, "Edge Preserving Single Image Super-resolution with Improved Visual Quality", **Signal Processing, Elsevier**, Vol.105, pp.283-297, December 2014. **(SCI Impact Factor: 4.384).**

4. Koshy George and **Vishnukumar S,** "UAV: The Current Trend in the Aerial Imaging" CSI Communications, Vol. 40, No. 9, pp. 21-22, December 2016.

5. Shabin Muhammed, Rahul D and **Vishnukumar S**.,"Hyperspectral and Multispectral Image Fusion Techniques", International Journal of Recent Technology and Engineering (IJRTE) Vol.8 Issue. 5, January 2020. **(Scopus Indexed).**

6. Rahul D and **Vishnukumar S**.,"Image Fusion Techniques", International Journal of Recent Technology and Engineering (IJRTE) Vol.8 Issue. 5, January 2020. **(Scopus Indexed).**

7. **Vishnukumar S**. and M. Wilscy, "Adaptive Local Image Registration: Analysis on Filter Size", International Journal on Computer Science and Engineering (IJCSE), pp.1220-1225, Vol.4, No.06, June 2012.

Conferences

1. Resmi M R and **Vishnukumar S**, "A Novel Segmentation Based Copy-Move Forgery Detection in Digital Images", **IEEE** International Conference on Networks and Advances in Computational Technologies, July 2017.

2. Nayana Mohan and **Vishnukumar S**. "Detection and Localization of Coronary Artery Stenotic Segments using Image Processing." **IEEE** International Conference on Emerging Technological Trends", (ICETT), October 2016.

3. **Vishnukumar S**. and M. Wilscy. "Super-resolution for remote sensing images using content adaptive detail enhanced self examples." **IEEE** International Conference on Circuit, Power and Computing Technologies (ICCPCT), pp. 1-5, March 2016.

4. Joseph, Princymol, and **Vishnukumar S**. "A study on steganographic techniques." **IEEE** Global Conference on Communication Technologies (GCCT), pp. 206-210, April 2015.

5. **Vishnukumar S.,** "Image Super-Resolution and Applications", International Colloquium on Information Security in e-Governance, November 2015.

6. **Vishnukumar S**. and M. Wilscy, "A Comparative study on Adaptive Local Image Registration Methods", Proceedings for the International Conference on Signal Processing - ICSPS 2009, **IEEE** Computer Society Press, Singapore, pp.140-145, May 2009.

7. **Vishnukumar S**. and M. Wilscy, "Adaptive Local Image Registration for Colour Images", Proceedings for the National Conference on Computational Science and Engineering - NCCSE-2009, pp.42-49, February 2009, ISBN: 978-81-907044-0-3.

Reviewer:

Journals

- Digital Signal Processing, Elsevier.
- Biomedicine & Pharmacotherapy, Elsevier.
- Optics Communications, Elsevier.
- Optics and Laser Technology, Elsevier.
- KSII Transactions on Internet and Information Systems.
- Journal of Testing and Evaluation.

Conferences

- 2020 International Conference on Data Science and Engineering (ICDSE2020), 03-05 December 2020, Thiruvananthapuram, India.
- 2019 International Conference on Communication Systems and Networks (ComNet2019), 12-13 December 2019, Thiruvananthapuram, India.

- 2019 International Conference on Networks & Advances in Computational Technologies (NetACT2019), 23-25 July 2019, Thirvananthapuram, India.
- 2018 International Conference on Sensor Networks and Signal Processing (SNSP 2018) October 28-31, 2018, Xi`an University of Science and Technology, China
- 2018 IEEE International Conference on Control, Communication and Computing 5th- 7th July2018, Thiruvananthapuram, India.
- 2018 International Conference on Network Engineering and Information Security(NEIS2018), April 20th - 22nd, 2018, Wuhan, China Wuhan, China.
- 2017 IEEE International Conference on Networks & Advances in Computational Technologies (NetACT2017), 20-22 July 2017, Thirvananthapuram, India.
- 2011 4th IEEE International Conference on Computer Science and Information Technology(ICCSIT 2011), 10-12 June 2011, Chengudu, China.

Resource Person (Expert Lectures, Training & Talk):

- **"Deep Learning and Super-Resolution"** at Second National Seminar on "Machine Intelligence", organized by Department of Computer Science, University of Kerala, Thiruvananthapuram from 22nd to 24th January 2020.
- **"Convolutional Neural Network"** at KTU Sponsored FDP on "Computer Vision and Machine Learning", organized by Department of Computer Science and Information Technology, College of Engineering Perumon, Kollam, from 24th to 26th July 2019.
- **"Convolutional Neural Network"** at National Workshop on Advanced Deep Learning, organized by Department of Computer Science and Engineering, Mar Baselios College of Engineering and Technology, Thiruvananthapuram from 20th to 22nd May 2019.
- Expert Talk on **"The Relevance of Professional Bodies in Engineering Educational Institutions"** at Musaliar College of Engineering and Technology, Pathanamthitta on 17th April 2019.
- **"Convolutional Neural Network" at** STTP on "Deep Learning and IoT Applications using MATLAB" organized by Department of Electronics and Communication Engineering, Mar Baselios College of Engineering and Technology, Thiruvananthapuram from 21st to 25th January 2019.
- **"Introduction to AI and CNN"** at National Workshop on Deep Learning at Thiruvananthapuram organized by Computer Society of India, Trivandrum Chapter from 3rd to 4th December 2018.
- **"Introduction to AI and CNN"** at Workshop on Artificial Intelligence and Deep Learning, organized by ISTE chapter at Mar Baselios College of Engineering and Technology, Thiruvananthapuram from 10th to 11th November 2018.
- **"Introduction to AI and CNN"** at FDP on "Basics of Artificial Intelligence and Machine Learning" at Mar Baselios College of Engineering and Technology, Thiruvananthapuram from 12th to 13th July 2018.

- Expert Lecture on **"Advanced Computer Science"** at Govt. Sanskrit College, Tripunithura on 6th July 2018.
- **"C Programming & Computer Science Techniques"** at National Workshop on The Basics of Computer Science organized by Govt. Sanskrit College, Tripunithura, with the financial assistance from the Directorate of Collegiate Education from 23rd to 29th October 2017.
- **"Inheritance"** Summer Training Programme on Object Oriented Programming in C++ organized by Computer Society of India from 12th to 16th July 2016.
- **"Web Search & procedures"** at Workshop on IT Oriented Personality Development organized by the Centre for Vedanta Studies, University of Kerala from 23rd to 27th March 2015.
- **"Online Services"** at Training Programme on e-Governance for Senior Citizens organized by Computer Society of India during March 2012.

Committee Member

Technical Program Chair

1. Technical Program Chair, 2017 IEEE International Conference on Networks & Advances in Computational Technologies (NetACT2017), 20-22 July 2017, Thirvananthapuram, India.

International Scientific Committee Member

1. International scientific committee Member 2018 International Symposium on Power Electronics and Control Engineering (ISPECE 2018) December 28-30,2018 in Xi'an, China.

Technical Program Committee Member

1. Technical Program Committee Member, 2019 International Conference on Networks & Advances in Computational Technologies (NetACT2019), 23-25 July 2019, Thirvananthapuram, India.
2. Technical Program Committee Member, 2018 International Conference on Network Engineering and Information Security (NEIS2018), April 20th - 22nd, 2018, Wuhan, China Wuhan, China.

Organizing Committee Member

1. 2012 International Conference on Green Technologies (ICGT 2012) 18-20 December 2012, Thiruvananthapuram India.
2. National Conference on Applied Linear Algebra & Transform Techniques, 10-11 July 2012, Thiruvananthapuram India.

OutReach Committee Member

1. 5th International Conference on Recent Trends in Computing (ICRTC-18) December 27-28, 2018, Ghaziabad, Delhi.

Technical Session Chair

1. Chaired a Technical Session at 2019 Springer International Conference on Communication Systems and Networks (COMNET2019), 12-13 December 2019, Thiruvananthapuram, India.
2. Chaired a Technical Session at 2019 International Conference on Networks & Advances in Computational Technologies (NetACT2019), 23-25 July 2019, Thirvananthapuram, India.
3. Chaired a Technical Session at 2017 IEEE International Conference on Networks & Advances in Computational Technologies (NetACT2017), 20-22 July 2017, Thirvananthapuram, India.

Award Jury Member

- CSI-Nihilent National e-Governance Award 2019, 2018, 2017
- CSI-InApp National Student Project Awards 2019, 2018, 2017, 2016, 2015, 2014 & 2013
- CSI-Valiant e- Governance Kerala Awards 2015.

Funded Project

- Name of the project: Developing Image Super-resolution Techniques
  - o Project Category: Minor Research Project
  - o Sponsoring Agency: Computer Society of India
  - o File No.: File No.1-15/2015-013
  - o Sanctioned Amount: Rs. 15000/-
  - o Duration: 1 years (2015-2016)
  - o Status: Completed

Project Guided

M.Tech.

- Resmi K S - Forgery Detection In Digital Images, 2017
- Nayana Mohan - Stenosis Detection In Coronary Arteries Using Image Processing, 2016
- Koshy George - Mosaicking Of Images Obtained From Unmanned Aerial Vehicles, 2016
- Princymol Joseph - Image Steganography using Corner Average Interpolation, 2015

MCA

- Rakesh M S - Video Based Motion Detection and Monitoring System, 2008
- Linudas G – Video Based Object Counting, 2008
- Remyamol C R - Online Bidding System, 2008
- Neena F- Discussion Forum, 2008

B.Tech.

- Alert System using Real-time Object Detection, 2018
- Histogram Shifting Modulation for Reliability and Controllability of Images , 2018
- VMAIL, 2017
- QR Navigator, 2016
- Weather Forecasting Using Bigdata, 2015
- Removal of High Density Salt and Pepper Noise from Digital Images, 2012
- Budget Approval System, 2012
- Image Enhancement System Based on Noise Estimation, 2011
- Adaptive Prediction Tree for Image Compression, 2011
- Autocode Pro v1.0, 2010

Short term courses/Seminars & Conferences organized:

1. National Workshop on Deep Learning in Thiruvananthapuram from 3rd to 4th December 2018.
2. National Workshop on 'Data Science: Sales Forecast to Cognitive Computing' in Thiruvananthapuram on 5th August 2017.
3. IEEE International Conference on Networks and Advances in Computational Technologies 2017, in Thiruvananthapuram during 20-22 July 2017.
4. National Workshop on 'Market Intelligence and Digital Marketing' in Kochi on 29th April 2017.
5. National Workshop on 'Advanced Internet of Things in Thiruvananthapuram during 7-8 October 2016.
6. National Workshop on' Google Apps Framework ' in Thiruvananthapuram on 27th August 2016
7. Summer Training Programme on 'Object Oriented Programming in C++ ' during 12-16 July 2016
8. National workshop on 'Recent Trends in Big Data Analytics' in Thiruvananthapuram on 27th February 2016.
9. Workshop on 'NS 3' in Thiruvananthapuram during 22-23 February 2016.
10. Seminar on Innovation & Entrepreneurship Development in Thiruvananthapuram on 6th February 2016.
11. 7th e-Governance Knowledge Sharing Summit in Thiruvananthapuram during 10-11 December 2015.
12. International Colloquium on 'Information Security in e-Governance' in Thiruvananthapuram on 25th November 2015.
13. Workshop on 'Python Programming' in Thiruvananthapuram during 24-25 July 2015.
14. National workshop on 'Digital Forensics – Foundation, Frontiers and Challenges' in Thiruvananthapuram on 15th July 2015
15. Workshop on 'Data Analytics uses R Language' in Thiruvananthapuram on 28th March 2015.

16. Workshop on 'Software Defined Networking' in Thiruvananthapuram on 14th February 2015

17. Workshop on 'Big Data Analytics' in Thiruvananthapuram on 25th October 2014.

18. Seminar on the topic 'Role of Cyber Forensics in Mitigation of Cyber Crimes' in Thiruvananthapuram on 17th July 2014.

19. Workshop on 'What Accelerated Web App Development MEAN' in Thiruvananthapuram on 12th July 2014.

20. Workshop on 'Information Security and Cyber laws in Thiruvananthapuram on 1st February 2014.

21. 2012 International Conference on Green Technologies in Thiruvananthapuram during 18-20 December 2012.

22. National Conference on Applied Linear Algebra & Transform Techniques in Thiruvananthapuram during 10-11 July 2012.

23. Seminar on Free/Open Source Software in Technical Education in Thiruvananthapuram on 9th November 2009.

Continuing Education Programs attended:

1. FDP on Robotics at Mar Baselios College of Engineering and Technology, Thiruvananthapuram during 08-12 July 2019.

2. Workshop on Artificial Intelligence and Deep Learning at Saintgits College of Engineering, Kottayam during 25-27 June 2018.

3. 47th ISTE National Annual Convention at Saintgits College of Engineering, Kottayam during 27-29 January 2018.

4. FDP on Algorithms in Machine Learning at College of Engineering Trivandrum during 18-22 December 2017.

5. National Workshop on 'Data Science: Sales Forecast to Cognitive Computing' in Thiruvananthapuram on 5th August 2017.

6. IEEE International Conference on Networks and Advances in Computational Technologies 2017, in Thiruvananthapuram during 20-22 July 2017.

7. National Workshop on 'Market Intelligence and Digital Marketing' in Kochi on 29th April 2017.

8. Digital Connectivity-Social Impact Conference and Convention in Coimbatore during 8-10 December 2016

9. National Workshop on 'Advanced Internet of Things in Thiruvananthapuram during 7-8 October 2016.

10. National Workshop on' Google Apps Framework ' in Thiruvananthapuram on 27th August 2016

11. National workshop on 'Recent Trends in Big Data Analytics' in Thiruvananthapuram on 27th February 2016.

12. Digital Life Conference and Convention in New Delhi during 2-5 December 2015

13. Workshop on 'NS 3' in Thiruvananthapuram during 22-23 February 2016.

14. Seminar on Innovation & Entrepreneurship Development in Thiruvananthapuram on 6th February 2016.

15. 7th e-Governance Knowledge Sharing Summit in Thiruvananthapuram during 10-11 December 2015.

16. International Colloquium on 'Information Security in e-Governance' in Thiruvananthapuram on 25th November 2015.

17. Workshop on 'Python Programming' in Thiruvananthapuram during 24-25 July 2015.

18. National workshop on 'Digital Forensics – Foundation, Frontiers and Challenges' in Thiruvananthapuram on 15th July 2015

19. Workshop on 'Data Analytics using R Language' in Thiruvananthapuram on 28th March 2015.

20. Workshop on 'Software Defined Networking' in Thiruvananthapuram on 14th February 2015

21. Two weeks ISTE STTP on Pedagogy for Effective use of ICT in Engineering Education, conducted by IIT Bombay during 05-31 January 2015.

22. Emerging ICT for Bridging the Future Conference and Convention in Hydrabad during 12-14 December 2014.

23. TEQIP Sponsored Short Term Training Programme on Software Testing at Bartonhill Engineering college during 27-31October 2014.

24. Workshop on 'Big Data Analytics' in Thiruvananthapuram on 25th October 2014.

25. Workshop on 'Spring Framework' in Thiruvananthapuram 30th August 2014

26. Seminar on the topic 'Role of Cyber Forensics in Mitigation of Cyber Crimes' in Thiruvananthapuram on 17th July 2014.

27. Workshop on 'What Accelerated Web App Development MEAN' in Thiruvananthapuram on 12th July 2014.

28. Workshop on 'Information Security and Cyber laws in Thiruvananthapuram on 1st February 2014.

29. Workshop on Enhancing Research Skills for Computer Science Research at Department of Computer Science, University of Kerala during 28-29 November 2013.

30. Faculty Development Programme on Cloud Computing at College of Engineering Trivandrum on 15th October 2012.

31. Workshop on Android OS & Mobile App Development at Mar Baselios College of Engineering & Technology during 1-2 June 2012.

32. Workshop on Cloud Computing on 10th March 2012.

33. Seminar on IPV6 at Mar Baselios College of Engineering & Technology on 12 November 2011.

34. Workshop on Microcontroller Based Design at Govt. Engineering College Bartonhill, on 25 November 2009.

35. 2012 International Conference on Green Technologies in Thiruvananthapuram during 18-20 December 2012.

36. Seminar on Free/Open Source Software in Technical Education in Thiruvananthapuram on 9th November 2009.

Responsible Positions:

- Vice Chair, IEEE Computer Society, KeralaChapter
- Executive Committee Member, Kerala State IT Mission, Department of Information Technology, Govt. of Kerala (2017-2018).
- Chairman (2017-2018), Vice Chairman (2016-2017), Secretary (2014-2016), Treasurer (2012-2014), Computer Society of India Trivandrum Chapter.
- Course Coordinator, Computer Science & Engineering, CERCON, The Institution of Engineers (India), Kerala State Centre.
- Doctoral Committee Member, TKM College of Engineering, Kollam.

Awards and Honours:

- Rashtrapatipuraskar Scout Award from the President of India
- Rajyapuraskar Scout Award from the Governor of Kerala

Membership in Professional Societies:

Life Membership

- The Institution of Engineers, India (IEI) (Membership No: M-1665949)
- Computer Society of India (CSI) (Membership No: I1104002)
- Indian Society for Technical Education (ISTE) (Membership No: LM 98215)
- Association of Computer, Electronics and Electrical Engineers (ACEEE) (Membership No: 7000355)
- International Association of Engineers (IAENG) (Membership No: 101958)
- International Association of Computer Science and Information Technology (IACSIT) (Membership No: 80332045)

Membership

- IEEE Senior Member (Membership No: 80552088)
- Trivandrum Management Association (TMA) (Membership No: LMOM-721)

Research Interests:

- Digital Image Processing
- Machine Learning & Deep Learning
- Soft Computing
- Computer Vision