

# Dr. Anju Jose Tom

Major Areas: Computer Vision (Moving Object Detection)

Deep Learning (for Large Scale Image Compression)

Post Doctoral Fellow, Inria Bretagne, France

Living in Rennes, France

Nationality: Indian

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## EDUCATION

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- **National Institute for Research in Digital Science and Technology, Rennes** Inria, SIROCCO  
*Post Doctoral Fellowship* Sept. 2020 – Aug 2022
- **National Institute of Technology, Calicut** CGPA: 8.75  
*Ph.D in Electronics & Communication Engineering.* Dec. 2016 – May 2020
- **College of Engineering, Cherthala** CGPA: 9.4  
*Master of Technology in Signal Processing.* Aug. 2014 – May 2016
- **Saintgits College of Engineering, Kottayam** CGPA: 8.6  
*Bachelor of Technology in Applied Electronics and Instrumentation.* Aug. 2010 – May 2014
- **St. George Higher Secondary School, Kattappana** 95 %  
*Higher Secondary Education.* July 2008 – July 2010

## PROJECTS

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- **DAta REpurposing (DARE):** A new compression paradigm for large-scale image and video databases. It is nothing but changing the initial data format for another type of visualization in a more compact representation, thus leading to drastic compression ratios.
- **Supervisor:** Dr. Thomas Maugey, Research Scientist, Team SIROCCO, Inria

## RESEARCH

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- **Ph.D** NIT, Calicut  
*Research Supervisor: Dr. Sudhish N. George, Asst. Professor, ECED* **Date of Ph.D viva: 26 May 2020**
  - **Thesis Title:** Design of Moving Object Detection Schemes for Challenging Surveillance Environments
  - **Problem Statement:** To design and implement algorithms for moving object detection from surveillance videos which are capable of addressing dynamic background, noisy video data, incomplete video data, subsampled video data and low resolution video data.
  - **Research Publications**
    1. **Anju Jose Tom**, Sudhish N. George, “A three way optimization technique for noise robust moving object detection using tensor low rank approximation,  $l_{1/2}$  and TTV Regularizations”, *IEEE Transactions on Cybernetics*, Print ISSN: 2168-2267, Online ISSN: 2168-2275, DOI: TCYB.2019.2921827, 2019.
    2. **Anju Jose Tom**, Sudhish N. George, “Simultaneous reconstruction and moving object detection for wireless multimedia sensor networks based surveillance systems”, *IEEE Transactions on Image Processing*, DOI: 10.1109/TIP.2020.3004696, June, 2020.
    3. **Anju Jose Tom**, Sudhish N. George, “Video completion and simultaneous moving object detection for extreme surveillance environments”, *IEEE Signal Processing Letters*, 2019, vol 26, pp:577-581.
    4. Shijila B, **Anju Jose Tom**, Sudhish N. George, “Simultaneous denoising and moving object detection using low rank approximation”, *Future Generation Computer Systems*, Elsevier, 2019, vol 90, pp:198-210.

5. Shijila B, **Anju Jose Tom**, Sudhish N. George, "Moving object detection by low rank approximation and  $l_1$ -TV regularization on RPCA framework", *Journal of Visual Communication and Image Representation*, Elsevier, 2018, vol 56, pp:188-200.
6. **Anju Jose Tom**, Sudhish N. George, "Video super resolution and joint moving object detection from low-res surveillance videos", *IEEE Transactions on Cybernetics* (under review).
- **Conferences**
  1. **Anju Jose Tom**, Sudhish N. George, "Tensor Total Variation Regularized Moving Object Detection for Surveillance Videos", in *IEEE Int. Conf. on Signal Processing and Communication (SPCOM 2018)*, pp: 327-331, IISc, Bangalore, India, 2018.

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## POST GRADUATION

- **M.Tech - Signal Processing** CEC, Cherthala  
*Project Title: Ripplet Transform based Medical Image Compression* *Aug.2014 - Aug.2016*
  - **Objective:** To design and implement algorithms for Medical Image Compression using Ripplet Transform.

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## UNDER GRADUATION

- **B.Tech** Saintgits, Kottayam  
*Project Title: SMART ROOM using LabVIEW* *Jul. 2010 - May 2014*
- **Awards and Certifications**
  - Prize for Outstanding Student Performance, Department of AEI & PTA, Saintgits College of Engineering
  - Prize for best mini project, Department of AEI, Saintgits College of Engineering
  - Certified LabVIEW Associate Developer (CLAD) (Awarded by National Instruments Corporation.)

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## TECHNICAL TOOLS AND SKILLS

1. C, C++, Git, Python, Pycharm, Pytorch Matlab
2. CV/ML tools such as OpenCV
3. Knowledge & know-how in computer vision (detection, segmentation, classification/recognition, detection, OCR, real-time image processing, etc.)
4. Knowledge & know-how in audio, digital signal processing (biquad, FFT, short-time FFT analysis/synthesis framework, Wiener filtering, etc.)

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## MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS AND EDITORIAL EXPERIENCE

1. Member of Institute of Electrical and Electronics Engineers (IEEE)
2. Reviewer for IEEE Transactions on Intelligent Transportation Systems (ITS) and IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

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## TEACHING EXPERIENCE

1. Assistant Professor of BSc. Electronics at CCST College of Science and Technology, Palakkad, Kerala, India. Single Semester: Jun. 2016 - Nov. 2016  
 Subjects Handled : Basic Electronics, Digital Electronics.

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## PERSONAL PROFILE

- Date of birth: 03 June 1992
- Marital status: Married
- Name of spouse: Mr. Justin George
- **Home address (for communication):** 12 A Rue des Plantes, Apartment 242, 35700 Rennes, France.

## REFERENCES

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Dr. Sudhish N. George  
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