

Dany Varghese



I design machine learning algorithms that learn to write computer programs. I focus on inductive logic programming (ILP), which combines machine learning and mathematical logic.

Career Objective

To make the best use of my technical expertise in *image processing & machine learning* in research based career; hence to acquire and apply advanced knowledge in a particular field, "**Computer Vision**". I particularly enjoy collaborating with scientists from different disciplines to develop new skills and solve new challenges.

Research Interests

- ★ Computer Vision
- ★ Inductive Logic Programming
- ★ Artificial intelligence
- ★ Machine Learning
- ★ Deep Learning
- ★ Medical Image Analysis

Profiles

Personal Profile	UniversityofSurrey/danyvarghese
Orcid	0000-0003-1004-7235
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Communication

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Academic Employment

2020 - Contd. Teaching assistant for the course **Data Mining & Machine Learning lab**, Dept. of Computer Science, University of Surrey, UK

- 6 Months Teaching assistant for the course **Natural Language Processing**, Dept. of Computer Science, University of Surrey, UK
- 4 year, 3 Months **Assistant Professor** in Department of CSE at *Jyothi Engineering College (NBA & NACC Accredited), Cheruthuruthy, Kerala, India* (August, 2015 - November, 2019)
- 5 Months **Guest Lecturer** in *Government Engineering College, Thrissur, Kerala, India* (July, 2013 - November, 2013)
- 2 Years **Guest Lecturer** in *Impulse Technologies & Solutions, Thrissur, Kerala, India* (May 2013 - February, 2015)
- 2 year **Guest Lecturer** for *PHP & MySql* in *Impulse Technologies & Solutions, Thrissur, Kerala, India* (May 2013 - February 2015)

Academic Credentials

- 2020–Contd. **Post graduate researcher(Ph.D.)**, Dept. of Computer Science, University of Surrey, England, UK, Awarded Vice-Chancellor's fellowship.
- 2013–2015 **M.Tech in Computer Science & Engineering (First Class with Distinction)**, University of Calicut, *Jyothi Engineering College, Cheruthurthy, Thrissur, Kerala, India, CGPA – 8.29* .
- 2009–2013 **B.Tech in Computer Science & Engineering (First Class)**, University of Calicut, *Jyothi Engineering College, Cheruthurthy, Thrissur, Kerala, India, CGPA – 7.86* .
- 2007–2009 **HSE in Computer Science & Engineering** , *St.Thomas HSS, Thope, Thrissur, Kerala, India, Percentage – 81.66* .
- Java**, *India Options Software's Private Limited , Thrissur, Grade – A.*

Awards

- ★ Vice-Chancellor's Fellowship, University of Surrey
- ★ Over all academic topper during M. Tech
- ★ Awarded Gold Medal for the topper in Department Computer Science & Engineering during M. Tech
- ★ Diamond Ring award winner for best over all student of Jyothi Engineering College during B.Tech

Responsible Positions Held

- ★ Ethics Committee Member, University of Surrey, Guildford, UK
- ★ Reviewer, Medical Image Analysis - ELSEVIER, An official journal of the MICCAI Society(The Impact Factor of this journal is 8.545, ranking it 6 out of 134 in Radiology, Nuclear Medicine & Medical Imaging)
- ★ Reviewer, Computer Vision and Image Understanding - ELSEVIER, (The Impact Factor of this journal is 3.876, ranking it 69 out of 273 in Engineering, Electrical & Electronic)
- ★ Editorial Board Member "Revista Review Index Journal of Multidisciplinary"(ISSN 2583-0031)
- ★ Editorial Board Member "Techno Review Journal of Technology and Management"(ISSN 2583-0716)
- ★ Editorial Board Member "Research Review International Journal of Multidisciplinary"(ISSN 2455-3085)
- ★ Reviewer, The 3rd International Conference on Machine Learning and Intelligent Systems (MLIS 2021)
- ★ Reviewer, Doctoral College Conference, University of Surrey, UK

- ★ Program Support Member, 25th European Symposium on Research in Computer Security (ESORICS) 2020, University of Surrey, Guildford, UK
- ★ Mentor, STARS Mentoring Scheme, University of Surrey, Guildford, UK
- ★ Workshop Convenor, "Ideas to Execution for Entrepreneurs" conducted by IIT Delhi in Kerala region.
- ★ Secretary of Institution of Engineers, Student chapter
- ★ Editor, College Magazine
- ★ College union member
- ★ Head of Entrepreneurs Development Cell, Jyothi Engineering College, Thrissur, Kerala

Industrial Experience

- 5 Months Project Trainee at *Technical Business Incubator (TBI)* of Jyothi Engineering College, extension of *Techno-Park*, Trivandrum, Kerala, India
- 2 year PHP project leader in Impulse technologies & Solutions, Thrissur, Kerala, India
- 1 Month Internship at 24@nxt, software solution company, Thrissur, Kerala, India

Selected Talks

- ★ Invited Speaker at Government Polytechnic College, Thrissur, Kerala, India during the Induction Program for the batch 2021-2024
- ★ Introduction to Python for UG students of India
- ★ PHP & HTML Introduction for B.Tech Students
- ★ Latex introduction for B.Tech & M.Tech Students

Masters Thesis

- Title *Single Image Super Resolution*
- Duration 10 Months
- Environment Matlab, OpenCV, Scilab, R
- Description In this thesis we present a novel method for single image super-resolution. Instead of imposing sophisticated edge priors, we use a simple but effective covariance function to capture the local structure of each pixel through the Gaussian process regression. In addition, by using a non-parametric Bayesian model, the prediction process is able to adapt to different edges in the local image patch instead of setting a general parameter learnt from a large number of images. The experimental results show that our method can produce sharp edges with minimal artefacts.

Major Under Graduate Projects Guided

- ★ A Comparative Study on FCM and KFCM (Machine Learning)
- ★ Detection of Malaria from blood cell samples (Image)
- ★ Cardiac Disease Classification (Machine Learning)
- ★ A Comparative Study on TSP Implementation using Nature-Inspired Meta-heuristic Algorithms
- ★ Reconstruction of Shredded Documents (Image)

Research Works & Post Graduate Research Projects Guided

- Title *An Incremental Semi-Supervised Approach For Visual Domain Adaptation*

Type	Post Graduate Research Project
Area	Image Processing & Machine Learning
Description	This proposal address the problem of stationary and evolving domain adaptations. The Incremental Semi-Supervised Domain Adaptation method proposed here for dealing the domain shift problem. The proposed method first extract the features from the input visual data and transform the source and target domains to a low dimensional subspaces. From there a domain invariant common distribution will create and with this test data and model create from source data will use the classifier to predict the labels of test data. The predicted class labels will incrementally add to the source subspace and repeat the process for the next batch of test data.
Title	<i>A Novel Approach for Diagnosing Alzheimer's Disease from MRI Images</i>
Type	Post Graduate Research Project
Area	Image Processing & Machine Learning
Description	By using the proposed method the brain MRI can be classified into MCI, AD and Normal. The system can also help the users for diagnosing AD at its early stage. Multi-class SVM is used to classify the user input and this process can improve classification accuracy. The proposed method can be applied in health care industry. By diagnosing the disease type along with healthy advices will help the user for its early diagnosis of AD.
Title	<i>A Novel Approach for Plant Disease (Leaf) Identification</i>
Type	Post Graduate Research Project
Area	Image Processing & Machine Learning
Description	Early and precise detection and diagnosis of plant diseases are key factors in plant production and the reduction of both qualitative and quantitative losses in crop yield. A plant pathologist and a student taking plant pathology is often asked by friends or associates the following questions. What is wrong with my plant; followed by, what can I do to get rid of the problem? It may be too late to help the specific plant when the question is asked, but proper diagnosis may be extremely important in preventing the problem on other plants or in preventing the problem in the future. Manual detection of plant diseases may not be accurate and may create a lot of issues.

Publications & Conferences

- 2020 Varghese, D., Bauer, R., Baxter-Beard, D., Muggleton, S., Tamaddoni-Nezhad, A.: **Human-like rule learning from images using one-shot hypothesis derivation**
- 2020 Dany Varghese and Alireza Tamaddoni-Nezhad: **One-shot rule learning for challenging character recognition**. Proc. of the 14th Intl. Rule Challenge, volume 2644 of CEUR Workshop Proceedings, pages 10–27, June 2020.
- 2018 K Thulasi NP and Dany Varghese: **A Novel Approach for Diagnosing Alzheimer's Disease Using SVM**, 2018 2nd International Conference on Trends in Electronics and Informatics (ICOEI), Tirunelveli, India, pp. 895-898, 2018.
- 2017 K. S. Neethu and Dany Varghese: **An incremental semi-supervised approach for visual domain adaptation**. In: 2017 International Conference on Communication and Signal Processing (ICCSP). pp. 1343–1346 (2017)
- 2014 Dany Varghese and Viju Shankar: **Cognitive computing simulator - COMPASS**, in Proc. Int. Conf. Contemp. Comput. Informat. (ICI), Mysore, India, Nov. 2014, pp. 682–687
- 2015 Dany Varghese and Viju Shankar: **A novel approach for single image super resolution using statistical mathematical model**. IJAER 10(44) (2015)