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Skills & Qualifications

- **Deep Learning:** Neural Networks, CNN, RNN, GRU, LSTM, RESNET50, GAN, VAE
- **Freamworks:** Tensorflow, Pytorch, Keras, Scikit-learn
- **Machine Learning:** Linear Regression, SVM, Decision Tree, Random Forest, KNN, Naive Bayes, K-means clustering
- **Natural Language Processing:** Word Embedding, Fasttext, Sentiment Analysis, Entity Recognition
- **Computer Vision:** OpenCV, Object Detection & Classification
- **Programming languages:** Python, Matlab, Shell scripting - pursuing, Java - pursuing, Arduino programming - pursuing
- **Others:** SQLite, Networkx, Flask, FastAPI, Sphinx Documentation

Projects

January 2020 **Deep Learning Based Approach For Multiple Myeloma Detection**

Multiple myeloma cancer is caused by the abnormal growth of plasma cells in the bone marrow. The current work explores the effectiveness of deep learning based object detection/segmentation algorithms such as Mask-RCNN and unet for the detection of multiple myeloma.

June 2019 **Deep Learning Based Approach For Detection, Classification And Damage Analysis of Comet Assay Images**

Single cell gel electrophoresis (SCGE) or Comet assay is the most commonly used research methods to analyse DNA damage. In this work, we propose a framework with three modules which includes detection of valid comets, classification of damaged comets from detected valid comets and quantification of damaged comets using a data driven deep learning approach. All the three modules are connected to serve as a tool in order to explore the damage in comet assays.

May 2019 **Offensive Language Detection: A Comparative Analysis**

Offensive behaviour has become pervasive in the Internet community. In this work, a comparative analysis and Random kitchen sink (RKS) based approach for offensive language detection is proposed. We explore the effectiveness of Google sentence encoder, Fasttext based features using Random kitchen sink (RKS) method for offensive language detection.

Mar 2019 **Land Cover Satellite Image Classification Using NDVI and SimpleCNN**

One of the important applications of image classification is in remote sensing, where it is used for land cover classification. In this project, a SimpleCNN based architecture is used to classify SAT-4 and SAT-6 airborne datasets and achieved 99% classification accuracy for both the datasets.

Dec 2018 **Random Fourier Feature Based Music-Speech Classification**

In this project we have proposed a music/speech classification method using Random Kitchen Sink algorithm using temporal and spectral features extracted from the signal.

Nov 2018 **Theft Detection using Motion Sensor**

A Theft detection device is proposed in this project, by combining Arduino, PIR sensor and Bluetooth module, which sends notification to the users mobile when motion is detected.

Publications

- Vyshnav, M. T., Sowmya, V., Gopalakrishnan, E. A., Menon, V. K., & Soman, K. P. (2020, July)., **Deep Learning Based Approach For Multiple Myeloma Detection**, In 2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT) (pp. 1-7). IEEE.
- Vyshnav M. T, Sachin Kumar S, Neethu Mohan, Soman K.P. (2020)., **Random Fourier Feature Based Music-Speech Classification**, Journal of Intelligent & Fuzzy Systems, 38(5), 6353-6363.
- Vyshnav M. T, Sachin Kumar S, Soman K.P (2020)., **Offensive Language Detection: A Comparative Analysis**, https://arxiv.org/abs/2001.03131
- Priyal, S. V., Vyshnav, M. T., Sowmya, V., & Soman, K. P. (2022)., **Modified UNet Architecture with Less Number of Learnable Parameters for Nuclei Segmentation**, In Soft Computing and Signal Processing (pp. 101-111). Springer, Singapore.
- T Tulasi Sasidhar, Sreelakshmi K, Vyshnav M.T, Sowmya V, & Soman, K. P. (2019, July)., **Land Cover Satellite Image Classification Using NDVI and SimpleCNN**, In 2019 10th International Conference on Computing, Communication and Networking Technologies (ICCCNT) (pp. 1-5). IEEE.

Professional Experience

2020 **Razorthink Technologies**, AI Engineer(Present)

2019-2020 **Syscloud Technologies**, Data scientist Intern(Dec-Feb)

- worked on creation of algorithms for Email spam classification, Suicide note detection and Hipaa pilocy viation detection

2019 **Teaching Assistant**(July-Nov)

- Introduction To Electrical Engineering
- Elements of Computing

2016-2018 **Tata Consultancy Services limited**, Assistant System Engineer

- Part of Microsoft Centre of Excellence Team(MS-COE)
- Worked as Microsoft O365 Admin for British Airways(L3 Technical support)
- Part of mailbox migration team for Wiley project
- Worked on O365 tenant to tenant migration
- Familiar with O365 admin centre setup, Azure cloud, Installion of AD, Exchange server, Skype for business server,Microsoft intune for mobile device management
- Awarded best performer during training

Seminar/Workshop

July 2019 **Linear Algebra for Machine Learning**

Assissted FDP program at Muthoot Institute of Technology & Science

Sep 2019 **Workshop on Machine Learning**

Delivered session on machine learning and deep learning at A J Institute of Engineering & Technology

Education

2018-Present **M.Tech Computational Engineering and Networking**, *Amrita Vishwa Vidyapeetham, Coimbatore, Tamil Nadu.*
CGPA : 9.2

2012-2016 **B.Tech Electrical and Electronics Engineering**, *Govt. Model Engineering College (CUSAT), Ernakulam, Kerala.*
CGPA : 8.02

Courses & Certifications

Sep 2019 **Structuring Machine Learning Projects** by **deeplearning.ai on Coursera.** Certificate earned at Saturday, September 7, 2019 7:35 PM GMT

Aug 2019 **Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization** by **deeplearning.ai on Coursera.** Certificate earned at Thursday, August 15, 2019 6:18 AM GMT

Jun 2019 **Neural Networks and Deep Learning** by **deeplearning.ai on Coursera.** Certificate earned at Sunday, June 16, 2019 10:54 AM GMT

Jun 2019 **Sequence Models** by **deeplearning.ai on Coursera.** Certificate earned at Saturday, June 15, 2019 5:38 PM GMT

Jun 2019 **Python for Computer Vision with OpenCV and Deep Learning** by **Udemy**

Mar 2018 **Python 3 Tutorial course** by **SoloLearn**

References

Dr.K P Soman.
HOD, Center for Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore, Tamil Nadu, kp_soman@amrita.edu.

Dr.Sowmya V.
Assistant Professor, Center for Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore, Tamil Nadu, v_sowmyacb@amrita.edu.