Vinayakumar R

Kurumbur, Guthiyalathur (Via)
Sathyamangalam (Taluk)-638503
Ph no: 91-9487951055

e-mail: vinayakumarr77@gmail.com
Website : https://vinayakumarr.github.io/

Research Interest

Computational thinker with theoretical and practical experience in Linear algebra, Optimization, Machine Learning, Deep Learning and Dimensionality Reduction Methods. Working on applying Machine Learning for various problems in the fields of Cyber security using distributional and parallel frameworks. Also, I work in NLP, Signal and Image Processing, Bio-medical, Bio-informatics and development of block based programming languages for K-12 children.

Education

PhD, Computational Engineering & Networking   Fall 2015-Present
Amrita Vishwa Vidyapeetham, Coimbatore

Masters of Computer Application, Computer Science   June 2011- May 2014
Amrita Vishwa Vidyapeetham, Mysore

Bachelor of Computer Application, Computer Science   June 2008- May 2011
JSS College, Mysore

Research Experience

- June 2015 - Present Research Associate, Supervisor: Prof Soman KP: Data mining, Machine learning, Deep learning, cyber security, Natural language processing, Bio-medical and Bio-informatics
- Jun 2014 - Jul 2015 Research Assistant, Supervisor: Prof Soman KP: Block-based programming development for Indian K-12 Schools
- Organized a shared task on detecting malicious domain names in cyber security domain as part of SSCC'18

Bookchapters

- **Vinayakumar R**, Prabaharan Poornachandran and Soman KP, "Scalable Framework for Cyber Threat Situational Awareness based on Domain Name Systems Data Analysis." Big data in Engineering Applications, Springer.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "A deep-dive on Machine learning for Cybersecurity use cases." Machine Learning for Computer and Cyber Security: Principle, Algorithms, and Practices, CRC press, USA
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran, Mamoun Alazab and Alireza Jolfaei "Detecting Domain Generation Algorithms Using Deep Learning." Springer
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "DeepSpamPhishNet (DSPN): Deep learning Framework for Cyber Threat Situational Awareness based on Email and URL Data Analysis.", Springer.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Application of Deep Learning Architectures for Cyber security.", Springer.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "I-DGA-DC-Net: Improved DGA Domain Detection and Categorization using Deep learning Architectures with Classical Machine learning Algorithms." Springer.
- Harikrishnan NB, **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Time Split based Pre-processing with a Data-driven Approach for Malicious URL Detection.", Springer.
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran, Mamoun Alazab "Spam emails detection based on deep learning." (Ready for submission)
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran and Mamoun Alazab "Malicious URL Detection using Deep Learning." (Ready for submission)

- Amara Dinesh Kumar, Harish Thodupunoori, **Vinayakumar R**, Soman KP Mamoun Alazab and Sitalakshmi Venkatraman, "Domain-Generation Algorithm Detection Using Deep Learning." Springer
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran, Jyothsna P V, Amara Dinesh Kumar, Mamoun Alazab and Sabu M. Thampi "AmritaDGA: A Comprehensive Data set forDomain Generation Algorithms (DGAs)." IET
- Harikrishnan NB, **Vinayakumar R** and Soman KP "Machine Learning Based Cyber Security." IET
- Sreelakshmi nair, **Vinayakumar R**, and Soman KP "Deep-Segregation of Plastic (DSP): Segregation of plastic and non-plastic using deep learning." IET
- Anson simon, **Vinayakumar R**, Sowmya V, Soman KP, A Deep Learning Approach for Patch Based Disease Diagnosis from Microscopic Images Elsevier
- Swapna G, **Vinayakumar R**, and Soman KP "Deep-Diabetes-Detect (DDD): Big data analytics for intelligent diabetes detection and management ." Springer (Ready for submission)

Journals

- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran, Mamoun Alazab and Sitalakshmi Venkatraman, "Scale-Hybrid-IDS-AlertNet (SHIA): Scalable and Hybrid Framework for Intrusion and Cyber Attack Detection based on Network and Host Level Data Analysis." (Ready for submission - IEEEAccess)
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran and Mamoun Alazab and Sitalakshmi Venkatraman,"Deep Learning Framework for Intelligent Malware Detection." (Ready for submission - IEEEAccess)
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran and Sachin Kumar S, "Detecting Android Malware using Long Short-term Memory-LSTM." Journal of Intelligent and Fuzzy Systems - IOS Press.
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran and Sachin Kumar S, "Evaluating Deep Learning Approaches to Characterize and Classify the DGAs at Scale." Journal of Intelligent and Fuzzy Systems - IOS Press.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Evaluating Deep learning Approaches to Characterize, Signalize and Classify malicious URLs." Journal of Intelligent and Fuzzy Systems - IOS Press.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Detecting Malicious Domain Names using Deep Learning Approaches at Scale." Journal of Intelligent and Fuzzy Systems - IOS Press.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Evaluation of Recurrent Neural Network and its variants for Intrusion Detection System (IDS)." Special Issue On Big Data Searching, Mining, Optimization & Securing (BSMOS) Peer to Peer Cloud Based Networks in IJISMD.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "A Comparative Analysis of Deep learning Approaches for Network Intrusion Detection Systems (N-IDSs)." Special Issue On: Recent Advances on Cyber Security and Privacy for Cloud-of-Things in IJCDF.
- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran, Vysakh S Mohan and Amara Dinesh kumar "ScaleNet: Scalable and Hybrid Framework for Cyber Threat Situational Awareness based on DNS, URL, and Email Data Analysis", Journal of Cyber Security and Mobility.
- **Vinayakumar R** and Soman KP, "DeepMalNet: Evaluating shallow and deep networks for static malware detection." Elsevier - ICT Express.
- Swapna G, **Vinayakumar R** and Soman KP, "Diabetes detection using deep learning algorithms." Elsevier - ICT Express.
- Mohammed Harun Babu R, **Vinayakumar R** and Soman KP, "Cost-Sensitive Long Short-term Memory for Imbalanced DGA Family Categorization." Elsevier - ICT Express.

International Conferences

- **Vinayakumar R**, Soman KP, Prabaharan Poornachandran and Mamoun Alazab "A comparitive analysis of Siamese Neural Network Architectures for Detecting Homoglyph Attacks" (Ready for Submission)
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Evaluating Shallow and Deep Networks for Secure Shell (SSH)Traffic Analysis." IEEE Xplore.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Evaluating Effectiveness of Shallow and Deep Networks to Intrusion Detection System." IEEE Xplore.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Deep Android Malware Detection and Classification." IEEE Xplore.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Long Short-Term Memory based Operation Log Anomaly Detection." IEEE Xplore.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Deep Encrypted Text Categorization." IEEE Xplore .
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Applying Convolutional Neural Network for Network Intrusion Detection." IEEE Xplore.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Secure Shell (SSH) Traffic Analysis with Flow based Features Using Shallow and Deep networks." IEEE Xplore.
- **Vinayakumar R**, Soman KP and Prabaharan Poornachandran, "Applying Deep Learning Approaches for Network Traffic Prediction." IEEE Xplore.
- **Vinayakumar R**, Soman KP, K.K.Senthil Velan and Shaunak Ganorkar, "Evaluating Shallow and Deep Networks for Ransomware Detection and Classification." IEEE Xplore.
- Rahul K. Pathinarupothi, **Vinaykumar R**, Ekanath Rangan, Gopalakrishnan E., and Soman K. P., "Instantaneous Heart Rate as a Robust Feature for Sleep Apnea Severity Detection using Deep Learning." IEEE Xplore.
- Rahul K. Pathinarupothi, Dhara Prathap J., Ekanath Rangan, Gopalakrishnan E., **Vinaykumar R**, and Soman K. P., "Single Sensor Techniques for Sleep Apnea Diagnosis using Deep Learning." IEEE Xplore.
- Sujadevi VG., Soman KP., and **Vinayakumar R** "Real-time Detection of Atrial Fibrillation from Short time single lead ECG traces using Recurrent neural networks.", Springer.
- Sujadevi VG., Soman KP., **Vinayakumar R** and Prem Sankar AU. "Anomaly detection in Phonocardiogram employing Deep learning.", Springer
- Sujadevi VG., Soman KP., **Vinayakumar R** and Prem Sankar AU. "Deep models for Phonocardiography (PCG) classification." IEEE Xplore.
- Sreelekshmy Selvin., **Vinayakumar R**, Gopalakrishnan E., Vijay Krishna Menon., Soman K.P., "Stock Price Prediction Using LSTM, RNN And CNN-Sliding Window Model.", IEEE Xplore.
- Shriya Se, **Vinayakumar, R**, Anand Kumar M., and Soman K.P., AMRITA-CEN@SAIL2015: Sentiment analysis in Indian languages., Springer.
- Shriya Se, **Vinayakumar, R**, Anand Kumar M., and Soman K.P., Predicting the Sentimental Reviews in Tamil Movie using Machine Learning Algorithms., Indian Journal of Science and Technology (IJST).
- Neethu Mohan, Soman KP, and **Vinayakumar R** "Deep Power: Deep Learning Architectures for Power Quality Disturbances Classification.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "Digital storytelling using Scratch: Engaging children towards digital storytelling.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "CT-Blocks Analyser: Analysing CT-Blocks projects.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "Alg-Design: facilitates to learn Algorithmic thinking for beginners.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "Map-Blocks: Playing with online data: infuse to think in a computational way.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "Enhancing Computational thinking with MIT Scratch: Fractals Geometry.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "Building-Blocks: Generating 3D design by snapping blocks.", IEEE Xplore.
- **Vinayakumar R**, Soman KP, and Pradeep Menon "DB-Learn: Studying Relational Algebra concepts by Snapping Blocks.", IEEE Xplore.

- **Vinayakumar R**, Soman KP, and Pradeep Menon "DB-Learn: Studying Relational Algebra concepts by Snapping Blocks.", IEEE Xplore.
- Vysakh S Mohan, **Vinayakumar R**, Soman Kp and Prabaharan Poornachandran, S.P.O.O.F Net: Syntactic Patterns for identification of Ominous Online Factors, IEEE Xplore
- Swapna G, Soman KP and **Vinayakumar R**, Automated detection of cardiac arrhythmia using deep learning techniques, Procedia Computer Science
- Swapna G, Soman KP and **Vinayakumar R**, Diabetes: Automated detection of diabetes using CNN and CNN-LSTM network and heart rate signals, Procedia Computer Science
- Athira V, Geetha P, Soman Kp and **Vinayakumar R**, DeepAirNet: Applying Recurrent networks for Air Quality Prediction,Procedia Computer Science
- Aswin S, Geetha P and **Vinayakumar R**, Deep Learning Models for the Prediction of Rainfall, IEEE Xplore
- Anson Simon, **Vinayakumar R**, Sowmya V and Soman K P, Shallow CNN with LSTM Layer for Tuberculosis Detection in Microscopic Images International Journal of Pure and Applied Mathematics
- Mohammed Harun Babu R, Sai Bhanuja B, **Vinayakumar R**, Sowmya V, Deep neural network for phonocardiogram signal classification, International Journal of Pure and Applied Mathematics
- Naren Babu R, Saiprasath G, Arunpriyan J, **Vinayakumar R**, Sowmya V and Soman K P, Performance comparision of machine learning algorithms for malaria detection using microscopic images, International Journal of Pure and Applied Mathematics
- Swapna G, **Vinayakumar R** and Soman Kp, Automated detection of Atrial Fibrillation using deep learning techniques, International Journal of Pure and Applied Mathematics
- Anu Vazhayil, **Vinayakumar R** and Soman Kp, Comparative study of the detection of malicious URLs using Shallow and Deep Networks ICCNT-2018
- Rahul Vigneshwaran, **Vinayakumar R** and Soman Kp, Evaluating Shallow and Deep Neural Networks for Network Intrusion Detection Systems in Cyber Security ICCNT-2018
- Vysakh S Mohan, **Vinayakumar R**, Sowmya V, Soman KP, Deep Rectified System for High-speed Tracking in Images
- **Vinayakumar R**, Mamoun Alazab and Alireza Jolfaei, Soman KP and Prabaharan Poornachandran "Ranosmware Triage Using Deep Learning: Twitter as a Case Study." ICCSCS2018 (accepted)
- Sreelakshmi nair, **Vinayakumar R**, and Soman KP "CapsNet for Segregation of plastic and non-plastic." (Ready for Submission)
- Vimal M Kurup, **Vinayakumar R**, Sowmya V, and Soman KP "CapsNet for Plant disease classification." (Ready for Submission)

Shared task Working notes

- **Vinayakumar R.**, Sachin Kumar S., Premjith B., Prabaharan P., and Soman K P. "DEFT 2017 - Texts Search @ TALN / RECITAL 2017: Deep Analysis of Opinion and Figurative language on Tweets in French." Opinion analysis and figurative language in tweets in French, Orlans.
- **Vinayakumar R.**, Sachin Kumar S., Premjith B., Prabaharan P., and Soman K P. "Deep Stance and Gender Detection in Tweets on Catalan Independence@Ibereval 2017." 2nd Workshop on the Evaluation of Human Language Technologies for Iberian languages, at SEPLN 2017 at University of Murcia, Murcia, Spain.
- **Vinayakumar R.**, Premjith B., Sachin Kumar S., Soman K P. and Prabaharan P. "deepCybErNet at EmoInt-2017: Deep Emotion Intensities in Tweets." 8th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (WASSA-2017), at EMNLP 2017.
- Barathi Ganesh HB, Abinaya N, Anand Kumar M, **Vinayakumar R** and Soman KP. "Amrita-CEN@NEEL : Identification and Linking of Twitter Entities." #Microposts2015 Making Sense of Microposts: Big things come in small packages. Florence, Italy.
- Barathi Ganesh HB, **Vinayakumar R**, Anand Kumar M, Soman KP. "Health Care Text Classification through Class Embedding." 2nd Social Media Mining for Health Applications Shared Task at AMIA 2017.

- **Vinayakumar R**, Barathi Ganesh HB, Anand Kumar M, Soman KP. "Deep Health Care Text Classification."
- Harikrishnan Nb, **Vinayakumar R** and Soman Kp, CEN-Security@IWSPA 2018: A Machine learning approach towards Spam Detection IWSPA-AP
- **Vinayakumar R**, Barathi Ganesh H B, Prabaharan Poornachandran, Anand Kumar M and Soman Kp, DeepAnti-PhishNet: Applying Deep Neural Networks for E-mail Spam Detection IWSPA-AP
- Barathi Ganesh Hb, **Vinayakumar R**, Soman Kp and Anand Kumar M, Distributed Representation using Target Classes: Bag of Tricks for Security and Privacy Analytics Amrita-NLP@IWSPA 2018 IWSPA-AP
- Anu Vazhayil, **Vinayakumar R** and Soman Kp, CENSec@Amrita: Spam Detection using classical Machine learning techniques IWSPA-AP
- Nidhin Unnithan, Harikrishnan Nb, Akarsh S, **Vinayakumar R** and Soman Kp, Security-CEN@Amrita Machine learning based Spam E-mail detection IWSPA-AP
- Vysakh S Mohan, Naveen J R, **Vinayakumar R** and Soman K P, A.R.E.S: Automatic Rogue Email Spotter IWSPA-AP
- Hiransha M, Nidhin Unnithan, **Vinayakumar R** and Soman Kp, CEN-DeepSpam: Deep learning based spam detection IWSPA-AP
- **Vinayakumar R**, Harikrishnan Nb, Nidhin Unnithan, Soman Kp and Sai Sundarakrishna, CEN-SecureNLP Detecting E-mail spam using Machine learning techniques

arXiv

- Amara Dinesh Kumar, **Vinayakumar R** and Soman KP, "DeepImageSpam: Deep Learning based Image Spam Detection." Elsevier - ICT Express. (under-submission)
- Amara Dinesh Kumar, **Vinayakumar R** and Soman KP, "A Brief Survey on Autonomous Vehicle Possible Attacks,Exploits and Vulnerabilities." Elsevier - ICT Express. (under-submission)
- Naveen Kumar, Mohammed Harun Babu R, **Vinayakumar R** and Soman KP, "Protein family classification using Deep Learning."
- Mohammed Harun Babu R, **Vinayakumar R** and Soman KP, "RNNSecureNet: Recurrent neural networks for Cybersecurity use-cases."
- Anu Vazhayil, **Vinayakumar R** and Soman KP, "DeepProteomics: Protein family classification using Shallow and Deep Networks."
- Anu Vazhayil, **Vinayakumar R** Barathi Ganesh HB, Prabaharan Poornachandran, Anand Kumar M and Soman KP, "Deep-Net: Deep Neural Network for Cyber Security Use Cases."

Talks & Workshops

- Demo on LSTM based Android Malware classification in TEQIP II sponsored research workshop on deep learning, PSG Tech, Coimbatore, 7, October 2016.
- Deep learning for Cyber Security In Deep learning Workshop organized by Amrita University, Coimbatore, 2017.
- Deep Learning for Cyber Security use cases in AISec 2017 Workshop: Modern Artificial Intelligence (AI) and Natural Language Processing (NLP) Techniques for Cyber Security, Conducted by the Department of Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, 28, October 2017.
- Deep learning for Healthcare and financial data analytics in DeepSci 2017 Workshop: Deep Learning for Healthcare and Financial Data Analytics, Conducted by the Department of Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Saturday, 16, December 2017.

- Deep Learning for Chemistry in DeepChem 2017: Deep Learning & NLP for Computational Chemistry, Biology & Nano-materials, Conducted by the Department of Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, 22-24, December 2017.
- Deep Learning for Cyber Security use cases in Bharathiar University at the University conference hall on 21, November 2017.
- Deep Learning for Bio-medical Applications in TEQUIP sponsored Faculty Development Program (FDP) at TKM College of Engineering, Kollam, 14, December 2017.
- Deep Learning for Bio-medical Applications in ICMR sponsored Faculty Development Program (FDP) at Mepco Schlenk Engineering College, Sivakasi, 17, January 2018.
- Deep Learning in IEEE (3451) at Kalasalingam Academy of Research and Education, Virudhunagar, Saturday, 3 February 2018
- Workshop for Engineers, Sep 23, 2018, CEN, Amrita school of Engineering
- Artificial Intelligence and Data Science For Cyber Security, Oct 14, 2018, CEN, Amrita school of Engineering.
- A Workshop on Modern Artificial Intelligence Techniques for Cyber Security, Jan 03-04, Jansons Institue of Technology.
- A Workshop on Application of Deep learning for Cyber Security, Dec 18-19, IIITM-K, Kerala

Course Work

- MA607 - Linear Algebra
- CN613 - Computational optimization theory- linear and non-linear methods
- CY603 - Pattern Recognition and Machine Learning
- CN624 - Scientific Computing
- CN703 - Computational Methods for Cryptography
- CN733 - Neural network & Deep learning
- CY800 - Research Methodology
- Foundation Mathematics
- Computational Thinking

Online Coursework

- Neural Networks and Deep Learning, Coursera, Aug. 2017
- Deep Learning with Tensorflow, Big Data University, Dec. 2016
- Deep Learning Prerequisites: The Numpy Stack in Python
- Big Data, Big Data University, Jul. 2016
- Big Data Foundations, IBM, Jul. 2016
- Functional Programming Principles in Scala, Coursera, Jul. 2016
- Hadoop, Big Data University, Jul. 2016
- Spark Fundamentals, Big Data University, Jul. 2016
- HTML and CSS, Udemy, Jan. 2015

Co-organized events

- October 28, 2017 - AISec 2017: Modern Artificial Intelligence (AI) and Natural Language Processing (NLP) Techniques for Cyber Security
- December 16, 2017 - Blockchain 2017: Blockchain and Machine Learning
- November 11, 2017 - DeepSci 2017: Deep Learning for Healthcare and Financial Data Analytics

- December 22-24, 2017 - DeepChem 2017: Deep Learning & NLP for Computational Chemistry, Biology & Nano-materials
- November 25-27, 2017 - A Refresher experiential course on linear algebra and Optimization for Most Modern Signal processing and pattern classification

Participation in NLP and Cyber Security Shared Tasks

- Named Entity rEcognition and Linking (#Micropost2015 NEEL): Named Entity Recognition and Linking.
- International Cybersecurity Data Mining Competition CDMC 2016.
- VarDial 2017 - Fourth Workshop on NLP for Similar Languages, Varieties, and Dialects.
- Stance and Gender Detection in Tweets on Catalan Independence@Ibereval 2017.
- WASSA-2017 Emotion Intensity Task.
- DEFT 2017 Text Search @ TALN / RECITAL 2017 Opinion analysis and figurative language in tweets in French.
- International Cybersecurity Data Mining Competition CDMC 2017.
- 2nd Social Media Mining for Health Applications Shared Task at AMIA 2017.
- First Security and Privacy Analytics Anti-Phishing Shared Task (IWSPA-AP 2018)

Technical Skills

- Languages: C, C++, Java, Scala, Python, R, Introduction to Julia, Weka, Matlab.
- Web development: Html, CSS, JavaScript, JSON, JQuery, Php, Bootstrap, XML, Jsp.
- Educational Platforms: MIT Scratch, Snap Berkley, BYOB, Scribble, Beetle Blocks.
- Machine Learning: Spark Mllib, Apache Mahout, XG-boost, Scikit-learn, Dato, Hpelm, Gurls, LibSVM.
- Big data Platforms: Hadoop, Apache Spark.
- Database: MySQL, Introduction to Oracle, Apache Cassandra.
- Deep Learning platforms: TensorFlow, Theano, Keras, Deeplearning4j, Torch, Basics of Caffe, DeepChem and DragoNN
- Comfortable with Windows and Linux OS.
- Documentation Tool: LibreOffice, Microsoft Office, and Latex.

References
Dr. K.P Soman
Professor and Head
Centre for Computational Engineering and Networking
Amrita Viswa Vidyapeetham, Coimbatore 641112
http://nlp.amrita.edu/somankp/
kp_soman@amrita.edu

Dr. M. Anand Kumar
Assistant Professor
Centre for Computational Engineering and Networking
Amrita Viswa Vidyapeetham, Coimbatore 641112
https://www.amrita.edu/faculty/m-anandkumar
manandinfo@gmail.com

Dr. Sowmya V
Assistant Professor
Centre for Computational Engineering and Networking
Amrita Viswa Vidyapeetham, Coimbatore 641112
http://nlp.amrita.edu/sowmyav/
sowmiamrita@gmail.com

Dr. Prabaharan Poornachandran
Assistant Professor
Center for Cybersecurity Systems and Networks
Amrita Viswa Vidyapeetham, Kollam 690525
https://www.researchgate.net/profile/Prabaharan_Poornachandran
prabasuja@gmail.com

Mr. Vijay Krishnan Menon
Assistant Professor
Centre for Computational Engineering and Networking
Amrita Viswa Vidyapeetham, Coimbatore 641112
https://www.amrita.edu/faculty/m-vijaykrishna
vijaykrishnamenon@gmail.com