

Name: *Dr. Vinod P.*

Phone: +919497179735

Email: vinod.p@cusat.ac.in, pvinod21@gmail.com

Google Scholar: <https://scholar.google.co.in/citations?user=l9y5N3QAAAAJ&hl=en>

Orcid ID: <https://orcid.org/0000-0001-6078-2014>

Current Position: Professor, Department of Computer Applications, Cochin University of Science & Technology, Kerala, India

Professional Experience:

- Professor & Head Department of Computer Science & Engineering, SCMS School of Engineering & Technology, Kerala, India (2017-October 2020)
- Associate Professor, Department of Computer Science & Engineering, SCMS School of Engineering & Technology, Kerala, India (2012-2017)
- Asst. Professor, Department of Computer Science & Engineering, SCMS School of Engineering & Technology, Kerala, India (2005-November 2012)
- Lecturer, Department of Computer Science & Engineering, Oriental Institute of Science & Technology, Bhopal, MadhyaPradesh, India (2002-2003)
- Lecturer, Department of Computer Science & Engineering, Mandsaur Institute of Technology, MadhyaPradesh, India (2001-2002)

Educational Qualification:

- **Post-Doctoral Researcher** (“SPRITZ Security and privacy Group”), at the Department of Mathematics, University of Padua, Italy (2017-2018)
 - EU H2020 Project TagItSmart! - A Smart Tags driven service platform for enabling ecosystems of connected objects.
 - Principal Supervisor: Prof. Mauro Conti, University of Padua, Italy
- **Post-Doctoral Fellowship**, Malaviya National Institute of Technology, Jaipur (2016-2017)
 - Project: Mobile Security, Information Security Education Awareness-II (ISEA-II)
 - Principal Supervisor: Prof. Manoj Singh Gaur, Director, Indian Institute of Technology, Jammu
- **Ph.D.** in Computer Engineering, Malaviya National Institute of Technology, Jaipur, India (Duration: 2008-2012)
 - Thesis: Malware Detection Methodologies
 - Principal Supervisor: Prof. Vijaylaxmi, Malaviya National Institute of Technology, Jaipur
 - Co-Supervisor: Prof. Manoj Singh Gaur Malaviya National Institute of Technology, Jaipur
- **M.Tech.** Information Technology, School of IT, RGPV, Bhopal, India (Duration: 2003-2005)
- **B.E.** in Computer Science & Engineering, RGPV, Bhopal, India (Duration: 1997-2001)

Journals (Recent-five years)

- Alaeiyan, Mohammadhadi, Saeed Parsa, P. Vinod, and Mauro Conti. "Detection of algorithmically-generated domains: An adversarial machine learning approach." *Computer Communications* (2020).

- Taheri, Rahim, Reza Javidan, Mohammad Shojafar, P. Vinod, and Mauro Conti. "Can machine learning model with static features be fooled: an adversarial machine learning approach." *Cluster Computing* (2020): 1-21.
- Ananya, A., A. Aswathy, T. R. Amal, P. G. Swathy, P. Vinod, and Shojafar Mohammad. "SysDroid: a dynamic ML-based android malware analyzer using system call traces." *Cluster Computing* (2020): 1-20.
- Rajesh, Sreeja, Varghese Paul, Varun G. Menon, Sunil Jacob, and P. Vinod. "Secure Brain-to-Brain Communication With Edge Computing for Assisting Post-Stroke Paralyzed Patients." *IEEE Internet of Things Journal* 7, no. 4 (2019): 2531-2538.
- Deepa, K., G. Radhamani, P. Vinod, Mohammad Shojafar, Neeraj Kumar, and Mauro Conti. "Identification of Android malware using refined system calls." *CONCURRENCY AND COMPUTATION-PRACTICE & EXPERIENCE* 31, no. 20 (2019).
- Vinod, P., Akka Zemmari, and Mauro Conti. "A machine learning-based approach to detect malicious Android apps using discriminant system calls." *Future Generation Computer Systems* 94 (2019): 333-350.
- Pooranian, Zahra, Jemal H. Abawajy, and Mauro Conti. "Scheduling distributed energy resource operation and daily power consumption for a smart building to optimize economic and environmental parameters." *Energies* 11, no. 6 (2018): 1348.
- Varsha, M. V., P. Vinod, and K. A. Dhanya. "Identification of malicious android app using manifest and opcode features." *Journal of Computer Virology and Hacking Techniques* 13, no. 2 (2017): 125-138.
- Raphael, Jithu, and P. Vinod. "Heterogeneous opcode space for metamorphic malware detection." *Arabian Journal for Science and Engineering* 42, no. 2 (2017): 537-558.
- Vinod, P., and P. Viswalakshmi. "Empirical Evaluation of a System Call-Based Android Malware Detector." *AJSE* 43, no. 12 (2018): 6751-6770.
- Naval, Smita, Vijay Laxmi, and Manoj Singh Gaur. "An efficient block-discriminant identification of packed malware." *Sadhana* 40, no. 5 (2015): 1435-1456.
- Kuriakose, Jikku, and P. Vinod. "Unknown metamorphic malware detection: Modelling with fewer relevant features and robust feature selection techniques." *IAENG International Journal of Computer Science* 42, no. 2 (2015): 139-151.
- Aswini, A. M., and P. Vinod. "Towards the Detection of Android Malware using Ensemble Features." *Journal of Information Assurance & Security* 10, no. 1 (2015).
- Vinod, P., Vijay Laxmi, Manoj Singh Gaur, and Grijesh Chauhan. "Detecting malicious files using non-signature-based methods." *International Journal of Information and Computer Security* 6, no. 3 (2014): 199-240.

Conferences

- Aaron Joseph Fernandez, Ajay K. S., Antony Jose, Austin Kuruvila M., Varun G. Menon, Vinod P., Xingwang Li, and Mohammad R. Khosravi, A Real-Time Traffic Surveillance and Security System using Transfer Learning and Edge Computing, International Conference on Computational Science and Computational Intelligence (CSCI'20: December 16-18, 2020, Las Vegas, USA)
- D Sarkar, P. Vinod, S. Y Yerima, 17th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2020), Antalya, Turkey, Nov 02 – Nov 05, 2020
- Naderi, Hassan, P. Vinod, Mauro Conti, Saeed Parsa, and Mohammad Hadi Alaeiyan. "Malware signature generation using locality sensitive hashing." In *International Conference on Security & Privacy*, pp. 115-124. Springer, Singapore, 2019.

- John, Meenu Mary, P. Vinod, and K. A. Dhanya. "Hartley's test ranked opcodes for Android malware analysis." In *8th International Conference on Security of Information and Networks*, pp. 304-311. 2015.
- Raphel, Jithu, and P. Vinod. "Information-theoretic method for classification of packed and encoded files." In *8th International Conference on Security of Information and Networks*, pp. 296-303. 2015.
- George, Princy, and P. Vinod. "Machine learning approach for filtering spam emails." In *8th International Conference on Security of Information and Networks*, pp. 271-274. 2015.
- Varsha, M. V., P. Vinod, and K. A. Dhanya. "Heterogeneous feature space for Android malware detection." In *2015 Eighth International Conference on Contemporary Computing (IC3)*, pp. 383-388. IEEE, 2015.
- Deepa, K., G. Radhamani, and P. Vinod. "Investigation of feature selection methods for android malware analysis." *Procedia Computer Science* 46 (2015): 841-848.
- Aswini, A. M., and P. Vinod. "Android malware analysis using ensemble features." In *International Conference on Security, Privacy, and Applied Cryptography Engineering*, pp. 303-318. Springer, Cham, 2014.
- Asmitha, K. A., and P. Vinod. "Linux malware detection using eXtended-symmetric uncertainty." In *International Conference on Security, Privacy, and Applied Cryptography Engineering*, pp. 319-332. Springer, Cham, 2014.
- Kuriakose, Jikku, and P. Vinod. "Metamorphic virus detection using feature selection techniques." In *International Conference on Computer and Communication Technology (IC CCT)*, pp. 141-146. IEEE, 2014.
- Thomas, Josin, Nisha S. Raj, and P. Vinod. "Towards filtering spam mails using dimensionality reduction methods." In *5th International Conference-Confluence The Next Generation Information Technology Summit (Confluence)*, pp. 163-168. IEEE, 2014.
- Asmitha, K. A., and P. Vinod. "Linux malware detection using non-parametric statistical methods." In *International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, pp. 356-361. IEEE, 2014.
- Sebastian, Silpa, Sonal Ayyappan, and P. Vinod. "Framework for design of graybot in social networks." In *International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, pp. 2331-2336. IEEE, 2014.
- Thomas, Bincy, and P. Vinod. "Synthesized feature space for multiclass emotion classification." In *First International Conference on Networks & Soft Computing (ICNSC2014)*, pp. 188-192. IEEE, 2014.
- Baby, Julie, T. Kannan, P. Vinod, and Viji Gopal. "Distance indices for the detection of similarity in C programs." In *International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC)*, pp. 462-467. IEEE, 2014.
- Kuriakose, Jikku, and P. Vinod. "Ranked linear discriminant analysis features for metamorphic malware detection." In *IEEE International Advance Computing Conference (IACC)*, pp. 112-117. IEEE, 2014.
- Aswini, A. M., and P. Vinod. "Droid permission miner: Mining prominent permissions for Android malware analysis." In *The Fifth International Conference on the Applications of Digital Information and Web Technologies (ICADIWT 2014)*, pp. 81-86. IEEE, 2014.
- Asmitha, K. A., and P. Vinod. "A machine learning approach for linux malware detection." In *International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT)*, pp. 825-830. IEEE, 2014.

- Vinod, P., Vijay Laxmi, Manoj Singh Gaur, Smita Naval, and Parvez Faruki. "MCF: MultiComponent features for malware analysis." In *27th International Conference on Advanced Information Networking and Applications Workshops*, pp. 1076-1081. IEEE, 2013.
- Faruki, Parvez, Vijay Laxmi, Manoj Singh Gaur, and P. Vinod. "Mining control flow graph as api call-grams to detect portable executable malware." In *Fifth International Conference on Security of Information and Networks*, pp. 130-137. 2012.
- Faruki, Parvez, Vijay Laxmi, Manoj Singh Gaur, and P. Vinod. "Behavioural detection with API call-grams to identify malicious PE files." In *SECURIT*, pp. 85-91. 2012.
- Naval, Smita, Vijay Laxmi, Manoj Singh Gaur, and P. Vinod. "Spade: Signature-based packer detection." In *International Conference on Security of the Internet of Things*, pp. 96-101. 2012.
- Vinod, P., Vijay Laxmi, and Manoj Singh Gaur. "Reform: Relevant features for malware analysis." In *26th International Conference on Advanced Information Networking and Applications Workshops*, pp. 738-744. IEEE, 2012.
- Vinod, P., V. Laxmi, M. S. Gaur, and Grijesh Chauhan. "MOMENTUM: metamorphic malware exploration techniques using MSA signatures." In *International Conference on Innovations in Information Technology (IIT)*, pp. 232-237. IEEE, 2012.
- Vinod, P., Vijay Laxmi, and Manoj Singh Gaur. "Scattered feature space for malware analysis." In *International Conference on Advances in Computing and Communications*, pp. 562-571. Springer, Berlin, Heidelberg, 2011.
- Nair, Vinod P., Harshit Jain, Yashwant K. Golecha, Manoj Singh Gaur, and Vijay Laxmi. "Medusa: Metamorphic malware dynamic analysis using a signature from API." In *3rd International Conference on Security of Information and Networks*, pp. 263-269. 2010.
- Vinod, P., Vijay Laxmi, Manoj Singh Gaur, G. V. S. S. Kumar, and Yadvendra S. Chundawat. "Static CFG analyzer for metamorphic Malware code." In *2nd international conference on Security of information and networks*, pp. 225-228. ACM, 2009.
- Vinod, P., R. Jaipur, V. Laxmi, and M. Gaur. "Survey on malware detection methods." In *3rd Hackers' Workshop on computer and internet security (IITKHACK'09)*, pp. 74-79. 2009.

Book Chapters

- Vinod, P., Vijay Laxmi, and Manoj Singh Gaur. "Metamorphic malware analysis and detection methods." In *Cybersecurity, cybercrime and cyber forensics: Applications and perspectives*, pp. 178-202. IGI Global, 2011.
- Akkarapatty, Neethu, Anjaly Muralidharan, Nisha S. Raj, and P. Vinod. "Dimensionality reduction techniques for text mining." In *Collaborative filtering using data mining and analysis*, pp. 49-72. IGI Global, 2017.
- Vinod, P., Jikku Kuriakose, T. K. Ansari, and Sonal Ayyappan. "Optimal Features for Metamorphic Malware Detection." In *Data Mining and Analysis in the Engg. Field*, pp. 1-32. IGI Global, 2014.
- Vinod, P., P. R. Rakesh, and G. Alphy. "Similarity measure for obfuscated malware analysis." In *Information Security in Diverse Computing Environments*, pp. 180-205. IGI Global, 2014.

Editor: Book on *Vehicular Cloud Computing for Traffic Management and Systems*, ISBN13: 9781522539810, publisher:IGI GLOBAL, USA, 2018

Invited Speaker (Recent)

- Workshop on the Recent Advances in Embedded Systems for Emerging Applications on 23rd and 24th July 2020, *organized by Indian Academy of Science, Bangalore, NewDelhi, India*, **Title of Talk: “Machine Learning Approaches to detect malware on IoT devices”**
- Short Term Course on ‘Exploring Potential: STC on 2020 Research Advances Towards Generating Leading Investigators’, 24th to 28th, 2020, *organized by Dr B R Ambedkar National Institute of Technology Jalandhar, India*, **Title of Talk: “Approaches for Detecting Malicious Applications”**
- AICTE-AQIS Online Short Term Training Programme (STTP) on Mixed Methods in Social Science Research: A Statistical Package Approach, from 17th to 22nd August 2020, *organized by SCMS Cochin School of Business, Kerala, India*, **Title of Talk: “Writing Research Articles”**
- Lecture on “**Machine Learning Approaches for the Detection of Malicious code**”, organized by Hungkuang University, on May 27, 2020
- Keynote speech at Cisco SecCon APJ, October 16th 2019, *organized by Cisco, Bangalore, India*, **Title of Talk: "Is Machine Learning Secure?"**
- CLUSIT Workshop on Future Systems Security and Privacy, University of Padua, October 25th, European Cyber Security Week, 2017
- Scientific talk, Malware Detection Approaches, INTI-University Penang Malaysia 2016
- Scientific talk on Machine Learning Approach for Malware Analysis, in SecCon 2015, Bangalore

Awards

Best poster: SPADE: Signature based Packer Detection, In Symposium on Information Security (SIS 2013), BITS Pilani, Hyderabad campus, November 15-16, 2013.

Funding Received

- Faculty Development Programme on Information and Network Security Challenges, Sponsored by Kerala Technological Univ, July1-5, 2019, Grand received INR. 200,000/-
- International Conference-ATECMC, 22&23 June, 2017, Sponsored by KSCSTE, Govt. of Kerala, India, Grand received INR. 50,000/-
- Two week AICTE Sponsored Faculty Development Programme on Machine Learning Techniques from 20 May, 2013 to 1st June, 2013, Grand received INR. 692,000/-

Reviewer:

- IEEE Transaction on Information Forensics
- Computer Security
- Computer Communications
- IEEE Signal Processing Letters
- Neurocomputing
- Computer and Electrical Engg.
- IETE Journal of Research

Supervision:

Ph.D

- Anandhi V, Malware Visualization Approaches (Ongoing)
- Asha S, Adversarial Machine Learning (Ongoing)
- Susmi Jacob, Context Aware Privacy (Ongoing)
- Deepasree Varma, Social Network Analytics (Ongoing)

Masters

- Vishnu PR, *Vulnerability Classification using Deep Neural Networks* (SSET, Kerala, India, **2020**)
- Anupama ML, *Malware Detection employed by visualization and Deep Neural Networks* (Kerala, India, **2020**)
- Alessio Vitella, *Obfuscation Detection in Android Applications using Deep Learning*,(UNIPD, **2019**)
- Davide Orsini, *3D Printing Vulnerabilities*, (UNIPD, **2019**)
- Mohammadhadi Alaeiyan, *Algorithmically-generated domains*, Iran University of Science and Technology, Tehran, (Iran **2019**)
- Rahim Taheri, *Adversarial Machine Learning*, Shiraz University, Iran, (**2019**)
- Ajmala Nazreen K S, *Evading Machine Learning Based Android Malware Detector*, (Kerala Technological university, **India 2019**)
- Arya M A, *Evaluating The Robustness Of Machine Learning Based Android Malware Detector Under Poisoning Attack*, Kerala Technological university, (India, **2019**)
- Varsha MV, *Android Malware Detector*, (SSET, Kerala, India, **2017**)
- Jithu Rapheal, *Metamorphic Malware Detectors*,(SSET, Kerala, India, **2017**)
- Princy George, *Spam Filtering Techniques*, (SSET, Kerala, India, **2017**)
- Meenu Mary George, *Static Analysis for Android Malware Detection*, (SSET, Kerala, India, **2017**)
- Viswalakshmi P, *Empirical evaluation of synthesized permissions and system calls for mobile malware detection*, (MG Univ, **2015**)
- Jikku Kuriakose, *Metamorphic Malware Detection Techniques*, (SSET, Kerala, India, **2015**)
- Ashmita KA, *Linux Malware Detection Approaches*, (SSET, Kerala, India, **2015**)
- Aswini AM, *Android Malware Scanners using Static and Dynamic Approaches*, (SSET, Kerala, India, **2015**)

Bachelors (Recent)

- Anron Pinhero, *Malware Visualization*, (SSET, Kerala, India **2020**)
- Abhiram, *Obfuscation Detection on Android Malware Visualization Techniques*, (SSET, Kerala, India, **2020**)
- Ananya and Ashwathy A., *Dynamic Analysis for Android Malware Detection* (SSET, Kerala, India **2019**)
- Ijas AH, *Evaluation of Android malware scanners on Adversarial Attacks* (SSET, Kerala, India **2019**)