

CURRICULUM VITAE

Pilli Emmanuel Shubhakar

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ACADEMIC QUALIFICATION

- **Ph. D. (Computer Science)**, Indian Institute of Technology Roorkee, 2012.
- **M. Tech (Computer Science)**, Birla Institute of Technology, Ranchi, 2002.
- **B. Tech (Electronics & Communication Engineering)**, Nagarjuna University, Guntur, 1996.

WORK EXPERIENCE: 27+ Years of Teaching, Research & Administration

- Associate Professor, Department of CSE, MNIT Jaipur since May 2018
- Assistant Professor, Department of CSE, MNIT Jaipur, July 2013 to May 2018
- Professor, School of Computing, Graphic Era University, Dehradun, July 2011 to July 2013
- Senior Lecturer, Department of CSE, College of Engineering Roorkee, Aug 2006 to Dec 2007
- Associate Professor, Department of CSE, Guru Nanak Engineering College, Hyderabad, Nov 2001 to July 2006
- Assistant Professor, Department of CSE, VNR Vignana Jyoti Institute of Engineering & Technology, Hyderabad, Aug 1997 to Oct 2001

ADMINISTRATIVE EXPERIENCE:

Malaviya National Institute of Technology Jaipur

- **Associate Dean (Research)**, MNIT July 2022 to July 2024
- **Co-Coordinator**, MNIT Electronics and ICT Academy since December 2015 till May 2029
- **Regional Coordinator**, Regional Academic Center for Space (RAC-S), West Region ISRO Center, MNIT July 2021 to July 2022
- **Head**, Department of Computer Science and Engineering, MNIT June 2019 to June 2021
- **Coordinator**, Campus Wide Networking and Telephony, MNIT June 2014 to June 2020
- **Warden**, Aurobindo Hostel (900+ seater), MNIT July 2015 to October 2019

Indian Institute of Information Technology Kota

- **Co-Coordinator / Dean (Academic Affairs)**, since Jan 2023

Vishvakarma Skills University, Jaipur (formerly Rajasthan ILD Skills University)

- **Honorary Dean**, Faculty of Network & Hardware, since May 2019

Graphic Era University, Dehradun

- **Dean**, School of Computing, July 2011 – Jan 2012
- **Chairman**, Board of Studies, School of Computing, July 2011 – Jan 2012
- **Member**, Academic Council; Research and Consultancy Board; Ordinance Review Committee; Doctoral Progress Monitoring Committee; July 2011 – July 2013

BOOKS PUBLISHED:

- R. C. Joshi and **E. S. Pilli**, “Fundamentals of Network Forensics – A Research Perspective,” I Ed., London, UK: **Springer-Verlag** (Computer Comm. & Networks Series), 2016
- P. Mishra, **E. S. Pilli** & R. C. Joshi, “Cloud Security – Attacks, Techniques, Tools, and Challenges,” **Taylor and Francis** (CRC Press), 2021, ISBN 978-0-3674-3582-0

SELECT PUBLICATIONS IN INTERNATIONAL JOURNALS

1. U. Garg, P. Mishra, N. Gupta and **E. S. Pilli**, "IoT Botnets Unveiled: Architectural Analysis, Threat Vectors, and Cutting-Edge Detection Techniques," *Cluster Computing*, (Accepted)
2. A. K. Prajapati, **E. S. Pilli**, R. B. Battula, V. Varadharajan, A. Verma, and R. C. Joshi, “A Comprehensive Survey on RPL Routing-based Attacks, Defenses and Future Directions in Internet of Things,” *Computer and Electrical Engineering*, vol. 123, pp. 1-44, 2025.
3. S. Rohilla, M. Jadeja, **E. S. Pilli**, P. Vyas, and P. Gehlot, “CC-GCN: A novel Graph-based approach for Identification and Detection of Autism Spectrum Disorder,” *Multimedia Tools and Applications*, (Springer), vol. 83, pp. 1-22, 2024
4. M. Choudhary, S. Patil, S. S. Chouhan, **E. S. Pilli**, “MmDs: Multimodal Benchmark Dataset for Suspicious Profile Detection on Twitter Social Network,” *Social Network Analysis and Mining* (Springer), vol. 14, pp. 1-9, 2024
5. A. Seetha, S. S. Chouhan, **E. S. Pilli**, V. Raychoudhury, and S. Saha, “DiEvD-SF: Disruptive Event Detection using Continual Machine Learning with Selective Forgetting,” *IEEE Transaction on Computational Social Systems (IEEE)*, vol. 11, pp. 4189 – 4201, 2024
6. A. Seetha, S. S. Chouhan, **E. S. Pilli**, V. Raychoudhury, “DiEvD: Disruptive Event Detection from Dynamic Datastreams using Continual Machine Learning: A Case Study with Twitter,” *IEEE Transactions on Emerging Topics in Computing (IEEE)*, vol. 12, pp. 727 – 738, 2024
7. L. Sadineni, **E. S. Pilli** and R. B. Battula, “ProvLink-IoT: A Novel Provenance model for Link-Layer Forensics in IoT Networks,” *Forensic Science International: Digital Investigation*, vol. 46, Sept 2023, Art. no. 301600.
8. A. Sharma, **E. S. Pilli**, A. P. Mazumdar, A. Jain, “BLAST-IoT: BLockchain Assisted Scalable Trust in Internet of Things,” *Computers and Electrical Engineering*, vol. 109, July 2023, Art. no. 108752.
9. P. K. Keserwani, M. C. Govil, and **E. S. Pilli**, “An effective NIDS framework based on a comprehensive survey of feature optimization and classification techniques,” in *Neural Computing and Applications*, vol. 35, pp. 4993–5013, 2023.
10. A. Sharma, **E. S. Pilli**, and A. P. Mazumdar, “BD-Trust: Behavioral and Data Trust Management Scheme for Internet of Things,” *Journal of Ambient Intelligence and Humanized Computing*, vol. 14, pp. 16195 - 16207, 2023.
11. L. Sadineni, **E. S. Pilli** and R. B. Battula, “ProvNet-IoT: Provenance based network layer forensics in Internet of Things,” *FSI: Digital Investigation*, vol. 43, Sept. 2022, Art. no. 301441.
12. A. K. Mishra, **E. S. Pilli**, and M. C. Govil, “CONTAIN4n6: A Forensics Architecture for Container Environment,” *Journal of Cloud Computing*, vol. 11, no. 1, Aug 2022, Art. no. 28.
13. A. Choudhary, M. C. Govil, G. Singh, L. K. Awasthi, **E. S. Pilli**, “Energy-Aware Scientific Workflow Scheduling in Cloud Environment,” *Cluster Computing*, vol. 25, no. 6, pp. 3845-3874 2022.
14. P. Mishra, A. Gupta, P. Aggarwal, **E. S. Pilli**, “vServiceInspector: Introspection-Assisted Evolutionary Bag-of-ngram Approach to Detect Malware in Cloud Server,” *Adhoc Networks*, vol. 131, June 2022, Art. No. 102836.

15. S. S. Chauhan, **E. S. Pilli**, and R. C. Joshi, "BGSA: Broker Guided Service Allocation in Federated Cloud," *Sustainable Computing: Informatics and Systems*, vol. 32, pp. 1-11, 2021
16. T. Chawla, G. Singh, **E. S. Pilli**, "MuSe - A Multi-Level Storage Scheme for Big RDF Data Using MapReduce," in *Journal of Big Data*, vol. 8, no. 1, pp. 1-26, 2021.
17. M. Choudhary, S. S. Chouhan, **E. S. Pilli** and S. K. Vipparthi, "BerConvoNet: A Deep Learning Framework for Fake News Classification," *Applied Soft Computing*, vol. 110, Oct. 2021, Art. No. 107614.
18. S. S. Chauhan, **E. S. Pilli**, R. C. Joshi, G. Singh, and M. C. Govil, "BSS: A Brokering Model for Service Selection using Integrated Weighting approach in Federated Cloud," *Journal of Cloud Computing*, vol. 10, no. 1, pp. 1-14, 2021.
19. P. K. Keserwani, M. C. Govil, and **E. S. Pilli**, "A smart anomaly-based Intrusion Detection System for the Internet of Things (IoT) Network using GWO-PSO-RF Model," *Journal of Reliable Intelligent Environments*, vol. 7, no. 1, pp. 3-21, 2021
20. T. Chawla, G. Singh, **E. S. Pilli**, M. C. Govil, "Storage, Partitioning, Indexing and Retrieval in Big RDF Frameworks: A Survey," *Computer Science Review*, vol. 38, pp. 1-41, 2020
21. P. Mishra, V. Varadharajan, **E. S. Pilli**, and U. Tupakula, "VMGuard: A VMI-based Security Architecture for Intrusion Detection in Cloud Environment," *IEEE Transactions on Cloud Computing*, vol. 8, no. 3, pp. 957-971, 2020.
22. P. K. Keserwani, M. C. Govil, and **E. S. Pilli**, "An Optimal Intrusion Detection System using GWO-CSA-DSAE Model," *Cyber-Physical Systems*, vol. 2020, pp 1-24, 2020
23. A. Sharma, **E. S. Pilli**, A. P. Mazumdar, and P. Gera, "Towards Trustworthy Internet of Things: A Survey on Trust Management Applications and Schemes", *Computer Communications*, vol. 160, pp 475-493, 2020
24. M. Singh, M. C. Govil, **E. S. Pilli**, S. K. Vipparthi, "SOD-CED: Salient Object Detection for Noisy Images using Convolutional Encoder Decoder," *IET Comp. Vision*, vol. 13, no. 6, pp. 578-587, 2019.
25. S. S. Chauhan, **E. S. Pilli**, R. C. Joshi, G. Singh, M. C. Govil, "Brokering in Interconnected Cloud Computing Environments: A Survey," *Journal of Parallel and Dist. Comp*, vol. 133, pp. 193-209, 2019.
26. P. Mishra, V. Varadharajan, **E. S. Pilli**, and U. Tupakula, "Detailed Investigation and Analysis of using Machine Learning Techniques for Intrusion Detection," *IEEE Communication Surveys and Tutorials*, vol. 21, no. 1, pp. 686-728, 2019
27. A. Choudhary, M. C. Govil, G. Singh, L. K. Awasthi, **E. S. Pilli**, "Energy efficient fuzzy based approach for dynamic virtual machine consolidation," *International Journal of Grid and Utility Computing*, vol. 10, no. 4, pp. 308-325, 2019.
28. M. Singh, M. C. Govil, **E. S. Pilli**, "CHACT: Convex Hull enabled Active Contour Technique for Salient Object Detection," *IEEE Access*, vol. 6, pp. 22441-22451, 2018.
29. A. Choudhary, M. C. Govil, G. Singh, L. K. Awasthi, **E. S. Pilli**, D. Kapil, "A Critical Survey of Live Virtual Machine Migration Techniques," *Journal of Cloud Computing*, vol. 6, no. 23, pp. 1-41, 2017.
30. P. Mishra, **E. S. Pilli**, V. Varadharajan, and U. Tupakula, "VAED: VMI Assisted Evasion Detection Approach for Intrusion Detection for Cloud Environment," *Concurrency and Computation: Practice and Experience*, vol. 29, no. 12, 2017
31. P. Mishra, **E. S. Pilli**, V. Varadharajan, and U. Tupakula, "Intrusion Detection Techniques in Cloud Environment: A Survey," *Journal of Network and Computer Applications*, vol. 77, pp. 18-47, 2017
32. P. Mishra, **E. S. Pilli**, V. Varadharajan, and U. Tupakula, "PSI-NetVisor: Program semantic aware intrusion detection at network and hypervisor layer in cloud," *Journal of Intelligent & Fuzzy Systems*, vol. 32, no. 4, pp. 2909-2921, 2017.
33. **E. S. Pilli**, R. C. Joshi, and R. Niyogi, "Network forensic frameworks: Survey and research challenges," *Digital Investigation*, vol. 7, no. 1, pp. 14-27, 2010.

PUBLICATIONS IN INTERNATIONAL CONFERENCES

- 73 International Conference papers / Book chapters [Referenced in ORCID: <https://orcid.org/0000-0002-6056-1147> and Scopus: <https://www.scopus.com/authid/detail.uri?authorId=35756126100>]

PH. D THESIS AWARDED

1. Anchit Bijalwan, A Framework for Botnet Forensic Analysis, Uttarakhand Technical University, November 2016
2. Preeti Mishra, Efficient Techniques for Intrusion Detection in Cloud Environment, Malaviya National Institute of Technology, December 2017 [Co supervised by Prof. Vijay Varadharajan]
3. Maheep Singh, Salient Object Detection in both Clean and Noisy Images, Malaviya National Institute of Technology, August 2019 [Co supervised by Prof. M. C. Govil]
4. Sameer Singh, An Efficient Broker based Framework for Federated Cloud, Malaviya National Institute of Technology, 2021 [Co supervised by Prof. R. C. Joshi]
5. Pankaj Kumar Keserwani, Development of Approaches for Ad Click Fraud and Network Intrusion Detection, National Institute of Technology Sikkim, 2021 [Co supervised by Prof. M. C. Govil]
6. Anand Mishra, Design and Implementation of Forensic Framework for Cloud Computing, Malaviya National Institute of Technology, 2021 [Co supervised by Prof. M. C. Govil]
7. Avani Sharma, Efficient Trust Management Schemes for Internet of Things, Malaviya National Institute of Technology, 2021 [Co supervised by Dr. A. P. Mazumdar]
8. Tanvi Chawla, An Efficient Framework for Big RDF Data Storage and Retrieval, Malaviya National Institute of Technology, 2022 [Co supervised by Dr. Girdhari Singh]
9. Laxminarayana Sadineni, Provenance based Forensic Analysis in Internet of Things, Malaviya National Institute of Technology, 2018 [Co supervised by Dr. Ramesh B. Battula]

PH. D THESIS BEING ADJUDICATED

1. Aditi Seetha, Disruptive Event Detection using Online Social Media, Malaviya National Institute of Technology, 2022 [Co supervised by Dr. Satyendra Singh Chouhan]
2. Anubha Jain, Enhancing Privacy in Threshold Schemes for Bitcoin using Taproot, Malaviya National Institute of Technology, 2018
3. Anil Prajapati, Privacy-Aware Defense Mechanisms for RPL Routing Attacks in IoT using Federated Learning, Malaviya National Institute of Technology, 2018 [Co supervised by Dr. Ramesh B. Battula]

PH. D THESIS BEING SUPERVISED

1. Shivani Rohilla, A Learning Framework to Identify and Categorize Brain Disorders using Medical Imaging Techniques, Malaviya National Institute of Technology, 2019 [Co supervised by Dr. Mahipal Jadeja]
2. Krishna Pal Singh, A Forensic Framework for Analysis of Dark Web Activities in Tor Network, Malaviya National Institute of Technology, 2022 [Co supervised by Prof. Vijay Laxmi]
3. Ritika Sharma, Website Fingerprinting for Tor Security, Malaviya National Institute of Technology, 2023
4. Diksha Jawa, Entanglement Routing, 2025 [Co supervised by Dr. A. P. Mazumdar]

SPONSORED PROJECTS COMPLETED

1. Financial Grant of Rs. 91.39 Lakhs from IIT Jammu for the Project titled *Analyzing Vulnerabilities in Applications and Device Drivers in Linux and Windows Platforms using Symbolic Execution* for 2 years [April 2021 to February 2025] Role: Co – Principal Investigator, PI: Prof. Vijay Laxmi
2. Financial Grant of Rs. 76.71 Lakhs from IIT Jammu for the Project titled *A simulation and emulation oriented cyber testbed for training and defense in cybersecurity*, for 2 years [April 2021 to January 2025] Role: Co – Principal Investigator, PI: Dr. Smita Naval
3. Financial Grant of Rs. 21.34 Lakhs from Science and Engineering Research board (SERB), for the Project titled *Designing Hybrid Introspection enabled VMM-based Security Architecture to protect against attacks* [January 2022 to January 2025] Role: Co-PI, PI: Dr. Preeti Mishra.
4. Financial Grant of Rs. 4.60 Lakhs from Data Security Council of India for the Project titled *“ZigBSec - Enhanced Security for ZigBee Networks”* [January to February 2024] Role: PI

5. Financial Grant of Rs. 21.16 Lakhs from National Supercomputing Mission R&D projects on HPC Applications, for the Project titled ***Disruptive Event Prediction Platform based on Continual Machine Learning*** for 2 years, [March 2021 to Sept 2023] Role: Co – PI, PI: Dr. Satyendra Singh Chouhan.
6. Financial Grant of Rs. 779.00 Lakhs from Ministry of Electronics and Information Technology for the Project titled ***Electronics and ICT Academy*** for 4 years with No. 3(6) / 2012 – HRD (Vol.V) (Pt.) dated 09.11.2015 [December 2015 to March 2023] Role: Co-PI, Chief Investigator: Prof. Vineet Sahula
7. Financial Grant of Rs. 78.76 Lakhs from Ministry of Electronics and Information Technology for the Project titled ***Information Security Education Awareness II*** for 4 years [April 2016 to December 2022] Status: Completed; Role: Co-PI, PI: Prof. Vijay Laxmi
8. Financial Grant of Rs 10.13 Lakhs from TEQIP Collaborative Research Scheme for the Project “***Pattern Analysis & Knowledge Discovery in e-Learning platform using Data Mining & Big Data Framework***”, for 2 Years [June 2019 to June 2021] Status: Completed; Role: Co-PI, PI: Mr. Satish Ray
9. Financial Grant of Rs. 1.48 Lakhs from Uttarakhand Council for Science & Technology (UCOST) for the Project titled ***Investigating the Source of the Spoofed Emails*** with No. UCS&T/R&D/PHY SC.-05/12-13/6203/1 [April 2013- March 2016] Role: PI, Co PIs: Mr. Sumit Pundir and Ms. Preeti Mishra

SPONSORED PROJECTS IN PROGRESS

1. Financial Grant of Rs. 250.49 Lakhs from Telecom Technology Development Fund (TTDF) for the Project titled ***Secure Decentralized Deep Learning for Communications*** for 3 years with No. COE/TTDF/2025/171 [Dec 2024 to Dec 2027] Role: Co-PI, PI: Dr. Ramesh B Battula
2. Financial Grant of Rs. 1005 Lakhs from Ministry of Electronics and Information Technology for the Project titled ***Electronics and ICT Academy Phase II*** for 5 years with No. F. No. L-14011/1/ 2024-HRD [May 2024 to May 2029] Role: Co-PI, Chief Investigator: Prof. Vineet Sahula
3. Financial Grant of Rs. 78.76 Lakhs from Ministry of Electronics and Information Technology for the Project titled ***Information Security Education Awareness III*** for 4 years [April 2024 to March 2028] Role: Co-PI, PI: Prof. Vijay Laxmi
4. Financial Grant of Rs. 30.00 Lakhs from Technology Development Programme (TDP), Department of Science and Technology for the Project titled “***Demand Response Management platform in Smart Grid for Effective Performance***” for 3 years [Jan 2023 to Dec 2025] Role: Co – PI, PI: Dr. Namita Mittal

SOFTWARE SKILLS:

Languages	:	Pascal, C, C++, Java, Visual Basic 6.0
Operating System	:	UNIX, Linux (Fedora, Ubuntu, BSD), Windows XP / 7.
RDBMS	:	MySQL, Oracle 9i
Hypervisors	:	Xen and KVM
Cloud	:	OpenStack, Cloudstack
Big Data	:	Hadoop Multinode Environment

SERVICE TO RESEARCH COMMUNITY

Editorial Board

- Elsevier Digital Investigation (Int’l Journal of Dig. Forensic and Incident Response)

Reviewer – International Journals

- IEEE Transactions on Information Forensics and Security, IEEE Transactions on Cloud Computing, IEEE Systems Journal, IEEE Access, IEEE Communication Surveys and Tutorials, ACM Computing Surveys, Wiley Concurrency and Computation: Practice and Experience, Elsevier Computer Networks, Elsevier Adhoc Networks, Elsevier Future Generation Computer Systems, Elsevier Journal of Network and Computer Applications, etc.

PROFESSIONAL MEMBERSHIP:

1. Senior Member, Institution of Electrical Electronics Engineers (IEEE - 41240388)
2. Senior Member, Association for Computing Machinery (ACM – 8648870)
3. Life Member, Computer Society of India (CSI - 00127558)
4. Member, IFIP WG 11.9 on Digital Forensics
5. Founding Member, Cloud Computing Innovation Council of India (CCICI)
6. Member, Quantum Ecosystem and Technology Council of India (QETCI)

AWARD:

ISEA Fellowship of Rs. 15,000/- p.m. (in addition to the MHRD fellowship of 20,000/-) from the Information Security Education and Awareness Project MeitY, Govt. of India

INVITED TALKS:

Delivered Invited Talks and Guest Lectures on Cloud Computing, Cloud Security, Cloud Forensics, Big Data Analytics, BlockChain, DarkWeb at various Premier Institutes and Professional Societies: IIT Guwahati, NIT Warangal, NIT Jalandhar, MNNIT Allahabad, NIT Goa, NIT Hamirpur, NIT Kurukshetra, NIT Patna, NIT Raipur, NIT Uttarakhand, NIT Sikkim, IIITDM Jabalpur, IIITM Gwalior, IIIT Kota, IIIT Naya Raipur, NFSU Gandhinagar, NFSU Delhi, BPRD Delhi, RPA Jaipur, HCM SIPA Jaipur, DIAT Pune, FRI Dehradun, Manipal University Jaipur, Banasthali University Newai, CSA Bangalore, CCICI Bangalore

WORKSHOPS ORGANISED:

- Principal Coordinator, National level Faculty Development Programmes on Quantum Technologies (EICT Winter Online FDP in partnership with AICTE, DST-NQM and IBM) at Malaviya National Institute of Technology Jaipur and facilitated 1000+ online participants in each course:
 - ✓ *QT – 01: Quantum Technologies & Applications* Feb 28 – Mar 22, 2025
 - ✓ *QT – 02: Foundations on Quantum Technologies* Apr 11 – May 3, 2025
 - ✓ *QT – 03: Basic Quantum Programming* May 16 – June 6, 2025
- Joint Principal Coordinator of Winter Online FDP on *Blockchain Technology and Applications* under aegis of E & ICT Academy from Jan 3-8, 2022 and facilitated 850+ participants across India.
- Principal Coordinator of Autumn FDP on Quantum Computing (in partnership with Microsoft Garage) under aegis of E & ICT Academy from August 24-29, 2020 and facilitated 300+ participants.
- Coordinated 49 Remote Centers and 1800+ participants across India as Principal Coordinator of Winter FDP on Python Programming – An Industry Perspective (in partnership with IBM) under aegis of E & ICT Academy from Dec 2 - 6, 2019.
- Coordinated 20 Remote Centers and 600 participants across India as Principal Coordinator of Global Summer FDP on Network Security under aegis of E & ICT Academy from May 20 - 24, 2019.
- Coordinator, GIAN International Summer Course on “Advanced Data and Web Analytics” at Malaviya National Institute of Technology, Jaipur from December 16-20, 2017

PERSONAL DETAILS:

Father's Name	:	Late. Prof. P. A. James
Date of Birth	:	December 9, 1974
Passport No	:	G0364748
Aadhaar No	:	851252945331
Permanent Address	:	H. No 16, I Main, Nandi Durga Road, Jayamahall Extension. Bangalore 560046, Karnataka

Date: July 15, 2025

Place: Jaipur

(Pilli Emmanuel Shubhakar)