Sanoop Mallissery, Ph.D.

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Employment History

Jul/2023 – Jul/2024 **Threat Researcher (Intern),** Threat Research Department.
TXOne Networks, Taipei, Taiwan
Work Profile: Research on Software Bugs and Vulnerabilities Identification

Oct/2017 – Dec/2021 **Cyber Security Engineer (Intern),** ICL Department - F Division.
Industrial Technology Research Institute (ITRI), Taiwan
Work Profile: Projects on Systems Software Security/ Intelligent Fuzzing

Aug/2010 – Dec/2016 **Assistant Professor,** Dept. of Information and Communication Technology.
Manipal Institute of Technology (MIT), Manipal University, India
Roles and Responsibilities: Teaching, Research, and Development

Jan/2014 – Dec/2014 **Research Assistant,** Dept. of Instrumentation, IT and Systems.
ESIGELEC-IRSEEM, France
Work Handled: Cyber Physical Systems (CPS) Security - VANET/ITS

Aug/2006 – Aug/2008 **Lecturer,** Dept. of Information Technology.
Calicut University, India
Roles and Responsibilities: Teaching, Research, and Development

Education

Sep/2017 – Apr/2024 **Ph.D., Computer Science (Dependable Systems Security).**
CGPA: 4.1/4.3
Department of Computer Science
National Yang Ming Chiao Tung University (NYCU), Hsinchu, Taiwan.
Thesis title: *Securing Software Applications with Information Flow Tracking*.

Aug/2008 – Aug/2010 **M.Tech. (Masters) Cyber Security.**
CGPA: 7.51/10
TIFAC Core in Cyber Security, Amrita School of Engineering
Amrita Vishwa Vidhyapeetham University, Coimbatore, India
Thesis title: *An Efficient Alert Correlation Engine for Intrusion Detection in Network Applications*.

Jun/2002 – Jun/2006 **B.Tech. (Bachelors) Information Technology.**
CGPA: 63%
Department of Information Technology
KMCT College of Engineering, Calicut University, Kerala, India
Thesis title: *Voice-Enabled Security: Safeguarding Software Access with Microsoft Speech Recognition*.

Research Publications (Top 15 Publications)

Journal Articles [GoogleScholar] [ORCiD] [DBLP]

1. **Mallissery, Sanoop**, K.-Y. Chiang, C.-A. Bau, and Y.-S. Wu, "Pervasive micro information flow tracking," *IEEE Transactions on Dependable and Secure Computing*, vol. 20, no. 6, pp. 4957–4975, 2023. DOI: 10.1109/TDSC.2023.3238547.

2. **Mallissery, Sanoop** and Y.-S. Wu, "Demystify the fuzzing methods: A comprehensive survey," *ACM Comput. Surv.*, vol. 56, no. 3, Oct. 2023, ISSN: 0360-0300. DOI: 10.1145/3623375.

3. **Mallissery, Sanoop**, M. M. Pai, M. Mehbadi, R. M. Pai, and Y.-S. Wu, "Online and offline communication architecture for vehicular ad-hoc networks using ns3 and sumo simulators," *J. High Speed Netw.*, vol. 25, no. 3, pp. 253–271, Jan. 2019, ISSN: 0926-6801. DOI: 10.3233/JHS-190615.

4. Y. Mehta, M. M. Pai, **Mallissery, Sanoop**, and R. M. Pai, "Cloud-enabled smart health monitoring of vehicles: An its application," *Advanced Science Letters*, vol. 23, no. 4, pp. 3709–3713, Apr. 2017. DOI: 10.1166/asl.2017.9016.

5. M. B. Reddy, M. M. Pai, **Mallissery, Sanoop**, R. M. Pai, and M. Mahbadi, "Congestion free vehicular path planning system: A real-time cloud-enabled its application," *Advanced Science Letters*, vol. 23, no. 4, pp. 3674–3678, Apr. 2017. DOI: 10.1166/asl.2017.9017.

Conference Proceedings [GoogleScholar] [ORCiD] [DBLP]

1. **Mallissery, Sanoop** and Y.-S. Wu, "Enriching the semantics of information flow tracking with source-level memory allocation event logging," in *2023 IEEE Conference on Dependable and Secure Computing (DSC)*, 2023, pp. 1–10. DOI: 10.1109/DSC61021.2023.10354156.

2. Y.-H. Hung, B.-J. Jheng, H.-W. Li, W.-Y. Lai, **Mallissery, Sanoop**, and Y.-S. Wu, "Mixed-mode information flow tracking with compile-time taint semantics extraction and offline replay," in *2021 IEEE Conference on Dependable and Secure Computing (DSC)*, 2021, pp. 1–8. DOI: 10.1109/DSC49826.2021.9346239.

3. **Mallissery, Sanoop**, M.-C. Wu, C.-A. Bau, *et al.*, "Poster: Data leakage detection for health information system based on memory introspection," in *Proceedings of the 15th ACM Asia Conference on Computer and Communications Security*, ser. ASIA CCS '20, Taipei, Taiwan: Association for Computing Machinery, 2020, pp. 898–900, ISBN: 9781450367509. DOI: 10.1145/3320269.3405437.

4. **Mallissery, Sanoop**, Y.-S. Wu, C.-H. Hsieh, and C.-A. Bau, "Identification of data propagation paths for efficient dynamic information flow tracking," in *Proceedings of the 35th Annual ACM Symposium on Applied Computing*, ser. SAC '20, Brno, Czech Republic: Association for Computing Machinery, 2020, pp. 92–99, ISBN: 9781450368667. DOI: 10.1145/3341105.3373876.

5. S.-H. Chang, **Mallissery, Sanoop**, C.-H. Hsieh, and Y.-S. Wu, "Hypervisor-based sensitive data leakage detector," in *2018 IEEE International Conference on Software Quality, Reliability and Security (QRS)*, 2018, pp. 155–162. DOI: 10.1109/QRS.2018.00029.

6. M. Mahbadi, M. M. Manohara Pai, **Mallissery, Sanoop**, and R. M. Pai, "Cloud-enabled vehicular congestion estimation: An its application," in *2016 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, 2016, pp. 1–4. DOI: 10.1109/CCECE.2016.7726829.

7. Y. Mehta, M. Manohara Pai, **Mallissery, Sanoop**, and S. Singh, "Cloud enabled air quality detection, analysis and prediction - a smart city application for smart health," in *2016 3rd MEC International Conference on Big Data and Smart City (ICBDSC)*, 2016, pp. 1–7. DOI: 10.1109/ICBDSC.2016.7460380.

8. **Mallissery, Sanoop**, M. Manohara Pai, N. Ajam, R. M. Pai, and J. Mouzna, "Transport and traffic rule violation monitoring service in its: A secured vanet cloud application," in *2015 12th Annual IEEE Consumer Communications and Networking Conference (CCNC)*, 2015, pp. 213–218. DOI: 10.1109/CCNC.2015.7157979.

9. **Mallissery, Sanoop**, M. M. Manohara Pai, R. M. Pai, and A. Smitha, "Cloud enabled secure communication in vehicular ad-hoc networks," in *2014 International Conference on Connected Vehicles and Expo (ICCVE)*, 2014, pp. 596–601. DOI: 10.1109/ICCVE.2014.7297617.

10. **Mallissery, Sanoop**, M. M. M. Pai, A. Smitha, R. M. Pai, and J. Mouzna, "Improvizmg the public key infrastructure to build trust architecture for vanet by using short-time certificate management and merkle signature scheme," in *2014 Asia-Pacific Conference on Computer Aided System Engineering (APCASE)*, 2014, pp. 146–151. DOI: 10.1109/APCASE.2014.6924489.

Skills

Coding [mygit - git4san]	C/C++, Python, PHP, SQL, XML/XSL, LaTeX
Databases	MySQL, SQLite
Compilers	GCC, G++, Clang, LLVM
Data Sci. Frameworks	TensorFlow, PyTorch, Scikit-learn
Cybersecurity Tools	Wireshark, Metasploit, Nmap, Snort, Nessus, Burp Suite, Kali Linux
Virtualization Tools	QEMU, Hyper-V, Oracle VBOX, VMWare
Web Dev	HTML, CSS, JavaScript, Apache Web Server, Tomcat Web Server
Project Mgmt. Tools	Jira, Confluence, GitHub, GitLab, Slack, Keybase.io, Microsoft Teams
Net. Frameworks	gRPC, Apache Thrift, Protocol Buffers
VANET Tools	NS-3 (Network Simulator 3), SUMO (Simulation of Urban MObility)
Operating Systems	Linux (Ubuntu, Kali), macOS, Windows
Misc.	Academic research, teaching, training, consultation, LaTeX typeset and publish
Languages	Strong reading, writing and speaking competencies for English, Mandarin Chinese (Beginner), French (Beginner), Malayalam (Native Language)

Miscellaneous Experience

Awards and Achievements

2017
- **Outstanding Student** awarded by National Yang Ming Chiao Tung University (NYCU), Taiwan from Sep/2017-Apr/2024.
- **Joint Co-op Program** awarded by Industrial Technology Research Institute (ITRI) and National Yang Ming Chiao Tung University (NYCU), Taiwan from Oct/2017-Dec/2021.

2016
- **Best Paper Award** at the Internet-Informatics conference in Indonesia.
- **Best Research Poster Award** at the Manipal University Research Colloquium in India.
- **IEEE Best Paper Award** at IEEE MEC conference in Oman.
- **IEEE Best Paper Award** at IEEE APCASE conference in Indonesia.

Research Funding and Grants I was Part of

2023
- **Empowering Targeted Dynamic Information Flow Tracking with Edge Intelligence**.
  Awarded by: Foxconn Technology Group, Taipei.
  Principal Investigator: Dr. Yu-Sung Wu, Professor, Department of Computer Science, NYCU.
  My Role: Research Student.
  Amount Granted: Can't Disclose
- **Large Language Model for Code Generation**.
  Awarded by: Foxconn Technology Group, Taipei.
  Principal Investigator: Dr. Yu-Sung Wu, Professor, Department of Computer Science, NYCU.
  My Role: Research Student.
  Amount Granted: Can't Disclose

2017
- **IFT with Source-Level Memory Allocation Event Logging**.
  Awarded by: National Science and Technology Council, Taipei, Taiwan.
  Principal Investigator: Dr. Yu-Sung Wu, Professor, Department of Computer Science, NYCU.
  My Role: Research Student.
  Amount Granted: Can't Disclose

Miscellaneous Experience (continued)

- **Neural Program Training for IFT and Sentential Insight Generation**.
  Awarded by: National Science and Technology Council, Taipei, Taiwan.
  Principal Investigator: Dr. Yu-Sung Wu, Professor, Department of Computer Science, NYCU.
  My Role: Research Student.
  Amount Granted: Can't Disclose
- **Intelligent Fuzzing to Uncover Software Vulnerabilities with Increased Code Coverage**.
  Awarded by: Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan.
  Principal Investigator: Dr. Ares Cho, Director of the Infrastructure and Cybersecurity Division, ITRI, Taiwan.
  My Role: Research Scholar.
  Amount Granted: Can't Disclose

2015

- **Connected Cars Services and Apps (Development and Deployment of Predictive Analytics Vehicular Ad-hoc Network (VANET) Application on IBM Bluemix Cloud**.
  Awarded by: IBM Private Limited, Bangalore, India.
  Principal Investigator: Dr. Manohara Pai M.M., Professor, Department of I&CT, Manipal Institute of Technology (MIT), Manipal University, Manipal, India.
  My Role: Co-Investigator.
  Amount Granted: US$ 8000
- **Cloud enabled Application Development and Deployment for Drones using IBM Bluemix Cloud**.
  Awarded by: IBM Private Limited, Bangalore, India.
  Principal Investigator: Dr. Manohara Pai M.M., Professor, Department of I&CT, Manipal Institute of Technology (MIT), Manipal University, Manipal, India.
  My Role: Co-Investigator.
  Amount Granted: US$ 8000

Other Key Academic Merits

Professional Membership/Committee Member [Web of Science]

- Institute of Electrical and Electronics Engineers (IEEE).
- Association for Computing Machinery (ACM).
- IEEE Consumer Technology Society (CTSoc) - Security & Privacy of CE H/w and S/w Systems (SPC).
- International Society for Applied Computing (ISAC).

Journals/Conference Reviewer [Web of Science]

- IEEE Transactions on Information Forensics and Security (TIFS), Transactions on Reliability.
- IEEE Access, IEEE Internet of Things Journal.
- ACM Computing Surveys.
- Software Practice and Experience, Electronics Letters (Wiley), PeerJ Computer Science.
- IEEE Dependable and Secure Computing (DSC), ACM ASIA Conf. on Computer and Communications Security (ASIA CCS), IEEE Pacific Rim Int. Sym. on Dependable Computing (PRDC).

References

Available on Request

Truthfully
Sanoop Mallissery