

# SANA AURANGZEB

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## About Me

Having 09 years of teaching experience, I am currently serving as an Assistant Professor in FAST-NUCES and recently completed PhD (CS) in four years from FAST-NUCES. Published my research work as a primary author in the top Platinum journals: *Scientific Reports*, *Springer Nature* and *Scientific Data*, *Springer Nature*. Previously, I have received my Master's degree in Computer Science (MSCS) from Capital University of Science and Technology, Islamabad, Pakistan with *distinction*. My research focus is on Malware Analysis and Security Services. I am able to handle multiple tasks on daily basis and able to teach multiple courses at the same time. I am flexible in my working hours, being able to work in the evenings and weekends, thus can deliver all projects in a timely fashion. In addition, to keep in touch with latest research work and technologies, I'm providing my services as an **Academic Reviewer** at *PeerJ Computer Science Journal* (IF 3.091), *IEEE Internet of Things* (IF 9.936), *Springer International Journal of Information Security* (IF 1.988), *Springer Nature: Signal, Image and Video Processing* (IF 2.157) and others.

## Education

<b>PhD (CS)</b> in Computer Science	<b>3.83/4.0</b> CGPA	2020 - 2024	
from <i>National University of Computer and Emerging Sciences, Islamabad</i> .			
<b>MSCS</b> in Computer Science	<b>3.94/4.0</b> CGPA,	2018	<b>GOLD MEDALIST</b>
from <i>Capital University of Science and Technology, Islamabad</i> .			
<b>Masters in Computer Science (MCS)</b>	<b>3.79/4.0</b> CGPA,	2013	<b>GOLD MEDALIST</b>
from <i>The University of Lahore, Lahore</i>			
<b>BS (Hons)</b> 4 years' degree Program	<b>3.54/4.0</b> CGPA,	2011	
from <i>Lahore College for Women University, Lahore</i>			
<b>Intermediate</b> (Science Group)	1 <sup>st</sup> div	2007	
<b>Matric</b> (Science Group)	1 <sup>st</sup> div	2005	

## **Ph. D Thesis**

*“Towards a Feature-based Obfuscation Analysis for Detecting and Classifying Android Malware”*

Supervised by: **Prof. Dr. Muhammad Aleem**

In this study, we came up with the novel feature-based obfuscation analysis to identify obfuscated malware samples. Moreover, we have developed our benchmark dataset on malware images which is publicly available and published in top Scientific Data, Springer Nature Journal. In addition, we have proposed an approach to classify and detect Android sophisticated malware using transfer learning and other deep learning models.

## **MS Thesis**

*“A Machine Learning Based Hybrid Approach to Classify and Detect Windows Ransomware”*

Supervised by: **Prof. Dr. Muhammad Aleem**

In this study, we came up with the different machine learning classifiers to classify and detect Windows Ransomware from other non-ransomware in Linux environment using Python language by considering a variety of features (static and dynamic), with the combination of features such as API calls, Registry Keys and File Operations.

## **Experience**

### **Current Position:**

- Working as an **Assistant Professor** at *National University of Computer and Emerging Sciences (FAST-NUCES)* Islamabad from July 2024 to date.
- **Academic Reviewer** at *PeerJ Computer Science* (Open Access Journal)  
[peerj.com/sanaaurangzeb/](https://peerj.com/sanaaurangzeb/) [IF:3.091]
- **Academic Reviewer**, IEEE Internet of Things Journal [IF:9.936]
- **Academic Reviewer** Springer International Journal of Information Security [IF:1.988]
- **Academic Reviewer** Springer Nature: Signal, Image and Video Processing [IF:2.157]
- **Academic Reviewer** Elsevier: SoftwareX [IF:2.8681]
- **Academic Reviewer** Cluster Computing [IF:2.8681]

### **Previously:**

- Working as a **Lecturer** at *National University of Computer and Emerging Sciences (FAST-NUCES)* Islamabad from January 2024 to June 2024.
- Worked as a **Lecturer** at *National University of Science and Technology (NUML)* Islamabad from February 2020 to January 2024.

- Worked as a **Lecturer** at *Capital University of Science and Technology (CUST)*, Islamabad from 2018-2020
- Worked as a Jr. **Lecturer** at *Capital University of Science and Technology (CUST)*, Islamabad from 2017-2018
- Worked as a **Lecturer** at *University of Sargodha Lahore Campus* 2014-2015
- 6 months working as a Front end web developer in *Punjab Information Technology Board– Arfa Software Technology Park*, Lahore, 2014

### ***Publication(s) (Accepted/Under Review) Cumulative IF: 27.034***

- 1) **Sana Aurangzeb**, Muhammad Aleem, Muhammad Azhar, and Muhammad Arshad Islam *Ransomware: A Survey and Trends* 2017 in Journal of Information Assurance and Security (JIAS) **2017** [ISI Index 1554-1010, ESCI]
- 2) **Sana Aurangzeb**, Rao Naveed Bin Rais, Muhammad Aleem, Muhammad Arshad Islam, and Muhammad Azhar Iqbal, “*On the Classification of Ransomware Using Hardware Performance Counters*”, **2021** in PeerJ Computer Science7, e361 2021 [**IF: 3.091**] <http://dx.doi.org/10.7717/peerj-cs.361>
- 3) **Sana Aurangzeb**, Haris Anwar, Muhammad Asif Naeem, Muhammad Aleem, “*BigRC-EML: Big-Data based Ransomware Classification using Ensemble Machine Learning*”, in Cluster Computing, Springer, **2022** [**IF:1.809**] <http://dx.doi.org/10.1007/s10586-022-03569-4>
- 4) Rana Faisal Hayat, **Sana Aurangzeb**, Muhammad Aleem, “*ML-DDoS: A Blockchain-based Multi-level DDoS Mitigation Mechanism for IoT Environment*”, in IEEE Transactions on Engineering Management, **2022** [**IF:8.709**] [DOI:10.1109/TEM.2022.3170519](https://doi.org/10.1109/TEM.2022.3170519)
- 5) Junaid Khan, **Sana Aurangzeb**, Muhammad Aleem, Gautam Srivastava; Jerry Chun-Wei Lei, “*RThreatDroid: A Ransomware Detection Approach to Secure IoT based Healthcare Systems*”, in IEEE Transactions on Network Science and Engineering, **2022** [**IF: 5.033**] [DOI:10.1109/TNSE.2022.3188597](https://doi.org/10.1109/TNSE.2022.3188597)
- 6) Ali Mohsin, **Sana Aurangzeb**, Muhammad Aleem and Muhammad Taimoor Khan, “*On the Performance and Scalability of Simulators for Improving Security and Safety of*

*Smart Cities*”, **2022** IEEE 27th International Conference on Emerging Technologies and Factory Automation (ETFA) [DOI: 10.1109/ETFA52439.2022.9921600](https://doi.org/10.1109/ETFA52439.2022.9921600)

- 7) **Sana Aurangzeb**, Muhammad Aleem, “*A Systematic State-of-the-Art Survey and Future Research Directions for Modern Malware Detection and Analysis*”, (In Progress) **2024**
- 8) **Sana Aurangzeb**, Muhammad Aleem, “*Evaluation and Classification of Obfuscated Android Malware through Deep Learning using Ensemble Voting Mechanism\_Scientific Reports*”, Scientific Reports, Springer Journal, **2023 [IF: 4.996] Q1 Medallion: Platinum** <https://doi.org/10.1038/s41598-023-30028-w>
- 9) **Sana Aurangzeb**, Muhammad Aleem, Muhammad Taimoor Khan, George Loukas and Georgia Sakellari. “*AndroDex: Android Dex Images of Obfuscated Malware*”, Scientific Data, Springer Journal **2024 [IF: 9.8] Q1 Medallion: Platinum** <https://doi.org/10.1038/s41597-024-03027-3>
- 10) **Sana Aurangzeb**, Muhammad Aleem, Muhammad Taimoor Khan, Haris Anwar, Muhammad Arshad Islam, Muhammad Shahoor Siddique, “*CyberSecurity for Autonomous Vehicles Against Malware Attacks in Smart-Cities*”, in Cluster Computing, Springer, **2023, [IF: 2.81]** <https://doi.org/10.1007/s10586-023-04114-7>
- 11) Muhammad Yasir Masood, **Sana Aurangzeb**, Muhammad Aleem, Ameen Chilwan, Muhammad Awais Demand-side load forecasting in smart grids using machine learning techniques, PeerJ Computer Science 10, e1987 **[IF 3.091]** <https://doi.org/10.7717/peerj-cs.1987>
- 12) **Sana Aurangzeb**, Anab Batool Kazmi and Muhammad Aleem.”On the Evaluation of Obfuscated Android Applications with Image Dataset using CNN and Pre-trained Models”, *Computers and Security, Elsevier Journal* (Submitted) **2024 [IF: 5.105]**

## Conferences

- PC member - NCECT-2023 National Conference On Engineering & Computing Technologies
- PC member - NCECT-2022 National Conference On Engineering & Computing Technologies
- PC member - ICECT-2021 International Conference on Engineering & Computing Technologies

## ***Courses Taught***

- OOP (Spring 2025)
- Web Programming (Fall 2024)
- Computer Organization and Assembly Languages (Spring 2024)
- Programming Fundamentals (Spring 2019, Fall 2019, Fall 2021, Fall 2022, Sp)
- OOP (Fall 2014 and Spring 2015)
- Computer Networks (Fall 2018, Spring 2020)
- Introduction to Communication and Technologies (Fall 2021)
- Cyber Security (Spring 2023)
- Databases (Fall 2023)
- Web Programming (Spring 2020)

## ***Distinctions / Awards:***

- Gold Medalist awarded in MS by scoring highest CGPA 3.93 in CUST, 2018
- Gold Medalist awarded in MCS by scoring highest CGPA 3.79 in UOL, Lahore, 2014
- Received Chancellor Honor Roll award for earning GPA 4.00 in Spring-2017 in MS
- Received Chancellor Honor Roll award for earning GPA 4.00 in FALL-2018 in MS
- Received Dean Honor Roll award for earning GPA 3.89 in Fall-2016 in MS
- Participated in SOFTECT'14 in Software Competition, FAST Lahore 2014
- Successful Participation In Art Exhibition In BNU 2009.
- Certificate of Expert Creative Designing from AUSPAK, Lahore, 2009

## ***References***

***Muhammad Aleem (Ph.D.),***

Senior Teaching Fellow (Computer Science),

Co-director, Parallel Computing and Networks (PCN), research group,

Associate Editor, IEEE Access,

Academic Editor, PeerJ Computer Science (Open Access Journals) [peerj.com/aleem](https://peerj.com/aleem)

Coventry University, United Kingdom

E-mail: [ae4625@coventry.ac.uk](mailto:ae4625@coventry.ac.uk)

***Muhammad Asif Naeem (Ph.D.),***

Professor (Computer Science),

Founder, Data Science Research Group (DSRG) at Auckland

Co-Director, Intelligent Knowledge Mining and Analytics (IKMA) Lab at Auckland,

Associate Editor, IEEE Access,

National University of Computer & Emerging Sciences (FAST-NUCES)

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