

# Afsah Anwar

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## PROFESSIONAL EXPERIENCE

08/2021 – Current	Postdoctoral Researcher	Northeastern University	Threat Measurement
08/2017 – 07/2021	Research Assistant	University of Central Florida	Software systems security
05/2019 – 07/2019	Visiting Research Assistant	USC ISI	Vulnerability detection
01/2015 – 06/2017	Senior Systems Engineer	Infosys Limited	Data Analyst at <i>Apple Inc.</i>

## RESEARCH INTERESTS

- Malware Analysis
- Vulnerability Management
- Threat Intelligence
- Robust Machine Learning Applications in Security and Privacy

## EDUCATION

**PH.D. & M.S.**, Computer Science, University of Central Florida, Orlando, FL, USA ( 2017 – 2021)

*Advisor:* Prof. David Mohaisen

*Topic:* Understanding the Security of Emerging Systems: Analysis, Vulnerability Management, and Case Studies

**B.S.**, Electronics & Communication Engineering, Jamia Millia Islamia University, New Delhi, India (2010 – 2014)

## TECHNICAL PUBLICATIONS AND MANUSCRIPTS

1. Afsah Anwar<sup>§</sup>, Ahmed Abusnaina, Songqing Chen, Frank Li, and David Mohaisen. **“Cleaning the NVD: Comprehensive Quality Assessment, Improvements, and Analyses”**, *IEEE Transactions on Dependable and Secure Computing* (TDSC 2021)
2. Afsah Anwar<sup>§</sup>, Hisham Alasmay, Jeman Park, An Wang, Songqing Chen, and David Mohaisen. **“Statically Dissecting Internet of Things Malware: Analysis, Characterization, and Detection”**, *The 22<sup>nd</sup> International Conference on Information and Communications Security* (ICICS 2020)
3. Afsah Anwar<sup>§</sup>, Aminollah Khormali, and David Mohaisen. **“Understanding the Hidden Cost of Software Vulnerabilities: Measurements and Predictions”**, *The 14th EAI International Conference on Security and Privacy in Communication Networks*, (SecureComm 2018)
4. Afsah Anwar<sup>§</sup>, Hisham Alasmay, Ahmed Abusnaina, Abdulrahman Alabduljabbar, Mohammed Abuhamad, An Wang, DaeHun Nyang, and David Mohaisen, **“SHELLCORE: Automating Malicious IoT Software Detection by Using Shell Commands Representation”**. *IEEE Internet of Things Journal*, 2021.
5. Muhammad Saad, Afsah Anwar<sup>§</sup>, Ravi Srivatsan, and David Mohaisen. **“HashSplit: Exploiting Bitcoin Asynchrony to Violate Common Prefix and Chain Quality”**, *ACM Conference on Computer and Communications Security*, (CCS 2021)
6. Afsah Anwar<sup>§</sup>, Jinchun Choi, Hisham Alasmay, Jeffrey Spaulding, DaeHun Nyang, and David Mohaisen, **“Analyzing IoT Malware via Endpoints: A Data-Driven Approach”**. *IEEE Internet of Things Journal*, 2021.
7. Hisham Alasmay, Ahmed Abusnaina, Rhongho Jang, Mohammed Abuhamad, Afsah Anwar<sup>§</sup>, DaeHun Nyang, and David Mohaisen, **“Soteria: Detecting Adversarial Examples in Control Flow Graph-based Malware Classifiers”**, *IEEE International Conference on Distributed Computing Systems* (ICDCS 2020)

8. Ahmed Abusnaina, Amin Khormali, Hisham Alasmay, Jeman Park, Afsah Anwar<sup>§</sup>, and David Mohaisen. **“Adversarial Learning Attacks on Graph-based IoT Malware Detection Systems”**. *IEEE International Conference on Distributed Computing Systems (ICDCS 2019)*
9. Hisham Alasmay, Afsah Anwar<sup>§</sup>, Jeman Park, Jinchun Choi, Daehun Nyang, and David Mohaisen, **“Graph-based Comparison of IoT and Android Malware”**, *The 7th International Conference on Computational Data and Social Networks (CSoNet 2018)*
10. Hisham Alasmay, Aminollah Khormali, Afsah Anwar<sup>§</sup>, Jeman Park, Jinchun Choi, Ahmed Abusnaina, Amro Awad, DaeHun Nyang, and David Mohaisen, **“Analyzing and Detecting Emerging Internet of Things Malware: A Graph-based Approach”**, *IEEE Internet of Things Journal*, 2019
11. Jinchun Choi, Ahmed Abusnaina, Afsah Anwar<sup>§</sup>, An Wang, Songqing Chen, Daehun Nyang and David Mohaisen, **“Honor Among Thieves: Towards Understanding the Dynamics and Interdependencies in IoT Botnets”**, *IEEE Conference on Dependable and Secure Computing (IDSC 2019)*
12. Jinchun Choi, Mohammed Abuhamad, Ahmed Abusnaina, Afsah Anwar<sup>§</sup>, Sultan Alshamrani, Jeman Park, Daehun Nyang, and David Mohaisen, **“Understanding the Proxy Ecosystem: A Comparative Analysis of Residential and Open Proxies on the Internet”**, *IEEE Access*, 2020

Please find my complete list of publication on my *Google Scholar*.

## PUBLIC PRESENTATIONS

1. Paper presentation of *Statically Dissecting Internet of Things Malware: Analysis, Characterization, and Detection* at The 22<sup>nd</sup> International Conference on Information and Communications Security, ICICS 2020.
2. Paper presentation of *Understanding the Hidden Cost of Software Vulnerabilities: Measurements and Predictions* at 14<sup>th</sup> EAI International Conference on Security and Privacy in Communication Networks, SecureComm 2018.
3. Poster presentations at AsiaCCS 2018, USENIX Security 2019, and NDSS 2019.

## SKILLS

- Python, Java, Teradata, Hive, BigQuery, AWS Athena, Hortonworks, Big Data Analytics
- Reverse-engineering, Malware Analysis, Vulnerability Management, Open-Source Intelligence

## SERVICES

- External reviewer for NDSS 2018, INFOCOM (2018-2021), TDSC (2018, 2021), TMC (2018, 2019), PETS 2019, Computer Networks (2021, 2022), IoT Journal 2021
- Tutor: STEM Day (October, 2018) and STEM Summer Camp (June, 2018)
- Helped organize CoNEXT 2019
- Virtual Conference Task Force 2020

## REFERENCES

David Mohaisen, Professor  
Department of Computer Science  
University of Central Florida  
E-mail: mohaisen@cs.ucf.edu

Frank Li, Assistant Professor  
School of Cybersecurity and Privacy  
Georgia Institute of Technology  
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Alina Oprea, Associate Professor  
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