Abdulhakim Sabur

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"Placed in between research and technology, I am committed and enthusiastic in what I do. Driven by great challenges and learning opportunities, I look forward to combining scientific and technical knowledge with interpersonal skills."

Summary

Ph.D in Computer Engineering, Researcher, Capture the Flag & Collegiate Cyber Defense Compaction (CCDS) player, with job and internship experience in Python, Kali Linux, java, and cybersecurity. Seeking an exciting research/teaching position to help making the cyber-space safer.

Education

Arizona State University   *Tempe, Arizona*

Ph.D in Computer Engineering (Cybersecurity)   *Jan. 2019 - May. 2023*

- Research Area: Cloud Network Security, Vulnerability Analysis and Risk Assessment, Moving Target Defenses.

Arizona State University   *Tempe, Arizona*

M.S. in Computer Engineering   *Aug. 2017 - Dec. 2018*

- Thesis: Analysis and Management of Security State for Large-Scale Data Center Networks. GPA 3.71/4

King Saud University   *Riyadh, Saudi Arabia*

Bachelor's Degree in Computer Engineering   *Sept. 2010 - Jun. 2015*

- Graduated with Honor. GPA 4.66/5

Work Experience

Taibah University   *Madinah, Saudi Arabia*

Assistant Professor   *June. 2023 - Present*

- Working as an assistant professor in the department of computer engineering
- Teaching Computer Networks, Computer Network Security, and Digital Logic courses

Teaching Assistant   *Sept. 2016 - May. 2017*

- Worked as a full-time teaching assistant in the department of computer engineering
- Taught Computer Networks, Digital Logic, and Verilog HDL courses

University of Prince Mugrin   *Madinah, Saudi Arabia*

Adjunct Faculty   *Aug. 2023 - Present*

- Adjunct faculty member in the Department of Cybersecurity and Digital Forensics, College of Computer and Cyber Sciences
- Teaching Cybersecurity classes and supervising Capstone projects.

Arizona State University   *Tempe, Arizona*

Instructor and Teaching Assistant   *Aug. 2018 - May 2023*

- Instructor for CSE 548 Advanced Computer Network Security in Fall 2021,2022, Summer 2022 & Spring 2022.
- Teaching Assistant for CSE469 Computer and Network Forensics in Spring 2020.
- Teaching Assistant for CSE434 Computer Networks course in Fall 2018 & 2019
- Teaching Assistnat for CSE494 AI for Cybersecurity course in Spring 2019.

The National Center for Cybersecurity Technology, King Abdulaziz City for Science and Technology (KACST)   *Riyadh, Saudi Arabia*

CyberSecurity Researcher   *Aug. 2015 - Sept. 2016*

- Researcher developing cybersecurity projects and to assist government organizations in deploying best cybersecurity practices.
- Participated in advanced training on Cryptography, Penetration Testing, and Malware Analysis
- Organized first Capture the Flag Competition (CTF) for the first time in Saudi Arabia with 150 participants

IBM Research Triangle Park   *Raleigh, North Carolina*

Intern   *June. 2014 - Aug. 2014*

- Worked as part of a 6-members team to develop an IoT project using raspberry pi , python, C, and php.
- Helped in developing IBM wearable fitness IoT platform using php and Javascript programming languages.

Middle East Partnership initiative leadership program (MEPI)   *Lisle, Illinois*

Participant   *June. 2011 - July. 2011*

- Participated in a leadership program sponsred by U.S State Department. The topics covered were leadership skills, democracy, women's right, environment and education

Skills

Programming	Python, Java, Javascript, Django
DevOps	AWS, Docker, Bash scripting
Virtualization and OS	Linux, Windows OS, VMWare, and Virtual Box.
CyberSecurity	Application Security, Network Security, Cloud Security, Penetration Testing, Vulnerability Analysis
Soft Skills	Communication, Leadership, Critical Thinking and Problem Solving, Adherence and compliance, Collaboration.

Publications

- Wan, Yinxin, Xuanli Lin, **Abdulhakim Sabur**, Alena Chang, Kuai Xu, and Guoliang Xue. "IoT System Vulnerability Analysis and Network Hardening with Shortest Attack Trace in a Weighted Attack Graph." In Proceedings of the 8th ACM/IEEE Conference on Internet of Things Design and Implementation, pp. 315-326. 2023.

- Myneni, Sowmya[*], Kritshekhar Jha[*], **Abdulhakim Sabur**, Garima Agrawal, Yuli Deng, Ankur Chowdhary, and Dijiang Huang. "Unraveled—A semi-synthetic dataset for Advanced Persistent Threats." Computer Networks 227 (2023): 109688.

- **Abdulhakim Sabur**[*], Ankur Chowdhary[*], Neha Vadnere, and Dijiang Huang. "Intent-Driven Security Policy Management for Software-Defined Systems." IEEE Transactions on Network and Service Management 19, no. 4 (2022): 5208–23.

- **Abdulhakim Sabur**, Ankur Chowdhary, Dijiang Huang, and Adel Alshamrani. "Toward scalable graph-based security analysis for cloud networks." Computer Networks 206 (2022): 108795.

- Ankur Chowdhary, **Abdulhakim Sabur**, Dijiang Huang, James Kirby, and M. Kang. "Object Oriented Policy Conflict Checking Framework in Cloud Networks (OOPC)." IEEE Transactions on Dependable and Secure Computing (2021).

- Chowdhary, Ankur, Dijiang Huang, **Abdulhakim Sabur**, Neha Vadnere, Myong Kang, and Bruce Montrose. "SDN-based Moving Target Defense using Multi-agent Reinforcement Learning.

- Chowdhary, Ankur, Dijiang Huang, Jayasurya Sevalur Mahendran, Daniel Romo, Yuli Deng, and **Abdulhakim Sabur**. "Autonomous security analysis and penetration testing." In 2020 16th International Conference on Mobility, Sensing and Networking (MSN), pp. 508-515. IEEE, 2020.

- Myneni, Sowmya, Ankur Chowdhary, **Abdulhakim Sabur**, Sailik Sengupta, Garima Agrawal, Dijiang Huang, and Myong Kang. "DAPT 2020-constructing a benchmark dataset for advanced persistent threats." In International Workshop on Deployable Machine Learning for Security Defense, pp. 138-163. Springer, Cham, 2020.

- engupta, Sailik, Ankur Chowdhary, **Abdulhakim Sabur**, Adel Alshamrani, Dijiang Huang, and Subbarao Kambhampati. "A survey of moving target defenses for network security." IEEE Communications Surveys & Tutorials 22, no. 3 (2020): 1909-1941.

- **Abdulhakim Sabur**, Ankur Chowdhary, Dijiang Huang, Myong Kang, Anya Kim, and Alexander Velazquez. "S3: A DFW-based Scalable Security State Analysis Framework for Large-Scale Data Center Networks." In 22nd International Symposium on Research in Attacks, Intrusions and Defenses (RAID 2019), pp. 473-485. 2019.

- Chowdhary, Ankur, Sailik Sengupta, Adel Alshamrani, Dijiang Huang, and **Abdulhakim Sabur**. "Adaptive MTD security using Markov game modeling." In 2019 International Conference on Computing, Networking and Communications (ICNC), pp. 577-581. IEEE, 2019.

- Chowdhary, Ankur, Dijiang Huang, Adel Alshamrani, **Abdulhakim Sabur**, Myong Kang, Anya Kim, and Alexander Velazquez. "SDFW: sdn-based stateful distributed firewall." arXiv preprint arXiv:1811.00634 (2018)."

- Alkhulaiwi, Rakan, **Abdulhakim Sabur**, Khalid Aldughayem, and Osama Almanna. "Survey of secure anonymous peer to peer Instant Messaging protocols." In 2016 14th Annual Conference on Privacy, Security and Trust (PST), pp. 294-300. IEEE, 2016.

Related Projects

CSE 569 Fundamental of Statistical Learning

- Implemented semi-supervised learning algorithms using convolutional neural networks. We experimented with several semi-supervised learning algorithms to enhance the image classification and detection. Furthermore, Entropy calculation approach is not feasible here since the dataset has unlabeled samples. Thus, we use the entropy minimization equation to handle both the labeled and unlabeled samples.

CSE 545 Software Security

- Implemented Skeleton Banking System with my team in Fall 2017 course. The requirements were to provide a framework for a banking system with basic banking functionality and advanced security standards such as the use of HTTPS/SSL certificate, two factor authentications, checking user input, etc

CSE 548 Advanced Network Security:

- Designed and implemented network vulnerability scanner for a cloud system to provide current security state and identify the critical nodes that need to be fixed or patched by using probability risk assessment. Graphical representation of the security state analysis is presented through D3 javascript visualization library.

CSE 572 Data Mining

- Implemented an activity recognition project which involved data collection using the MYO wristband sensor. Collected data were organized into a feature matrix that was analyzed later using principle component analysis (PCA) and the extracted features were fed into a classification technique such as Decision Trees (DT), support vector machines (SVM), and neural networks (NN) in order to classify eating activity and other non-eating activity.

CSE 546 Cloud Computing

- Implemented a SaaS based project in Amazon (AWS) services, where the goal is to utilize a deep learning module to handle large number of requests to send random images and detect the objects inside those images. We also implemented a PaaS-based project using Google Cloud Platform (GCP) to design a chatting and teammate matching for super smash Mario game. Our goal is to allow players to find other players who have similar level to theirs' and join the game together.

Honors & Awards

2022	**Awardee**, Graduate And Professional Students Association (GPSA) Outstanding Research Award	*Phoenix, Arizona*
2022	**Awardee**, Graduate And Professional Students Association (GPSA) Teaching Excellence Award	*Phoenix, Arizona*
2018	**Winner**, the 5th ASU West-Campus Annual Capture the Flag Cybersecurity Competition with 150 competitors	*Phoenix, Arizona*
2017	**Scholarship Awardee**, Full scholarship to study Master's and Ph.D. degrees. Ministry of Education	*Riyadh, Saudi Arabia*
2016	**Finalist**, 1st CTF Hacking Competition, Imam Mohammad bin Saud University	*Riyadh, Saudi Arabia*

References

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