# Mahmoud Abdelsalam
*Professor of Computer Science*

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## Professional Summary

I am an Assistant Professor at the Department of Computer Science, Manhattan College. I received my Ph.D. in Computer Science from the University of Texas at San Antonio under the supervision of Prof. Ravi Sandhu and Dr. Ram Krishnan. I have also worked as a Postdoctoral Research Fellow at the UTSA Institute for Cyber Security (ICS). My research interests include Computer Systems Security, Anomaly and Malware Detection, Cloud Computing Security and Monitoring, Cyber Physical Systems and Applied Machine Learning.

## Research Interests

- Computer Systems Security
- Anomaly and Malware Detection
- Cloud Computing Security and Monitoring
- Applied Machine Learning
- Adversarial Machine Learning
- Cyber Physical Systems

## Education

**Jan 2014 – Dec 2018** **Ph.D.**, *University of Texas at San Antonio*, TX, USA.
Major: Computer Security
Dissertation: Online Malware Detection in Cloud Auto-Scaling Systems Using Performance Metrics

**Jan 2014 – May 2017** **M.Sc.**, *University of Texas at San Antonio*, TX, USA.
Major: Computer Science

**Sep 2009 – Jul 2013** **B.Sc.**, *Arab Academy for Science and Technology*, Alexandria, Egypt, *3.96*, First of class.
Major: Computer Science

## Experience

**Aug 2019 – current** **Assistant Professor**, *Manhattan College*, Riverdale, NY, USA.

**Feb 2019 – Aug 2019** **Postdoctoral Research Fellow** , *University of Texas at San Antonio*, San Antonio, TX, USA.

**Aug 2015 – Dec 2018** **Research Assistant**, *University of Texas at San Antonio*, San Antonio, TX, USA.

**Sep 2015 – May 2016** **Teaching Assistant**, *University of Texas at San Antonio*, San Antonio, TX, USA.

**Sep 2013 – Dec 2013** **Graduate Teaching Assistant**, *Arab Academy for Science and Technology*, Alexandria, Egypt.

**May 2013 – Sep 2013** **Software Engineer**, *TurboSMTP CORP*, NYC, USA (Remote).

**Mar 2013 – May 2013** **Software Engineer Trainee**, *TurboSMTP CORP*, NYC, USA (Remote).

# Courses Taught

**Courses taught at Manhattan College** (Courses syllabi are available at www.mabdelsalam.com):

- CMPT 239: Data Structures & Algorithms (Fall 2020)
- CMPT 102: Computer Science II (Fall 2020)
- CMPT 101: Computer Science I (Fall 2020)
- CMPT 341: Programming Languages (Spring 2020)
- CMPT 102: Computer Science II (Spring 2020)
- CMPT 102: Computer Science II (Fall 2019)
- CMPT 101: Computer Science I (Fall 2019)

**Courses taught at University of Texas at San Antonio (UTSA):**

- CS-5513 Computer Architecture
- CS-2123 Data Structures
- CS-1063 Intro to Comp Programming I

**Courses taught at Arab Academy for Science and Technology (AAST):**

- Object Oriented Programming with Java
- Multimedia Acquisition and Communication
- Data Structures
- Problem Solving
- Introduction to Computers
- Operating Systems

# Academic Activities

- **Program Co-chair:** 1st ACM Workshop on Secure and Trustworthy Cyber-Physical Systems (SaT-CPS 2021).
- **Program Co-chair:** Workshop on Smart Farming, Precision Agriculture, and Supply Chain (SmartFarm 2020).
- **Reviewer/Sub-reviewer for multiple conferences/journals:** IEEE International Conference on Cloud Computing (CLOUD), International Conference on Information Security (ICS), ACM Conference on Data and Application Security and Privacy (COSDASPY), Transactions on Modeling and Performance Evaluation of Computing Systems (TOMPECS).

# Talks

Jul 2019 **Online Malware Detection in Cloud Auto-Scaling Systems Using Shallow Convolutional Neural Networks**, *DBSec, Charleston, SC*.

Dec 2018 **Data-driven Online Malware Detection**, *University of Texas at San Antonio*.

Jul 2018 **Malware Detection in Cloud Infrastructures using Convolutional Neural Networks**, *IEEE CLOUD, San Francisco, CA*.

Jun 2017 **Clustering-Based IaaS Cloud Monitoring**, *IEEE CLOUD, Honolulu, Hawaii*.

Sep 2016 **Cloud Security Monitoring**, *LMI, San Antonio, TX*.

# Honors and Awards

2011 **ACM ECPC**, *Participated in the Egyptian computer programming contest in informatics*, Cairo, Egypt.

2010 **ACM ACPC**, *17th place in the Arab regional computer programming contest in informatics*, Beirut, Lebanon.

2009 **Excellence Award**, *First Class Excellence Award from the Arab Academy for Science and Technology Computer Science Department*, Alexandria, Egypt.

2007 **EOI**, *Silver Medal in the Egyptian Olympiads in informatics*, Cairo, Egypt.

2006 **EOI**, *Gold Medal in the Egyptian Olympiads in informatics*, Alexandria, Egypt.

# Research Grants

**Currently Active**

1. Artificial Intelligence Assisted Malware Analysis
   Principal Investigator: Mahmoud Abdelsalam
   Partner Institutes: Tennessee Tech University, University of North Carolina Wilmington
   Sponsor: National Science Foundation, 2020-2023

# Publications

**Journal Publications**

1. Sai Sree Laya Chukkapalli, Sudip Mittal, Maanak Gupta, Mahmoud Abdelsalam, Anupam Joshi, Ravi Sandhu and Karuna Joshi, *"Ontologies and Artificial Intelligence Systems for the Cooperative Smart Farming Ecosystem"* In IEEE Access, volume 8, pages 164045-164064, 2020

2. Maanak Gupta, Mahmoud Abdelsalam, Sajad Khorsandroo and Sudip Mittal, "Security and Privacy in Smart Farming: Challenges and Opportunities" In IEEE Access, volume 8, pages 34564-34584, 2020

**Conference Proceedings**

3. Aritran Piplai, Sudip Mittal, Mahmoud Abdelsalam, Maanak Gupta, Anupam Joshi, Tim Finin, *"Knowledge Enrichment by Fusing Representations for Malware Threat Intelligence and Behavior"* In Proceedings IEEE International Conference on Intelligence and Security Informatics (ISI), 2020.

4. Andrew McDole, Mahmoud Abdelsalam, Maanak Gupta, Sudip Mittal, *"Analyzing CNN Based Behavioural Malware Detection Techniques on Cloud IaaS"* In Proceedings of the International Conference on Cloud Computing (CLOUD), 2020.

5. Mahmoud Abdelsalam, Ram Krishnan, and Ravi Sandhu, *"Online Malware Detection in Cloud Auto-Scaling Systems Using Shallow Convolutional Neural Networks"* In Proceedings 31st Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec), Charleston, SC, July 15-17, 2019.

6. Mahmoud Abdelsalam, Ram Krishnan, Yufei Huang and Ravi Sandhu, *"Malware Detection in Cloud Infrastructures using Convolutional Neural Networks"* In Proceedings 11th IEEE International Conference on Cloud Computing (CLOUD), San Francisco, CA, USA, July 2-7, 2018, 8 pages.

7. Mahmoud Abdelsalam, Ram Krishnan and Ravi Sandhu, *"Clustering-Based IaaS Cloud Monitoring"* In Proceedings 10th IEEE International Conference on Cloud Computing (CLOUD), Honolulu, Hawaii, USA, June 25-30, 2017, 8 pages.

**Book Chapters**

8. Andrew D McDole, Maanak Gupta, Mahmoud Abdesalam, Sudip Mittal and Mamoun Alazab, *"Deep Learning Techniques for Behavioural Malware Analysis in Cloud IaaS"* In MAAIDL, Springer 2020.

**Miscellaneous and Preprints**

9. Gupta, Maanak and Mittal, Sudip and Abdelsalam, Mahmoud, *"AI assisted Malware Analysis: A Course for Next Generation Cybersecurity Workforce"*, arXiv preprint arXiv:2009.11101, 2020.

10. Maanak Gupta, Mahmoud Abdelsalam, Sudip Mittal, *"Enabling and Enforcing Social Distancing Measures using Smart City and ITS Infrastructures: A COVID-19 Use Case"*, arXiv preprint arXiv:2004.09246, 2020.

**PhD Dissertation**

11. Mahmoud Abdelsalam, *"Online Malware Detection in Cloud Auto-Scaling Systems using Performance Metrics"*, PhD dissertation, department of Computer Science, University of Texas at San Antonio. 2018.

# References

Available upon request.