





# Mohamed Moustafa Dawoud

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## EDUCATION

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### Guarini School of Graduate and Advanced Studies, Dartmouth College

Hanover, NH, USA

*Ph.D. student in Computer Science*

- \* Research Interests: Cybersecurity&Privacy, AI, Human-Computer Interaction (HCI).

### The German International University-GIU

Cairo, Egypt

*B.Sc. in Informatics and Computer Science*

*Mar 2021 – Jul 2024*

**Major: Information Security (Ranked first on my major)**

*GPA: 1.08 (Excellent with High Honors)*

- \* **Egypt's High School(Thanawya Amma):** Ranked 18<sup>th</sup> in Mathematics section among ca. 600,000+ students with score of 408/410 (99.51%).

- \* **The German International University-GIU Full Scholarship.:** Awarded to undergraduate students who have been ranked as top students amongst the country.

## RESEARCH & WORK EXPERIENCE

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### Georgia Institute of Technology(Georgia Tech)

Atlanta, Georgia (onsite)

*Research Intern*

*Oct 2023 – Feb 2024*

- \* Joined the lab of Dr. Brendan D. Saltaformaggio as a research intern.
- \* Working on a project in the intersection of Large Language Models and Security to consider it as my BSc Thesis.
- \* Examine if the LLMs can be used to help with reverse engineering of Android Malwares.
- \* Conduct an experimental and user studies of LLM's performance for the purpose of identification and information extraction tasks on a range of test programs drawn from real-world Android Malwares samples.

### University of South Florida

Remotely

*Undergraduate Research Assistant*

*Jan 2023 – July 2023*

- \* Collaborating with Dr. C. Jordan Howell as a leader of the Threat Intelligence research team at the **Sarasota Cybersecurity Research Lab**, focusing on the ransomware distribution in illicit markets on the darknet.

### University of Illinois Urbana-Champaign

Remotely

*Undergraduate Research Assistant*

*Jun 2022 – Aug 2022*

- \* Learn about the different techniques to test android applications and different fuzzing techniques.

### Security Meter

Cairo, Egypt

*Penetration Testing Intern*

*Aug 2022 – Apr 2023*

- \* Worked on real life penetration testing projects.
- \* Used advanced penetration testing techniques in different areas like web security and network security.
- \* Executed daily vulnerability assessments, threat assessment, mitigation, and reporting activities in order to safeguard information and ensure protection has been put in place on the systems.

### Information Security Research Group, The German International University-GIU

Cairo, Egypt

*Undergraduate Research Assistant*

*Aug 2022 – Nov 2022*

- \* Worked with Dr. Alia el Bolock on research projects related to Modern Cryptography and Privacy-Preserving Systems.
- \* Worked on developing an application which will use **Secure multi-party computation and Homomorphic Encryption** to build privacy-preserving Questionnaires.

### Information Security Research Group, The German University in Cairo-GUC

Cairo, Egypt

*Undergraduate Research Assistant*

*Sep 2021 – Jul 2022*

- \* Worked with Dr. Wassim Alexan on research projects related to the development of **Cryptography, network security, and steganography**.
- \* Introduced a security schema to transmit data securely over an insecure network.
- \* Co-authored 3 international IEEE conference papers with the lab.

## PUBLICATIONS

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- \* Fisher, Taylor, Zacharias Pieri, C. Jordan Howell, Roberta O'Malley, Lauren Tremblay, and **Mohamed Dawood**. "Vendor Communication Themes in Darknet Ransomware-as-a-Service (RaaS) Advertisements." *Computers in Human Behavior* (2025): 108571.
- \* Xu, Haichuan, Mingxuan Yao, Runze Zhang, **Mohamed Moustafa Dawoud**, Jeman Park, and Brendan Saltaformaggio. "DVA: Extracting Victims and Abuse Vectors from Android Accessibility Malware." In *33rd USENIX Security Symposium (USENIX Security 24)*, pp. 701-718. 2024
- \* ElBeltagy, Mohamed, Wassim Alexan, Abdelrahman Elkhamry, **Mohamed Moustafa**, and Hisham H. Hussein. "Image Encryption Through Rössler System, PRNG S-Box and Recamán's Sequence." In *2022 IEEE 12th Annual Computing and Communication Workshop and Conference (CCWC)*, pp. 0716-0722. IEEE, 2022.
- \* W. Alexan, A. Ashraf, E. Mamdough, S. Mohamed, and **M. Moustafa**, "IoMT Security: SHA3-512, AES-256, RSA and LSB Steganography," *2021 8th NAFOSTED Conference on Information and Computer Science (NICS)*, Hanoi, Vietnam, 2021, pp. 177-181, doi: 10.1109/NICS54270.2021.9701567.
- \* W. Alexan, E. Mamdough, M. ElBeltagy, A. Ashraf, **M. Moustafa**, and H. Al-Qurashi, "Social Engineering and Technical Security Fusion," *2022 International Telecommunications Conference (ITC-Egypt)*, Alexandria, Egypt, 2022, pp. 1-5, doi: 10.1109/ITC-Egypt55520.2022.9855761.

## SERVICE

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### Volunteer

*IEEE Secure Development Conference(IEEE SecDev)*

Atlanta, Georgia

Oct 2023

## ENTREPRENEURSHIP

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### Co-Founder of CoreShield

Cairo, Egypt

- Our services include web application penetration testing, network penetration testing, wireless security assessments, and more.
- Find us on LinkedIn: <https://www.linkedin.com/company/core-shield>

## AWARDS & ACHIEVEMENTS

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- **Egypt's High School(Thanawya Amma):** Ranked 18<sup>th</sup> in Mathematics section among ca. 600,000+ students with score of 408/410 (99.51%).
- **The German International University-GIU Full Scholarship.:** Awarded to undergraduate students who have been ranked as top students amongst the country.
- **Ranked 1<sup>st</sup> among my university** on [CyberTalents platform](#).
- **Ranked 2<sup>nd</sup> among my university** at ECPC-Egyptian Collegiate Programming Contest.
- Participated in capture the flag competitions (cybersecurity competitions).
- Solving cybersecurity challenges on many platforms like HTB, VulnHub, PortSwigger, and Cybertalents.

## SELECTED PROJECTS

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### DynamicCodeMonitorAndReplace-pipeline | [GitHub](#)

- This tool is developed to monitor dynamic code loading in Android apps and replace the dynamically loaded code with our injected one. The goal of this is controlling malicious android apps by vetting our own payload instead of the dynamic code they are loading to evade detection.

### sniffMe tool | [GitHub](#)

- A Python project which implements a simple 'network traffic analyzing' or 'packet sniffing' tool that can help you to keep an eye on all incoming and outgoing traffic to monitor network traffic for suspicious activity, network activity, and availability.

### Admission portal website for my university | [GitHub](#)

- Developed a web portal for my university using **Javascript**, react library, express framework, and mongoDB.

#### Database engine for internship portal | [GitHub](#)

- Designed the relational database schema using the **EERD model** and implemented it using **Transact-SQL Database Engine**, and **C#**.

#### HearthStone game replica | [GitHub](#)

- Developed a replica of the famous HearthStone game using **Java** where **object oriented programming and data structures concepts** were applied.

#### Operating-system-processesScheduler | [GitHub](#)

- Implemented the different memory management algorithms simulating the impact of paging, fragmentation, and segmentation.
- Coded the different processes scheduling algorithms (Round robin, Shortest job first, and FCFS).

### COURSES & CERTIFICATIONS & BOOKS

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- **CEH(Certified Ethical Hacker)** from **EC-Council** [↗](#)
- **Malware Analysis Fundamentals** from **Mahara-Tech** [↗](#)
- **Architecture 1001: x86-64 Assembly** from **OpenSecurityTraining2**(Currently preparing for the certification) [↗](#)
- **Reverse-Engineering Malware** from **SANS Institute**(Currently preparing for the certification) [↗](#)
- **Reverse Code Engineering** from **Mahara-Tech**(Currently preparing for the certification) [↗](#)
- **SEC560: Enterprise Penetration Testing** from **SANS Institute** [↗](#)
- **Practical Malware Analysis: The Hands-On Guide to Dissecting Malicious Software** [↗](#)
- **Social Engineering: The Science of Human Hacking** [↗](#)
- **Windows 10 System Programming** [↗](#)

### RELEVANT COURSEWORK

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**Major coursework :** Software and Mobile Devices Security, Digital Forensics, Cryptography, Network Security, Ethical Hacking and Penetration Testing, Operating Systems, Computer Architecture, Computer Networks, Distributed & Web-based System, Databases, Data Structures & Algorithms, Theory Of Computation, Technical Foundation of Computer Science, Introduction to Media Informatics, Introduction to Data Science, Calculus I-II, Linear Algebra, Stochastics, and Physics

**Minor coursework :** Software Design and Architecture, Software Construction & Testing, Software Cloud Computing, and Software Mobile Development.

### EXTRACURRICULAR ACTIVITIES

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- Mathematics and computer teacher for young students at AYB GUC.
- Coordination and Logistics member at GUCMUN. Planned the long-term financial plan for the organization.
- Public relations and marketing member at IEEE GUC. Organized several events related to the technology.
- Projects member at RFY GUC. Helped putting a long-term plan for the club future projects.
- Events member at Incubator GUC. Help the club organizing events.