Raghda Fawzey Hriez

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EDUCATION

Princess Sumaya University for Technology. **Amman, Jordan**
Doctorate in computer science (GPA=96) *2015-2021*

Princess Sumaya University for Technology. **Amman, Jordan**
Master in Information Systems Security and Digital Criminology (ISSC) (GPA=97.5) *2012-2014*

World Islamic Science and Education University. **Amman, Jordan**
Bachelor in Computer Science (GPA=97.3) *2008-2012*

King Abdullah School for excellent students **Zarqa, Jordan**
High school: Scientific Stream (Degree: 92.3) *2007-2008*

EXPERIENCE

Princess Sumaya University for Technology **Amman, Jordan**
Assistant professor *Oct 2021 till now*

Princess Sumaya University for Technology **Amman, Jordan**
PhD candidate *Oct 2015 till Oct 2021*

Princess Sumaya University for Technology **Amman, Jordan**
Teaching and research assistant *Oct 2015 till Jan 2020*

World Islamic Science and Education University **Amman, Jordan**
Lecturer *Feb 2015 till Oct 2015*

World Islamic Science and Education University **Amman, Jordan**
Teacher assistant *Sep 2012 till Feb 2015*

Princess Sumaya University for Technology **Amman, Jordan**
Teacher assistant *Oct 2013 till Jun 2014*

Specialized Technical Services (STS) **Amman, Jordan**
Java Developer *Jul 2012 till Sep 2012*

RESEARCH INTERESTS

- Graph Mining
- Algorithms
- Data Science
- Machine Learning
- Computer Science Education
- Network Forensics and Security
- Malware Analysis
- Computer Systems Security

Publications

- *Evaluating the Performance of "Derandomized-Lshade" Algorithm on CEC 2014 Benchmark Functions,* The International Conference on new Trends in Computing Sciences (ICTCS, 2017)

- *Simplified AES Algorithm for Healthcare Applications On Internet of Thing,* The 8th International Conference on Information Technology(ICIT, 2017).
- *Semantic Relation Extraction based on Syntactic Structure of Arabic Sentences,* The International Arab Conference on Information Technology (ACIT, 2017)
- *Multi-Stage Fuzzy Model for Assessing Applicants for Faculty positions in Universities,* International Journal of Intelligent Information Technologies (IJIIT, 2018)
- *Towards an Intelligent Intrusion Detection System: A Proposed Framework,* Computing Conference 2020.
- *An Effective Algorithm for Extracting Maximal Bipartite Cliques,* The 3rd International Conference on Data Science, E-learning and Information Systems 2021 (Data'2021).
- *A Framework to capture the dependency between prerequisite and advanced courses in higher education,* Special issue on Educational Data Mining, Journal of Computing in Higher Education (JCHE).
- *MR-VDENCLUE: Varying Density Clustering using MapReduce,* Intelligent Systems Conference (IntelliSys) 2022.

COURSES TAUGHT

- Object oriented programming
- Introduction to computer science
- Algorithms design and analysis
- Advance web development
- Data structure
- Computer skills
- Database systems (practical part)
- Programming fundamentals (practical part)
- Object oriented programming (practical part)
- Visual programming (practical part)
- Introduction to Web Development (practical part)

Projects under my supervision

Vol-PX:
Vol-PX is a digital forensic tool, designed to extract important artifacts from memory images, it has been built based on volatility framework and implemented in python. It aims to automate the process of memory forensic investigation and present the results in a friendly user interface.

IQRAA:
IQRAA is a mobile application that helps reader to find books in Jordanian libraries and act as a mean of communication between readers to discuss and rate books. The project consists of three parts android application, website for libraries to register, developed using JSP, and a web service developed using PHP.

Computerization of scientific journals system:
WISE university has three research journals and researchers from all countries can participate in these journals and send their research, but the current system for submitting papers is manual system, this project is a web application that will automate the process, the project has been developed using the latest web technologies such as: Ajax, JQuery, HTML5, CSS3 and JSP.

BSc Graduation Project, MSc Thesis, PhD Dissertation

BSc Graduation Project: Wise Talk

Wise Talk is a web-based application that aims to facilitate all sort of communication between the IT communities. Wise Talk user can create a personal profile, add other users as friends, and communicate with others through various means of communication such as Instant messages, chat rooms and forums. Additionally, Wise Talk provides a portal for QA among the IT community. The users can also share any notes, slides and E-books through Wise Talk Library. This project has been developed based on latest theoretical frameworks of web-based application and software engineering theories, to make it scalable, reliable, usable and secure.(supervised by Dr. Sufian Al Khawaldeh)

Master Thesis: Intelligent Intrusion Detection System

This research has been conducted as an improvement to the Intrusion Detection Systems (IDS) detection methodology; it aims to implement not only a framework for an intrusion detection system, but also to make this system behave intelligently. This has been done by training the system with previous history results, which could help in the future detecting new anomaly traffic that might be a threat. In this research, a protocol based anomaly detector has been implemented as a part of the intelligent system and applied on HTTP only as a proof of concept. Also the author suggest new dataset to be used in order to test the anomaly detector against multiple HTTP attacks, the results of the testing experiments show a high detection rate for known and unknown attacks and very low false positive rate, but in the other hand, the anomaly detector still need more improvement to be able to detect attacks that are either distributed or fragmented to a number of packets with(supervised by Prof. Jalal Atoum, and Dr. Ali Hadi)

PhD Dissertation: Devising New Algorithms for Mining Complex Patterns from Large Graph Data

Graph mining is an emerging research area that has been proved to be the most effective approach for analyzing data with interconnected relations. It is concerned with representing, modeling, analyzing, and extracting useful patterns and laws from such data. This dissertation focuses on mining an interesting pattern from graph data, namely the maximal bipartite clique. The maximal bipartite clique is defined as a complete bipartite subgraph not contained in any other bipartite clique. Maximal Bipartite Clique Enumeration plays a key role in social network analysis, especially for extracting communities of users, who have common behavior or attributes. In addition, it has been used to solve various bioinformatics problems.

In this dissertation, a new algorithm is proposed for enumerating maximal bipartite cliques. The algorithm consists of two main stages: in the first stage, the bipartite graph is converted to a general graph that satisfies few restrictions. Then, all maximal cliques are extracted in the second stage, the generated cliques are refined to remove any clique that only contains vertices from the same set. This refinement will guarantee that only bipartite cliques are reported. The correctness of the proposed algorithm is proved theoretically. Furthermore, a detailed time complexity analysis of the proposed and traditional algorithms is provided. In addition, a dataset of different real-world graphs is used to evaluate the proposed algorithm and compare it to the traditional algorithm. The experimental results show that the proposed algorithm is accurate, efficient, and more suited for real-world graphs than the traditional algorithm.

In addition, this dissertation uses the maximal bipartite clique enumeration to solve a critical problem in the education field. Most universities pay huge attention to providing recommendations after course completion via understanding students' attainment in regards to the course CLOs. In this dissertation, a new framework is proposed to generate enhancement recommendations for instructors and the management department by analyzing students' attainment in advanced and prerequisite courses' CLOs. The framework utilizes a new statistical-based approach, that is proposed to capture dependency relationships between CLOs of consecutive courses, combined with the proposed maximal bipartite clique enumeration algorithm. (supervised by Dr. Ghazi Al-Naymat)

DIGITAL SECURITY SKILLS

- Advanced knowledge of general information security concepts, system architectures and development
- Knowledge in security issues associated with operating systems, networking, and files systems.

- Expert knowledge of software development security principles, concepts, and best practices
- Understand database weaknesses and its security best practices
- Ability to write tools to automate certain security tasks
- Strong Knowledge of network and network protocols.
- Network Security Monitoring and Network Forensics.
- Able to install, configure, and use an Open Source NSM solution (Security Onion).
- Extract information from network devices such as routers, switches, firewalls, proxies, and IDSs/IPSs and other devices like DHCP and DNS servers.
- Covert tunnel analysis.
- Write basic IDS signatures.
- Collect evidence from log files.
- Hacking techniques: social engineering, reconnaissance, scanning, enumeration, exploiting Linux and Windows applications, client side attacks, web application attacks, mitm attacks.
- Static and dynamic malware analysis.
- Understand the offensive and defensive techniques of computer attacks.
- Solid knowledge in memory corruption concepts and the ability to exploit, and defend against them.
- Good Knowledge in Web App attacks such as: SQL injection, Cross-Site Scripting, and
- Web Session attacks.
- Capture and analyze network traffic.

SECURITY & NETWORK TOOLS

- Volatility
- FTK
- Autopsy
- HexEdit
- Wireshark
- Ettercap
- SPIKE
- Immunity Debugger
- Metasploit
- Burp Suite
- Network Minor
- Snort
- norpy
- Squirt
- Splunk

PROGRAMMING TOOLS & Concepts

- Programming language: Java , JSP/servlet ,JSF, Swing , J2me , JDBC , ORM (Hibernate) , Struts , Data access object (DAO), Jasper ,Quartz , PHP , HTML , CSS , JavaScript , JQuery, Ajax, MATLAP , Android, C++, Python , Working with oracle My SQL data bases.
- oncepts: OOP, MVC, ORM, Data Structures.

PLATFORMS

- Windows: Windows XP, Windows 7, Windows 8, Windows 10.
- Linux: Ubuntu , SIFT , Kali , Backtrack5 , Security Onion , OSSIM

Languages

- Arabic: Mother Tongue.
- English: Very good reading, writing, listening and speaking skills.