

# Dr. Homam Reda Kamel El-Taj



Network Security and Cryptography

Senior Lecturer (Assistant Professor)

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## JOB OBJECTIVE

To secure an offer of a place for an assistant professor with an opportunity for continuous growth.

## PERSONAL DATA

Marital status : Married (2 Children).

Nationality : Jordan.

Date and place of birth : 26/4/1979, Jinin.

## PROFILE SUMMERY

- Nine years of experience in teaching and academic administration.
- Intensive knowledge in internal and external administrative tasks.
- An effective knowledge in the field of network security (Computer Forensics).
- A well-motivated tutor with good experience in communication and comprehension.

## RESEARCH INTEREST

My interest focusses on Network Security and Cyber Security, full list will be provided upon request.

Real time Network Security

(Botnets/Worms/viruses)

Cyber Security & Information System

Intelligent Techniques in Detecting Network threats.

Advanced Networking Mechanisms and protocols.

Intrusion Detection of DOS & DDOS

Intrusion Anomaly Detection Methods

Intrusion Prevention Techniques

Intrusion Prevention Decision Making

Intrusion Prevention Threats Behavior

Network users and misuse detection.

Intrusion Detection on QR Code

Video Conferencing

Overlay Network

## EDUCATION

- PhD (Network Security and Cryptography) from National Advanced IPv6 Centre (NAv6) in UNIVERSITI SAINS MALAYSIA, Penang Malaysia, 2007 – 2011, [Ranked #142 in QS Global World Rankings 2021.](#)
- MSc (Distributed Programming) form School of Computer Science (CS) (Mini Thesis on Cryptography) in UNIVERSITI SAINS MALAYSIA, Penang Malaysia, 2004 – 2006, [Ranked #142 in QS Global World Rankings 2021.](#)
- BSc (Computer Systems & Computer Information System) from School of Computer Science in Philadelphia University, Amman Jordan, 1999-2003.
- Diploma (Safety and Health) from Safety and Health Institute, Amman Jordan, 1997 – 1998.

## SCHOLARSHIP

- National Advanced IPv6 Center of Excellence (NAv6) Fellowship 1/7/2009 until 31/12/2010.
- Computer Science School Fellowship from 1/2/2007 to 31/12/2009.

## COURSES

- Introduction to Cybersecurity course 2018.
- CCNA Routing and Switching 2017.
- Learning Distance Management 2016.
- Ethical Hacking Workshop 2010.
- Research and Scientific Writing, 2006.
- Web Development Course, (HTML, Java Script, V.B Script, ASP, SQL Server), 1/9/2002.

## PROFESSIONAL EXPERIENCE

Senior Lecturer at Global College of Engineering and Technology (GCET) 2019 - 2020.

### Responsibilities

- Teaching network security and forensics courses, and publishing researches.
- Managing CISCO Academy in GCET.
- Teaching CISCO courses.

Assistant Professor at University of Tabuk (UT), Community College, Tabuk, 2014- 2019.

### Responsibilities

- Teaching Network courses and research.
- Supervising Training Department of Network Unit.
- Supervising Learning Distance Unit.
- Supervising the laboratories and equipment Unit.
- Teaching CISCO courses.

Assistant Professor at Fahad Bin Sultan University (FBSU), Faculty of Computing, Tabuk, 2011- 2014.

### Responsibilities

- Teaching (Computer Engineering courses and Computer Science courses) and research.
- Managing training summer course in Malaysia.

Visiting Researcher at National Advanced IPv6 Center of Excellence (NAv6) During Summer Vacation of 2011, 2012 and 2013 (June till September).

### Responsibilities

- Conducting new research, supervising the Research University Cluster Grant.
- Supervising my Postgrad students (PhD & Master).

Network Analysis Team leader at iNetmon Sdn Bhd during my PhD studies in National Advanced IPv6 Center of Excellence (NAv6) and CyberSecurity sector in Malaysia, 2007 - 2011

### Responsibilities:

- Mentoring networks (IP4 & IP6).
- Worm Detection.
- Active and Passive Sniffing detection.
- Writing Technical Reports.

Senior lecturer at Wawasan Open University Penang, Branch, Malaysia 2009 – 2011.

### Responsibilities:

- Teaching Computer science courses (C++, Networks).

Computer Science Teacher and Overseer of the Computer lab at Al-Tatbeqat School Amman Jordan 2003–2004.

Responsibilities: Teaching and network administrator for the school network.

Chairperson of Safety & Health Department at Al-Entaj Co. Amman Jordan 1/6/1999 - 1/1/2003.

Responsibilities: safety seminars, writing reports and making the working environment safety.

## **EDUCATION EXPERIENCE:**

### **Subjects I teach so far:**

#### **Courses:**

- Program Design and Implementation (PDI).
- Advanced Database.
- Computer and Network Systems.
- Secure Computer Networks.
- Computing Project.
- Logic Design.
- Computer Organization and Assembly Language.
- Computer Graphics.
- Database.
- Database Management Systems.
- Software Design (Software Engineering).
- Internet & Web Design.
- Operating Systems.
- Human Computer Interaction.
- Computing Ethics.
- Multimedia.
- Programming Language 1.
- Compiler Construction.
- Special Topics, (Intrusion Systems).
- Special Topics, (Introduction of Cyber Security).
- Special Topics, (Ethical Hacking & none Ethical Hacking).
- Network Cabling.
- Network Operating Systems.
- Mail Servers.
- Network Security.
- Active Directory.
- Computer Skills.

#### **Labs:**

- PDI.
- Security lab.
- Database.
- Network Lab.
- Computer Organization and Assembly Language.
- Multimedia Lab.
- Internet & Web Design Lab.
- Network Cabling Lab.
- Network Operating Systems Lab.
- Mail Servers.
- Network Security.
- Active Directory.
- Computer Skills Lab.

### **College Responsibility Includes:**

- Supervising Training Department of Network Unit.
- Supervising the Distance Learning Unit.
- Supervising the laboratories and equipment Unit.
- Handling the outfield Training students in Malaysia.
- Responsible of editing and modifying the Courses' Descriptions & study Plan of both Departments of College of Computing (Engineering & Science).
- Member of Final Year Project Committee (Quality Assurance).
- Final Year Project Chairperson.
- Quality insurance Team member.
- Web administrator of Computer Science Department.
- Measurement and Assessment Team member.

### **University Responsibility Includes:**

- Electronic and Distance Learning Community College Supervisor.
- Department Head of the Training and Marketing Unit.
- Member of the Library Committee.
- University Student Affairs Committee.

### **Cisco Courses I conduct so far:**

- CCNA for employees and students.
- Introduction to Introduction to Cybersecurity Course for students.

- Entrepreneurship Course for students.
- Introduction to IoT for employees and students.
- Get Connected for employees and students.
- Programming Essentials in Python for students.

#### **Cisco Courses available for me to teach:**

- CCNA R&S: Introduction to Networks
- CCNA R&S 6.0 Bridging
- CCNA Discovery 1: Networking for Home and Small Business
- CCNA Exploration 1: Network Fundamentals
- Networking Essentials
- Introduction to the Internet of Everything
- Introduction to IoT
- IoT Fundamentals: Hackathon Playbook
- Entrepreneurship
- Introduction to Cybersecurity
- Cybersecurity Essentials
- Get Connected
- Be Your Own Boss
- Packet Tracer Know How 1: Packet Tracer 101
- Introduction to Packet Tracer
- Introduction to Packet Tracer - Mobile
- Mobility Fundamentals
- Community: Smart Grid Essentials
- Community: Empowerment Technologies
- Partner: NDG Linux Unhatched
- Partner: NDG Linux Essentials
- Partner: NDG Linux I
- Partner: NDG Linux II
- Partner: CPA - Programming Essentials in C++
- Partner: CLA - Programming Essentials in C
- Partner: PCAP - Programming Essentials in Python
- Partner: CPP - Advanced Programming in C++

#### **SPONSORED RESEARCH (GRANTS)**

- "Enhance the Response of IDPS systems by studying threats behavior", University Local Grant, Tabuk University, Grant 1436-0222, Principal Investigator, (Jan. 6, 2014 – Oct. 5, 2014). (Amt: 30000 SAR).
- "False Positive removal of IDS Alerts", University Short Term Grant, USM, Grant 313/PNAV/639059, Principal Investigator, (Nov. 1, 2009 – Oct. 31, 2011). (Amt: USD 11,230 @ MYR 36,700).
- "Parallel Network Alert Management to reduce False Positive of IDS Alerts", Research University Cluster Grant, Co-Researcher, 2012-2014. (Amt: 268,162 USD @ MYR 1,000,000).

#### **PROJECTS**

- Parallel Network Management System to Reduce IDS False Positive; is a standalone system work as Forensic investigation System; PhD theses and Project.
- IDS Alerts Correlation System (IDSGC); a Part of PhD Project (Java Base, MYSQL Database).
- IDS Alerts Aggregation System (IDSAG), a Part of PhD Project (Java Base, MYSQL Database).
- Message Digest Based on Elliptic Curve Concept (MDEC) Final MCs Thesis and project (C++ Base).
- Smart inventory system: a Part of BCs dissertation and project (VB and Database).
- WindowTech: Local site for a company's products, (VB script, Java Script and SQL Database).

#### **FINAL YEAR PROJECTS**

- "Secured JAVA Chat Messenger (SJCM)", is an Undergraduate student's final year project, Tabuk University.
- "JPS Worm Effect on Network", is an Undergraduate student's final year project, Tabuk University.
- "IOT System for a smart home", is an Undergraduate student's final year project, Tabuk University.
- "Public Key Cryptography by *Raspberrypi* Microprocessor", is an Undergraduate student's final year project, Tabuk University.
- "Smart Home System for Special Need People Based on Android App", is an Undergraduate student's final year project, Fahad Bin Sultan University.
- "Smart-Caesar Cipher", is an Undergraduate student's final year project, Fahad Bin Sultan University.

- "Student Information Management System by Using QR Code", is an Undergraduate student's final year project, Fahad Bin Sultan University.
- "Microcontroller Based Home Security System", is an Undergraduate student's final year project, Fahad Bin Sultan University.

## **PUBLICATION**

### **BOOKS**

Network Alert Management System for IDS False Positive Reduction  
ISBN: 978-3-8473-3698-3, December 2013.

### **JOURNALS**

- Homam El-Taj, Ruqaiya Alhadhrami, CryptoQR System based on RSA, International Journal of Computer Science and Information Security, IJCSIS ISSN 1947-5500, June 2020, Vol. 18 No. 6.
- Alnajjar, A. Y., Anbar, M., Manickam, S. & Homam El-Taj. (2016). QRphish: An Automated QR Code Phishing Detection Approach. Journal of Engineering and Applied Sciences, 11(3), 553-560. (Scopus) (Impact factor 0.70).
- Homam Reda El-Taj, (2015), "Intrusion Detection and Prevention Systems (IDPS) State of Art", International Journal of Computer Science and Information Security (IJCSIS), Vol. 13 No. 9, pp. 28-35, (Impact factor 0.438).
- Firas Najjar, Homam El-Taj, (2015), Ipv6 Change Threats Behavior, International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 6, No. 1, (pp. 63 - 68) (Impact factor 1.32).
- Homam El-Taj, (2013), Aggregating IDS Alerts Based on Time Threshold: Testing and Results, INTERNATIONAL JOURNAL OF COMPUTERS & TECHNOLOGY, Vol 11, No.2 (pp. 2216- 2225) (Impact factor 1.341).
- Homam El-Taj, Firas Najjar, Hiba Alsenawi & Mohammad Najjar (2012), Intrusion Detection and Prevention Response based on Signature-Based and Anomaly-Based: Investigation Study. International Journal of Computer Science and Information Security, Vol. 10 No. 6 JUN 2012, (pp. 50-56)
- Homam El-Taj, Hiba Alsenawi & Firas Najjar (2012), A Study to investigate the possibility of using a decision-making model with IPS. Canadian Journal on Network and Information Security, Vol. 3 No. 1, August 2012, (pp. 13-19)
- Alhamza Alalousi, Azlan Osman & Homam El-Taj (2011), A Study on Video Conferencing using Overlay Network. European Journal of Scientific Research, Vol.59 No.3 (2011), pp.284-294
- Homam El-Taj, Omar Abouabdalla, & Manasrah, A. (2010). False Positive Reduction by Correlating the Intrusion Detection System Alerts: investigation Study. Journal of Communication and Computer, 7(3), 25-31.
- Homam El-Taj, Omar Abouabdalla, Ahmed Manasrah, Mayeh, M., & Elhalabi, M. (2010). Aggregating Intrusion Detection System Alerts Based on Row Echelon Form Concept. (IJCSIS) International Journal of Computer Science and Information Security, 8(8).
- Homam El-Taj, Omar Abouabdalla, Ahmed Manasrah, Mohammed Anbar, & Al- Madi, A. (2010). False Positive Reduction using IDS Alert Correlation Method based on the Apriori Algorithm. (IJCSIS) International Journal of Computer Science and Information Security, 8(7).
- Almadi, A., Manasrah, A., Abouabdalla, O., & El-Taj, Homam. Fragmentation Investigation And Evaluation In Distributed DBMS Using JDBC and OGSA-DAI. International Journal of Computer Science and Information Security, 8(8).

### **CONFERENCE PROCEEDINGS**

- Firas Najjar, Mohammed Kadhum, Homam El-Taj, (2015). Neighbor Discovery Protocol Anomaly Detection Using Finite State Machine and Strict Anomaly Detection. Paper presented at the Fourth International Conference on Internet Applications, Protocols and Services (NETAPPS2015), Cyberjaya, Malaysia.
- Homam El-Taj, Omar Abouabdalla, Ahmed Manasrah, Ahmed Al-Madi, Muhammad Imran Sarwar, & Ramadass, S. (2010). Forthcoming Aggregating Intrusion Detection System Alerts Framework. Paper presented at the Fourth International Conference on Emerging Security Information, Systems and Technologies (SECURWARE 2010), Venice/Mestre, Italy.

- Homam El-Taj, Omar Abouabdalla, Ahmed Manasrah, & Ramadass, S. (18-20 Oct. 2009). *False positive reduction in intrusion detection system: A survey*. Paper presented at the 2nd IEEE International Conference on the Broadband Network & Multimedia Technology, 2009. IC-BNMT '09.
- Sureswaran, R., Al Bazar, H., Abouabdalla, O., Manasrah, A. M., & El-Taj, Homam. (18-20 Oct. 2009). *Active e-mail system SMTP protocol monitoring algorithm*. Paper presented at 2nd IEEE International Conference on the Broadband Network & Multimedia Technology, 2009. IC-BNMT '09.

### **WORKSHOPS**

- Homam El-Taj, Omar Abouabdalla, & Ahmed Manasrah (2010). *Correlating IDS Alerts to Reduce the False Positive Problem*. Paper presented at the NAV6 Postgraduate Workshop.
- Homam. El-Taj, Chan. Yong, (2007), *Applying Mobile Agents on Mobile Grid Computing*, Paper presented at the Computer Science Postgraduate Colloquium 2007 (CSPC'07).

### **REVIEWED PAPERS**

More than 200 articles some are listed below: (Full List will provided if required)

- ICICS 2016-2021 the 7<sup>th</sup> - 12<sup>th</sup>.
  - Limitations of Sandbox and Malware Evasion Techniques.
  - Drone Forensics: A Comparative Study of Relevant Forensic Data and Tools.
- Journal of Network and Computer Applications – Elsevier (JNCA).
  - Intrusion detection and countermeasure of virtual cloud systems - state of the art and current challenges.
  - A green routing protocol for Mobile Ad hoc networks.
- ICICS 2018 conference Track 3 Security, Privacy, and Digital Forensics.
  - Impact of Duty Cycle Protocols on Security Cost of IoT.
  - Intrusion Detection Systems: To an optimal hybrid intrusion detection system.
  - A Traffic Tracking Algorithm for a Fast Detection of Active Network Sources.
  - Rule-based Approach detecting Botnet based on DNS.
  - A Novel Framework for Collaborative Intrusion Detection for M2M Networks.
  - Dynamic Malware Analysis of Phishing Emails.
- AICCSA 2015 conference Track 12 Security, Privacy.
  - Implementation of Dendritic Cell Algorithm as an Anomaly Detection Method for Port Scanning Attack.
  - Intrusion Detection Based on Neuro-Fuzzy Classification.
- Journal of Network and Computer Applications – Elsevier (JNCA)
  - Intrusion detection and countermeasure of virtual cloud systems - state of the art and current challenges.
  - A green routing protocol for Mobile Ad hoc networks
  - Transaction-based authentication and key agreement protocol for inter-domain VoIP.
  - A simple session protocol for DSRC-based Electronic Toll Collection Systems.
  - A Mobile Software Framework Architecture for Pervasive RFID-Based Applications.
- International Journal of Cyber-Security and Digital Forensics (IJCSDF)
  - A framework for Integrating Multimodal Biometric with Digital Forensics.
  - Cyber Security Awareness in Lebanon: Exploratory Research.
  - Forensic Analysis of Facebook Messenger Application in Android Devices.
- Scientific Journals International

- Similarity of Chemotherapy Histories based on Imputed Values.
  - Exploratory Study of Performance Evaluation Models for Distributed Software System Architecture.
  - A New Algorithm for Recognition of a Ring Mesh.
  - Similarity of Chemotherapy Histories based on Imputed Values.
  - E-Brainstorming using ideation learning agent.
  - NoC Modeling in a System Level Modeling Environment: MLDesigner.
  - A Heuristic Based Approach for Dynamic-Split-and-Merge Scheme in Wireless Multicast.
- The Fourth International Conference on Cyber Security, Cyber Warfare, and Digital Forensic (CyberSec2015)
    - An Intrusion Detection System Based on NSGA-II Algorithm.
    - Physical Authentication using Random Number Generated (RNG) Keypad based on One Time Pad (OTP) Concept.
    - Context-Aware Alert Correlation for Advanced Persistent Threats Detection.
    - Similarity-based Malware Classification using Hidden Markov Model.
    - Real-time Printed Document Authentication Using Watermarked QR Code.
- ACS/IEEE International Conference on Computer Systems and Applications AICCSA 2015 (AICCSA), Conference:
    - Intrusion Detection Based on Neuro-Fuzzy Classification.
    - New Encryption Technique Using the Meaning of Location Algorithm.
    - Images Encryption Using Achterbahn-128.
    - Implementation of Dendritic Cell Algorithm as an Anomaly Detection Method for Port Scanning Attack.
- Energy, Automation, and Signal (ICEAS), Conference:
    - Performance Comparisons of ZRP and IZRP Routing Protocols for Ad Hoc Wireless Networks.
    - An overview to modern healthcare monitoring using wireless body area network.
    - Parallel Execution of Systolic Array and It's Reversible Computation.
    - A Real Time Multivariate Robust Regression Based Flood Prediction Model using Polynomial Approximation for Wireless Sensor Network Based Flood Forecasting Systems.

## **MEMBERSHIP**

More than 80 memberships, some are Listed below: (Full List will provided if required)

- Program Committee for the 11th International Conference on Information and Communication Systems (ICICS2020).
- Program Committee for the 10th International Conference on Information and Communication Systems (ICICS2019).
- Program Committee and Reviewer for Journal of Grid Computing (a part of ORCID Organization)
- Program Committee for the 3rd International Conference on New Trends in Information & Communications Technology Applications - NTICT'2018 (Springer Conference)
- Program Committee for the 9th International Conference on Information and Communication Systems ICICS2018 (Track 3: Security, Privacy, and Digital Forensics).
- Technical Program Committee for International Conference on Internet of Things, Embedded Systems and Communications (IINTEC 2017)
- Technical Program Committee for International Symposium on Applied physics & Engineering, ISAPE'2017.
- Program Committee for the International Conference on Information and Communication Systems ICICS2017.
- Technical Program Committee for IEEE International Conference on Intelligent Transportation Engineering, ICITE 2016.
- Program Committee for the 12th ACS/IEEE International Conference on Computer Systems and Applications AICCSA 2015 (PC member of Track 12: Security, Privacy).

- Technical Program Committee for Global Summit on Computer & Information Technology 2014 GSCIT' 2014.
- Technical Program Committee for IAES International Conference on Electrical Engineering, Computer Science and Informatics 2014, IAES 2014
- Technical Program Committee for Global Summit on Computer & Information Technology 2015 GSCIT' 2015.
- Technical Program Committee for IC Engineering & Computational Innovative Sciences 2015, CICN 2015.
- Technical Program Committee for International Conference on Signal Processing & Data Mining 2015, ICSPDM' 2015.
- Program Committee member for International Conference on IT Convergence and Security (ICITCS 2013).
- Technical Program Committee for Second International Symposium on Middleware and Network Applications (MNA) 2011.
- Reviewer for the Fourth International Conference on Cyber Security, Cyber Welfare, and Digital Forensic (CyberSec2015).
- Reviewer for International Journal of Cyber-Security and Digital Forensics (IJCSDF).
- Reviewer for International Journal of Ad hoc, Sensor & Ubiquitous Computing (IJASUC) Academy & Industry Research Collaboration Center Group (AIRCC) 2010.
- Reviewer for Journal of Electrical and Electronics Engineering Research (JEEER) 2010.
- Reviewer for Journal of Computer Science, Informatics & Electrical Engineering Part of Scientific Journals International (SJI) Group 2010.
- Reviewer for Journal of Network and Computer Applications (JNCA) Elsevier Group 2009.
- Member for Institute of Electronics, Information and Communication Engineers (IEICE) 2010.

#### **POST GRADUATE CO-ADVISING**

- Ahmed Al-Najjar PhD 2018 “Detecting Spam and Phishing URLs in QR Code”.
- Firas Al-Najjar PhD 2016 “Intrusion Detection and Prevention Response based on Signature-Based and Anomaly-Based”.
- Alhamza Munther, M.Sc. 2012 “Video Conferencing on Overlay Network”.
- Moein Mayeh, M.Sc. 2013, “Internet Social Study”.

#### **LANGUAGES**

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Arabic: Native.

English: Reading, Writing & Speaking (good).

Malay: Reading, Writing & Speaking (elementary).

#### **REFERENCES**

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- Dr. Omar Amer, Head Technology Consultant IPv6 Global SDN BHD  
Email : [info@ipv6global.my](mailto:info@ipv6global.my)
- Prof Dr. Azman Bin Samsudin, Post Graduate Studies Dean at USM  
Email : [azman@cs.usm.my](mailto:azman@cs.usm.my)
- Prof Dr. Sureswaran Ramadass, NAv6 Director, USM Center  
Email : [sures@nav6.usm.my](mailto:sures@nav6.usm.my)
- Dr. Malek Alrashidi, Tabuk Community College Deputy Dean  
Email : [mqalrashidi@ut.edu.sa](mailto:mqalrashidi@ut.edu.sa)
- Dr. Mohammad Mezher, Computer Science Chairman at FBSU  
Email : [mmezher@fbsu.edu.sa](mailto:mmezher@fbsu.edu.sa)