Computer Science Department Research Groups

1- Artificial Intelligence Group (AIG)

The Artificial Intelligence Group (AIG) is a research group in the Department of Computer Science and Information at the College of Science-Zulfi of Majmaah University. The group is interested in research trends in pattern recognition, data mining and image processing. Cutting edge research in various directions is being carried out in the group.

Scientific Research Priorities

1) Arabic Language Character Recognition.

2) Pattern Recognition for effective e-learning.

3) Prediction of Solar Sun and Weather Conditions

4) Medical Data and Image Analysis for better disease control and diagnosis.

5) Spatial Image Analysis & Recognition

6) Document Analysis & Recognition

7) Smart devices and machine learning.

8) Big Data Analytics

Objectives

- Use pattern recognition, data mining and image processing techniques for development of techniques for automatic recognition of arabic characters and digits.

- Use advanced data mining techniques to help in effective learning for arabic speaking students.

- Develop techniques and systems for automated medical diagnosis and analysis of medical data.

- Develop technology that employs machine learning on smart devices to achieve better services.

Group Members

- Dr. Mafawez Al-Harbi
- Dr. Yousef Qwaqzeh
- Dr. Mohamed Otoum
- Dr. Loai Melhem
- Dr. Mahdi Jammali
- Dr. Yosry Azzam

2- Fuzzy Inference Group
(FIG)

The Fuzzy Inference Group (FIG) is one of the research groups that are leading the scientific research in the Department of Computer Science and Information at the College of Science / Majmaah University.

Scientific Research Priorities

Objectives

- To publish genuine and highly classified research papers in authentic journals.
- To attract external funding from major supporters such as KACST, SABIC,…etc.
- To collaborate with national and international research groups.
- To improve the research capabilities of our students and prepare them for their graduate studies.
- To educate the local community about the research culture and interests.
- To partnership with local industry and help solving its problems.

Group Members

- Dr. Wael Khidr
  Dr. Yasir Abdallah
- Dr. Ahmed Al Mosary

3- Information Security Group
(ISG)

The Information Security Group (ISG) is a research group at the Department of Computer Science and Information, College of Science, Majmaah University. The group performs a research activity in both practical and theoretical issues in Cryptography, Network Security, Information Security and Internet Security.

Scientific Research Priorities

1) Cryptography: Hash function and authentications, Nonlinear functions and their applications in stream ciphers, Confidentiality and security protocols, Linear complexity and k-error linear complexity of binary sequences, Authentication in smart card and mobile systems.

2) Network Security: Mobile Networking, Energy Efficient Networking Security of Information and Communication Networks, Advanced Protocols for Wireless Ad-hoc Networks and Wireless Sensor Networks and Applications.

3) Internet Security: Internet Security spans a large number of disciplines, ranging from management and policy topics to operating system kernel fundamentals, these topics include Intrusion Detection, Botnet Security, Web Security and IPv6 Security.

Objectives

- Apply and develop cryptographic protocols in different applications
- Use and examine different network security protocols to secure data through network
- To model and understand the different behaviors of botnet and other Intrusions.
- To build a detection engine that is capable to identify and isolate the existence of bots or other malwares in the monitored network.
- Detecting and monitoring occurrences of natural disasters and homeland security, to military surveillance.
- Network self-organization, mobility management, adaptive route detection for unicast and multicast applications.

Group Members

- Dr. Hassan Aly
- Dr. Mohamed Wagih

4- Multimedia Security and Image Processing Research Group (MIGOR)

The Multimedia and Image Processing Research Group (MIGOR) is a research group of the Department of Computer Science at the College of Science of Majmaah University. The group focuses on exciting and innovative ideas in the domain of video and image processing. The overall objective is to develop imaging solutions for the betterment of society.

Scientific Research Priorities

(1) Activity Recognition for home and office surveillance

(2) Visual Attention Modeling and its applications

(3) Medical Image Processing

(4) Traffic Control and Monitoring

(5) Cognition and Recognition techniques

(6) Video Summarization in the form of Key frames and Video Skims

Objectives

- To develop and implement state of the art algorithms with finite outcomes.

- To provide solutions of real life problems and to implement real time applications which are ultimately beneficial for the society.

Group Members

- Dr. Hani Al Quhayz
- Dr. Khalid Nazim Sattar Abdul
- Dr. Rafiulla Habib