Graduation Project Ideas Proposed By Computer Science Division

Project Title	Development of load distribution algorithms
Proposed By	Dr Naglaa
Brief Description	Studying existing load balancing methods for distributed systems, implementing an existing balancer, and improving its performance.

Project Title	Accelerating parallel sorting algorithms.
Proposed By	Dr Naglaa
Brief Description	Studying developed parallel sorting algorithms, comparing between their speed, and employing the fastest to enhance the performance of an important application.

Project Title	Spam Detection
Proposed By	Dr Azza Taha
Brief Description	The project is a binary classification problem used to classify Arabic mails either a spam (1) or not spam (0). It is required to build a machine learning model that can identify whether an email is spam or not. Students should use some Natural Language Processing tools like: tokenization, vectorization, and statistical classification algorithms. **Skills Required** Python programming language

Project Title	Adding a security layer for web applications to be an alternative to using the Hypertext Transfer Protocol Secure (HTTPS).
Proposed By	Dr. Dieaa I. Nassr.
Brief Description	HTTPS is an extension of the Hypertext Transfer Protocol (HTTP). It is used for secure communication over a computer network and is widely used on the Internet. In HTTPS, the communication protocol is encrypted using Transport Layer Security (TLS) or, formerly, Secure Sockets Layer (SSL). The

	protocol is therefore also referred to as HTTP over TLS, or HTTP over SSL. The principal motivations for HTTPS are authentication of the accessed website, and protection of the privacy and integrity of the exchanged data while in transit. It protects against man-in-the-middle attacks, and the bidirectional encryption of communications between a client and server protects the communications against eavesdropping and tampering. In practice, this provides a reasonable assurance that one is communicating with the intended website without interference from attackers. The authentication aspect of HTTPS requires a trusted third party to sign server-side digital certificates. This was historically an expensive operation, which meant fully authenticated HTTPS connections were usually found only on secured payment transaction services and other secured corporate information systems on the World Wide Web. We are in the process of creating new software packages using the programming languages JavaScript, PHP, Python. Javascript is used to create package that performs encryption for front-end data with the public-key of the server while PHP or Python is used to create package that decrypts received data on the server-side (back-end data). The implementation of the used public-key must be efficient (fast) and secure. The students must present a statistical analysis for the running time. The software packages must be easy embedded in web applications.

Project Title	**Computer Vision and Machine Learning (1)**
Proposed By	Dr. Wael Zakaria
Brief Description	الاول: تتبع الاشخاص والتعرف عليهم من خلال face detection and recognition وذلك للاغراض الامنية والتعرف على الاشخاص الغريبة عن المكان محل الدراسة

Project Title	**Computer Vision and Machine Learning (2)**
Proposed By	Dr. Wael Zakaria
Brief Description	الثاني: مساعدة الاشخاص "الصم والبكم" الذين يستخدمون لغة الاشارة للتعبير عن مايريدون وترجمة هذه الاشارات لكلام مكتوب او صوت يسهل على الشخص السليم فهمهم والتعامل معهم

Project Title	**Usage of Wireshark software in debugging network-level problems.**
Proposed By	Dr Niveen Samy Morkos
Brief Description	

Project Title	**Algorithmic Game Theory and Artificial Intelligence**
Proposed By	Dr Niveen Samy Morkos
Brief Description	

Project Title	**Using Arduino in Fingerprint Based Exam Hall Authentication**
Proposed By	Dr Niveen Samy Morkos
Brief Description	The system is designed to pass only users verified by their fingerprint scan and block non verified users.

Project Title	**Arduino Fire Detector & Extinguisher Bot**
Proposed By	Dr Niveen Samy
Brief Description	Ability to detect fire using fire sensors and navigate its way through obstacles to extinguish it, this autonomous fire fighter robot caries water on its back to spray it on detected fires.

Project Title	**DESIGN AND DEVELOPMENT OF ACADEMIC ADVISING MANAGEMENT SYSTEM**
Proposed By	Dr. Ashraf Moustafa Bhery
Brief Description	An automatic academic advising management system is an important and time-consuming system in the university. The project aims is to design and development a computer based management system (Mobile-based application or web-based application) which help students and their academic advisors to supplement the conventional academic advising process.

Project Title	**(Smart) Plagiarism detection among a set of computer programs**
Proposed By	Dr. Ashraf Moustafa Bhery
Brief Description	Plagiarism of computer programs is quite common among the undergraduate classes where students tend to copy the source programs and modify them with little changes in the appearance. This creates a negative impact on learning process by affecting the quality of students and their credits. The purpose of this project is to study the existing plagiarism detection methods and proposed and implement a method for detecting plagiarism detection among a set of computer programs.

Project Title	**Classification using convolutional neural networks for Content based Image retrieval**
Proposed By	**Dr. Hewayda LOTFY**
Brief Description	The purpose of this project is to study and learn how to extract image features for some field such as medical or industrial images and use them for retrieval. They will have to learn convolutional neural network to classify image features.

Project Title	**Image feature extraction using the most recent efficient descriptors for some field such as medical or industrial images.**
Proposed By	**Dr. Hewayda LOTFY**
Brief Description	This project can be done with a group of 4 students depending on the number of features. They will learn how to extract image features and use them for retrieval. They will need to learn some recent type of relevance feedback.

Project Title	Integration of Mobile agents with web services for a meeting schedule for a Large-scale organization
Proposed By	Dr. Hewayda LOTFY
Brief Description	This project can be done with a group of 4 students. They will learn how to program mobile agents using an agent language and how to integrate with web services.