



Graduation Project Proposals Fall 2020

طلاب برنامج هندسة الاتصالات والحاسبات

CCE Students who are interested in the Graduation Project during the academic year 2020-2021 are requested to review the attached proposals sponsored by Goodix Egypt.

- **Project 1 title: Advanced Face recognition using data fusion**
- **Project 2 title: Advanced gesture recognition using data fusion**

صفحة	اعتماد	تاريخ نشر الإعلان			إعلان رقم							
		سنة	شهر	يوم	C	C	E	0	2			
١	منسق برنامج CCE	٢	٠	٠	٩	٠	٨	C	C	E	0	2



For CCE students

The following Graduation Projects for academic year 2020-2021 are sponsored by Goodix Egypt.

- Supervisors: Dr.Omar Ahmed Nasr (EECE dept) - Dr.Amr Wassal (Computer dept)
- Max number of students in a group: 5 students

About the company

GOODIX Technology INC.

Company Location: Sheraton Heliopolis, Cairo, Egypt

Goodix Egypt located in Cairo, Egypt is a newly incorporated subsidiary of China's Shenzhen Goodix Technology Co., Ltd. with a mandate to grow a highly talented team of engineers to develop state-of-the-art and industry-leading semiconductor system solutions including both software and hardware for smart devices, IoT applications, and automotive electronics.

Goodix Technology (SH: 603160) is an integrated solution provider serving hundreds of millions of global consumers with quality products and solutions via renowned brands including Huawei, OPPO, vivo, Xiaomi, OnePlus, Google, Amazon, Samsung, Nokia, Dell, HP, LG, ASUS, etc., and is recognized as the largest biometric authentication solution provider for Android devices in the global market. Standing among the global semiconductor industrial revolution with a solid foundation built upon the achievements and successes in human-interface and biometric authentication, Goodix will continue its dedication in research and development, striving to establish the comprehensive IC design blueprint for smart devices, IoT applications, and automotive electronics, aiming to become a world-leading comprehensive IC design company and innovative technology team that delivers continuous surprises to global customers and consumers, offers long-term and

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differentiating values to the industry and the society, and provides excellent career development opportunities for Goodix's global talents.

Project 1 title: Advanced Face recognition using data fusion

Project description:

In today's smart phones' market, reliable face unlock is an attractive phone feature. Apple Face ID was the most secure Face unlock in the market. Google is also introducing a secure face unlock in its Pixel 4 phone. The main idea of both techniques is to build a 3D map of the face by projecting an infrared dot matrix on the face, and reading it using IR cameras to build a 3D map of the face. Building a 3D map of the face is important to avoid fooling the camera using a printed image for the face

In this project, the objective is to develop a fast and accurate face unlock using the front camera and another sensor that is currently being developed by Goodix. The project involves algorithm development and implementation. The project will involve Signal Processing, Deep Learning, data fusion, embedded C code development, building an Android App for the final demo.

Project 2 title: Advanced gesture recognition using data fusion

Project description:

In Human Machine Interface (HMI), gesture recognition is gaining more interest in different fields. For example, while driving a car, it is better to interact with the phone with remote gestures, instead of touch screen, for safety reasons. For example, it is better to swipe left or right on the air to go to the next song instead of shifting focus to the screen to touch.

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In this project, we will develop advanced gesture recognition techniques using the phone camera and a sensor that is currently been developed by Goodix. The final objective is to be able to recognize a complex set of Gestures and build few demos using the recognized gestures. The project will involve Signal Processing, Deep Learning, data fusion, embedded C code development, building an Andriod App.

Important note: the final outcomes of the project will be owned by Goodix. An NDA will be signed before starting the work in the project. Good team members will have better visibility in any future recruitment process.

To apply:

Send the following to onasr@goodix.com by September 14th, 2020:

- 1- The CVs of the team member in pdf format
- 2- A one page document that has a table that summarizes the qualifications of every member in the team. This can include the grades, previous courses, any achievements related to the project.
- 3- A one page document including why the team is a suitable fit for the project, and if they have some initial ideas related to the project.

The title of the email should be (Advanced Face recognition using data fusion), or (Advanced gesture recognition using data fusion).

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٤	منسق برنامج CCE	٢	٠	٠	٩	٠	٨	C	C	E	0	2