February 11th, 2022

Medical Engineering Development & Innovation Center

Title

"Development of an optical cardiac sensor and research in strategies for its miniaturization"

Profile of the candidate

Last year student of:
Ingeniería Informática/Telecomunicaciones.
Doble grado de Ingeniería Informática y Matemáticas.
Máster en Ingeniería de Telecomunicaciones.
Máster en Ingeniería Informática.

Background and project description

Medical sensors give insight into the dynamics of the physiology of individuals. They provide information as the body evolves and they can be integrated into wearable formats (clothes, rings...). By extracting physiological information in a continuous fashion wearable sensors will change the reactive medicine paradigm to a more efficient and pro-active personalized healthcare. Such sensors will play a cardinal role in the fight against cardio-vascular diseases, which are the leading cause of death in the developed countries.

In the sensors division of the Medical Engineering Development & Innovation Center (https://www.medicuam.com/sensors-group/) we are developing novel wearable devices oriented to measure cardiac signals with high stability and robustness. We are seeking for a very talented engineering student to develop a proof of concept of this new sensor which is based on the photoplethysmography paradigm. The student will develop a standard optical sensor and will study different strategies for its miniaturization and enhancement of its robustness.

The Medical Engineering Development & Innovation Center (MEDICUAM, https://www.medicuam.com) is devoted to the development of medical technologies to solve unmet clinical needs and transfer them to the industry. Our members have played important roles in the creation of several start-up companies (Plenotika https://plenoptika.com/and 2eyes vision https://www.2eyesvision.com/es/) and have developed relevant novel clinical optoacoustic imaging systems which have caught the attention of major scientific journals (https://www.medicuam.com/sensors-group/).

Department

Departamento de Tecnología Electrónica y de las Comunicaciones.
Escuela Politécnica Superior.
MEDIC.
Universidad Autónoma de Madrid.

Requisites

Basic signal processing knowledge.
Basic electronic circuits and elements (specifically amplifiers).
Ability to program in Matlab.
Fluency in English and Spanish is mandatory.
Knowledge of the physics of light propagation in turbid media is a plus.

We offer

Excellent work environment at the forefront of medical technology development.
Career development plan.

Contact

Email your CV and a brief introduction to juan.aguirre@uam.es