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## **FACULTY MENTOR**

Edward Wang

## **PROJECT TITLE**

Smartphone-Based Medical Monitoring and Interventions

## **PROJECT DESCRIPTION**

The ubiquity of smartphones has imbued our society with a new infrastructure of sensors and computational resources. This new infrastructure presents an opportunity to reimagine the way we build an ecosystem of medical devices. In this project, the DigiHealth Lab of UCSD ECE is developing a suite of noninvasive health monitoring solutions to enable average smartphones in everyone's pocket to measure vitals (i.e., blood pressure, hemoglobin, oxygen, arterial stiffness, voice analysis) and provide intervention for a variety of health domains (i.e., autism spectrum disorder, breastfeeding, Alzheimer's Disease, cardiovascular disease, sleep). Involvement in this project will revolve around the development of a custom smartphone application, resolving sensor signals with signal processing and sense-making through machine learning and deep learning.

This project will be in person.

## **INTERNS NEEDED**

3 Students

## **PREREQUISITES**

- App Development (Android and/or iOS)
- Signal Processing
- Deep Learning



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## **FACULTY MENTOR**

Edward Wang

## **PROJECT TITLE**

Wearable and Ambient Computing for Noninvasive Digital Health Monitoring

## **PROJECT DESCRIPTION**

The emergence of personal computing has begun to penetrate our day-to-day lives beyond traditional computing systems. We now live in a world where we wear them, talk to them, sleep with them, and are surrounded by them. Wearable and ambient devices hold the potential to measure a wide range of physiological and environmental information that can more accurately and deeply understand a person's health. Continuous blood pressure, cognitive function, stress, environmental exposure, sleep condition, and much more are becoming possible with this new class of systems. Involvement in this project will involve the development of a sensor platform, embedded firmware, mechanical prototyping, circuit design, and fabrication.

This project will be in person.

## **INTERNS NEEDED**

3 Student

## **PREREQUISITES**

- Experience