UNIVERSITY of WASHINGTON | BOTHELL

ELECTRICAL ENGINEERING PROGRAM

2018 NSF Research Experiences for Undergraduates (REU): Next-Generation Health Monitoring Systems with Flexible Electronics, Novel Algorithms and Secure Communications.

June 17 – August 24, 2018

This Summer Research Experience for Undergraduate (REU) site, funded by NSF Division of EEC, focuses on advancing technologies for the development of reliable, low cost and comfortable health monitoring devices having features such as delivering real-time data over the internet for remote care and cloud processing.

Project Objectives

- Develop research skills by conducting interdisciplinary, collaborative, cutting-edge and accessible research.
- Enhance communication skills by disseminating research results through oral and poster presentations.
- Study advanced material in device fabrication, signal processing and data security.

Research Topics

- Fabrication of flexible microelectrode array (MEA) patches for bio-potential recording.
- Miniaturization of recording and communication circuits on flexible substrate.
- Extraction of fetal ECG (fECG) from maternal ECG (mECG)
- Secure Internet of Things (IoT) connected Health care.
- Machine learning-based anomaly detection.

Activities

- Research work in device fabrications, signal processing or data security.
- Workshops on Professional development.
- Short courses on MATLAB for Signal Processing and Introduction to Cloud-based Visualization.
- Preparation of posters, papers and presentations.
- Seminar on graduate school preparation.

Eligibility

- U.S. citizens and permanent residents
- Electrical Engineering, Computer Engineering, Computer Science or related disciplines with 3.00 or higher GPA.
- Sophomore, Junior or Senior with background courses in electronics, signals and systems, and programming.

Application Process

- Include the following documents in a single pdf file.
  - ✓ Application form obtained online.
  - ✓ Transcripts.
  - ✓ Two recommendation letters.
  - ✓ Personal Statement.
  - ✓ Resume
- Send the pdf file by email to eeREU@uw.edu
- For more Information, visit www.uwb.edu/ee/reu
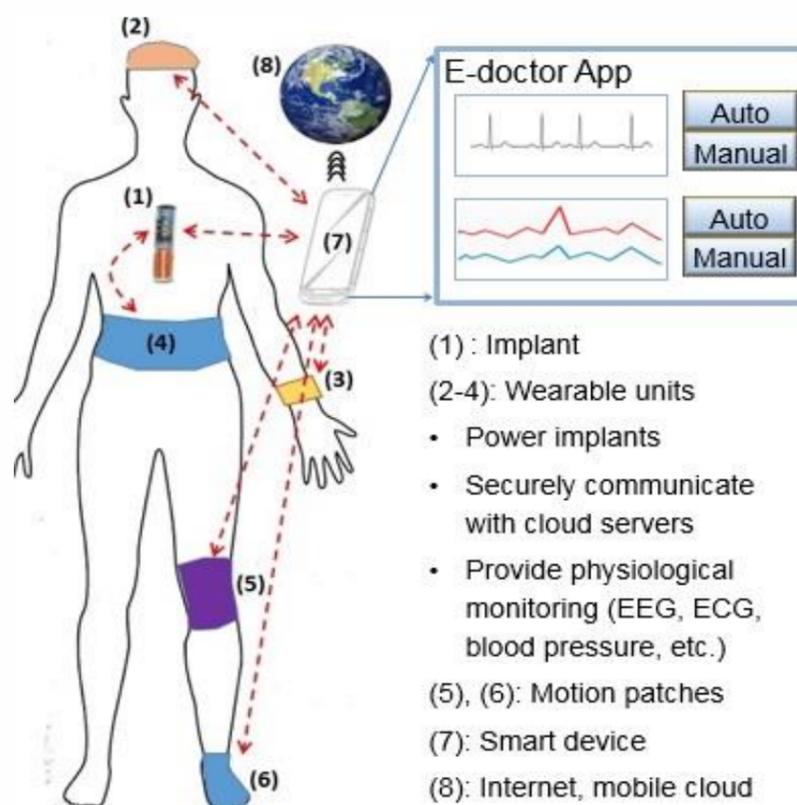
Application Deadline

April 20, 2018.

Contact

Tadesse Ghirmai   Hung Cao
tadg@uw.edu   hungcao@uw.edu

University of Washington Bothell
18115 Campus Way NE
Bothell, WA 98011
Phone #: (425) 352-3873

(1) : Implant
(2-4): Wearable units
- Power implants
- Securely communicate with cloud servers
- Provide physiological monitoring (EEG, ECG, blood pressure, etc.)
(5), (6): Motion patches
(7): Smart device
(8): Internet, mobile cloud

Award Information

- $5,000 stipend for 10 weeks.
- On-campus housing.
- Travel expense up to $500.

Award Announcement

May 5, 2018.