Position Description:

Positions available for post-doctoral researchers/graduate students/visiting scholars with an ultrasound background.

Summary:

We are seeking talented, highly motivated individuals to join Professor Sheng Xu's research group in the Department of NanoEngineering at the University of California, San Diego. The Xu research group aims to build soft/wearable electronic devices through finely designed structures with hard materials. Recent works have been published on high-profile journals including *Science Advances*, *Nature Electronics* and *Nature Biomedical Engineering*. One of the most representative directions following our mission is using soft ultrasonic devices for non-invasive monitoring of physiological activities well below the skin. The research group has a wide range of interests including wearable ultrasound for both diagnosis and therapy.

To meet the emerging intensive health-care requirements resulting from the aged tendency of the population, body-integrated electronic devices capturing clinical-quality biological data with long-term monitoring capabilities are serving as powerful tools for preventative measures, diagnosis and prognosis. Current wearable electronic systems designed for this purpose mainly focuses on parameters on the skin. Taking the advantages of the high penetration depth and biocompatibility of ultrasound, the wearable ultrasound team in Xu research group is dedicated to developing devices capturing biological signals deeply embedded beneath the skin. As a proof of concept, the team has demonstrated a conformal ultrasonic device for central blood pressure waveform monitoring featured as the front cover paper in *Nature Biomedical Engineering*. Potential new members (post-doctoral researchers/graduate students/visiting scholars) with related backgrounds are welcomed to join the group and explore promising opportunities of these futuristic wearable devices.

Please do not hesitate to contact the group if you have any one of the following experiences:

- **Biomedical ultrasound**
- **Materials/Fabrication technologies of ultrasonic transducers**
- **Hardware for ultrasound systems**
- **Signal/image processing for ultrasound**

Principal Responsibilities:

- Work with the wearable ultrasound team and collaborators to develop new devices and associated biomedical applications/integrated circuits/signal processing technologies;
- Provide technical support and professional consulting to other members of the group;
- Crystallize and disseminate the progress/perspectives through publications;

• Present scientific and technical data to both internal and external scientific colleagues in a clear and cohesive manner.

Preferred Qualifications:

- **Biomedical ultrasound**
    1. Background in Biomedical Engineering, Acoustic Engineering, Electronics, Physics, or other related fields;
    2. Extensive experiences in: ultrasound imaging/elastography/neuron stimulation, high intensity focused ultrasound (HIFU), or other related applications;
    3. Excellent teamwork, management and learning skills.
- **Materials/Fabrication technologies of ultrasonic transducers**
    1. Background in Electrical Engineering, Mechanical Engineering, Acoustic Engineering, Material Science or other related fields;
    2. Extensive experiences in: Micro-Electro-Mechanical System (MEMS), cMUT, pMUT, piezoelectric ultrasound transducers or other transducer fabrication technologies;
    3. Excellent teamwork, management and learning skills.
- **Hardware for ultrasound systems**
    1. Background in Electrical Engineering, Precision Instrument, Measurement and Control or other related fields;
    2. Extensive experiences in: radio frequency (RF) circuit design/integration or front-end digital circuit design;
    3. Excellent teamwork, management and learning skills.
- **Signal/image processing for ultrasound**
    1. Background in Electrical Engineering, Computer Science, Acoustic Engineering or other related fields;
    2. Extensive experiences in: signal/imaging processing algorithms for ultrasound/radar or other related fields; Proficient coding skills of C/C++, Python, MATLAB or other related languages;
    3. Excellent teamwork, management and learning skills.

Contact Information:

To apply, please send cover letter and CV to shengxu@ucsd.edu

Group website: http://xugroup.eng.ucsd.edu/

Job Location:

La Jolla, California, United States

Position Type:

Full-Time/Regular