Research Scientist, Biosensors and Signal Processing

Boston, MA

Fitbit is the leader in the explosive market of health and fitness wearables. We empower and inspire our users to lead healthier and more active lifestyles with simple and delightful products.

Fitbit Research is world-class team of hacker-scientist-types who dream up, prototype, and deliver shipping products. We investigate a big set of problems from hardware development to embedded signal processing algorithms to data mining. Experimentation is critical. We work in a dynamic and collaborative environment where the goal is to learn things quickly, iterate fast, and make awesome products.

Your Role

You will push the boundaries of what can be measured or extracted from measurements using wearable and mobile sensors. You will have large responsibilities in generating or taking ideas and growing them into a final product. You will help prototype new hardware, perform analysis to determine what is interesting and useful in sensor data, design experiments to collect that data, and design extremely robust but lightweight algorithms that will run on mobile hardware. You will do a lot of experiments, often involving hardware and humans. You will work with a diverse group of technical experts in the research team to figure out hard problems and, ultimately, help ship products with the other engineering teams at Fitbit.

Qualifications

- Ph.D. in Electrical Engineering, Biomedical Engineering, Applied Physics, or a related field, or equivalent experience
- Research expertise in at least several of the following:
  - Experience with experimental design and human data collection.
  - Familiarity with prototyping devices and algorithms.
- 3 or more years of work experience preferred
- Experience with programming and scientific computation (Matlab, Python, and/or other C/C++ languages). Numerical programming on embedded targets a big plus.
- Motivated, independent, efficient and able to handle several projects
- Friendly, articulate, and interested in working in a fun, small team environment
• Biosensor signal processing and sensor fusion. For example, extracting or reconstructing weak signals from noise in systems such as EEG, ECG, PPG, BIA, ballistocardiography, bio-acoustics, or medical imaging

• Hardware and sensor design. For example, prototyping new sensors and development platforms to find novel and interesting pieces of information for our users
• Time-domain and frequency domain discrete-time signal processing algorithms
• Parameter estimation and tracking algorithms such as HMM, Kalman Filter, etc.
• Knowledge of human physiology and bioelectric or optical sensing techniques.
• Biometric identification or quantification technologies
• Physiological modeling of circulatory system, nervous system, sleep, or emotions

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