

We have four openings for visiting students (internships) in the summer of 2018 in the Signal Kinetics group directed by Prof. Fadel Adib at MIT. The visitors will be conducting research on the projects below. The duration of the visiting appointment will be at least 2 months between May-September 2018. Students coming with their own funding are encouraged to apply. For those who do not have funding, we will consider providing a monthly stipend for the duration of the visit.

If interested, please apply using the following form:

<https://goo.gl/forms/rWzhTktHn7jUkVPx2>

Deadline is: **March 8, 2018.**

Project #1: *Extreme Positioning for the Internet-of-Things (Areas: IoT, Computer Systems, Wireless)*

Description: The goal of this project is to develop a system that can track everyday objects in physical spaces. The system can be used for finding lost items (e.g., keys, wallets) at home or for mapping all the items in a store or a mall. The project will build on recent wireless localization technology developed at MIT (www.mit.edu/~fadel/papers/RFind-paper.pdf). Today, we can locate objects using RF stickers within a limited space. The project aims to perform such localization across an entire apartment or a building.

The student's responsibility will be to develop the backend system to integrate multiple sensors (using C or python), so that we can create a physical map of where objects are in 3D space, even if we cannot see them with a camera.

Required background:

- Programming with C/C++ and Python
- Programming in Unix/Linux-based systems
- Background in signal processing is desirable but not required
- Background in programming software radios is desirable but not required
- Background in applied machine learning is a plus

Project #2: *Wireless Sensing for Health and Biomedical Monitoring (Areas: Wireless, Applied Machine Learning)*

Description: The goal of this project is to develop a system that can track human vital signs using wireless reflections. The project will build on recent wireless sensing technology developed at MIT, which can wirelessly track breathing and heartbeats, even through walls (<http://witrack.csail.mit.edu/vitalradio/content/vitalradio-paper.pdf>).

The student's responsibility will be to implement, optimize, and evaluate different machine learning algorithms and assess their accuracy in extracting different health metrics from the measured wireless reflections from the human body.

Required background:

- Programming with C/C++ or Python

- Programming in MATLAB
- Background in applied machine learning
- Background in signal processing is desirable but not required
- Background in programming software radios is desirable but not required

For any questions, please contact: priscill@media.mit.edu