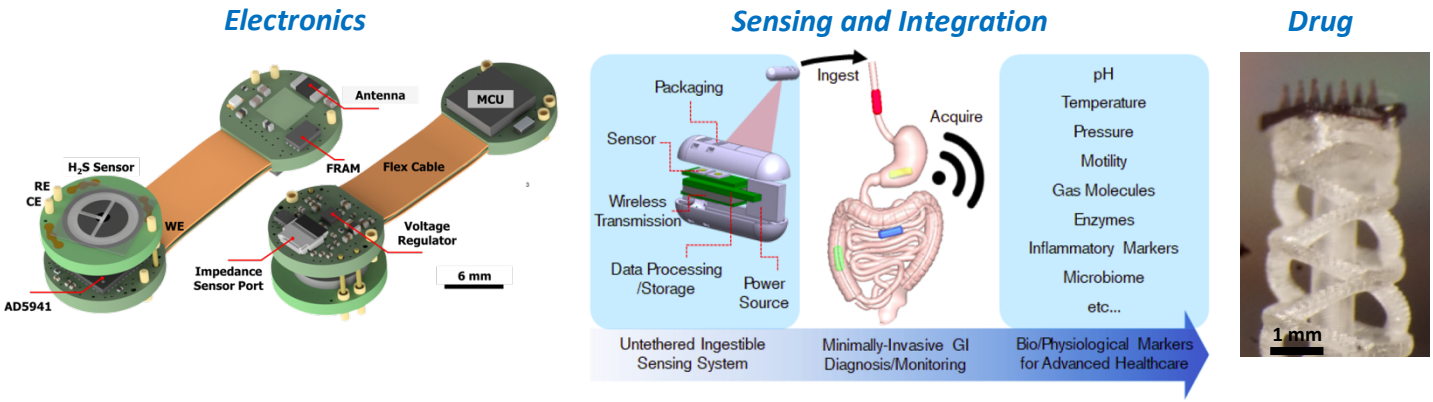
*******Post-doctoral Associate Position*******

Ingestible Capsule Systems for Gastrointestinal Sensing and Drug Delivery

MEMS Sensors and Actuators Laboratory (http://www.umdmsal.com/)
Institute for Systems Research and Fischell Institute for Biomedical Devices
University of Maryland, College Park, USA



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Project Description:

Microelectromechanical Systems- (MEMS-) enabled sensing systems have the potential to provide data on biomarkers and key analytes within regions of the human body that are currently difficult to sample using other methods. These compact, low power systems can operate semi-autonomously for extended periods of time, providing key data for medical diagnostics, bioprocessing applications, and medical interventions. Minimally invasive diagnostic and treatment procedures continue to push the boundaries of what is possible in the diagnosis, management, and treatment of disease. Real-time targeted sampling within the GI tract will aid in early intervention of diseases, making conditions that are often found too late in the disease progression more readily manageable.

Realizing this vision requires the development of robust ingestible and implantable sensors and actuators that can function within complex biological environments, with the goal of being able to collect and transmit data in real-time. These systems contain multiple different components and require knowledge in several engineering disciplines for effective integration. This postdoctoral position focuses on refinement of existing electrochemical sensing systems through creative microfabrication approaches, improved electronics, and careful testing. Additionally, the position will work with systems integration of the sensing components with supporting electronics and packaging to create ingestible sensing and intervention devices. The creation of ingestible sensing system prototypes will be followed by extensive testing both on the benchtop and potentially in *in vivo* animal models.

Key Tasks:

- Systems integration, including electrochemical sensors, electronics, and systems packaging
- Previous experience with electrochemical and bio/chemical sensing
- Testing and data analysis using relevant biological fluids

**********Looking to Fill the Position in Spring 2022*******