UNIVERSITY of HOUSTON | ME

The Laboratory for Advanced Learning, Artificial Intelligence and Control at the University of Houston invites applications for

**Multiple graduate and undergraduate research positions in the areas of Learning-Based Decision Making and Control in Dynamical Systems**

**Positions 1**: The successful candidates will conduct cutting edge interdisciplinary research toward the development of medically inspired and Internet-of-Things enabled methods and tools for the automation of complex physiological and biomedical systems under the supervision of Dr. Marzia Cescon. Research topics include, but are not limited to, learning and adaptation-based control strategies for drug delivery, digital biomarker discovery in chronic diseases, monitoring of physiological variables in the healthy and in people affected by chronic conditions and machine learning and control in neural engineering.

**Positions 2**: The successful candidates will work in data-driven motion planning and control for quadcopters. Research topics include sampling-based motion planning, data-driven modeling of drone dynamics, design of model-based and data-driven optimal controllers for drone operations in unknown environments, and adaptation of model and controller to changes in dynamics.

**About the lab:** Research activities in the Laboratory involve signal processing, control design, computer simulations, verification and translation of the work to feasibility and proof-of-concept studies in the real world. Students can use the wearable devices (wristbands and headbands) available in the lab to test ideas prior to clinical trials. In addition, we have a complete indoor laboratory facility for research in multi-agent systems, flight robotics, flight control and aerospace control, comprised of a state-of-the art motion capture system and various type of drones. In addition, we have 2 test-beds (1DOF and 2DOF) which represents in a simplified, yet effective and accurate way the coupled attitude and translation dynamics of a drone.

**Requirements**: Applicants should have a strong mathematical background, knowledge of systems theory, automatic control and/or machine learning and solid programming skills (Python, Java and/or Matlab/simulink are preferred). Ideal candidates are expected to have obtained or to be in the process of obtaining a M.Sc. degree in Applied Math, Systems and Controls, Mechanical Engineering, Electrical and Computer Engineering, Biomedical Engineering or Computer Science.

**Condition of Employment:** The positions are available immediately and applicants will be considered until the vacancies are filled. Successful candidates will be enrolled in the University of Houston Graduate School and receive full financial support (competitive monthly stipend and full tuition exemption) through Graduate Research Assistantships.

**About the University of Houston**: The University of Houston is a designated Carnegie Tier One public research university. The city of Houston, in addition to being the energy capital of the world, is home to the Texas Medical Center, the largest medical center in the world offering ample opportunities for interaction and collaborations with member institutions and supports a full spectrum of cultural organizations, as well as sports, and year-around outdoor activities.

**Application and More Information:** For more information about these vacancies please contact Dr. Marzia Cescon (mcescon2@uh.edu).