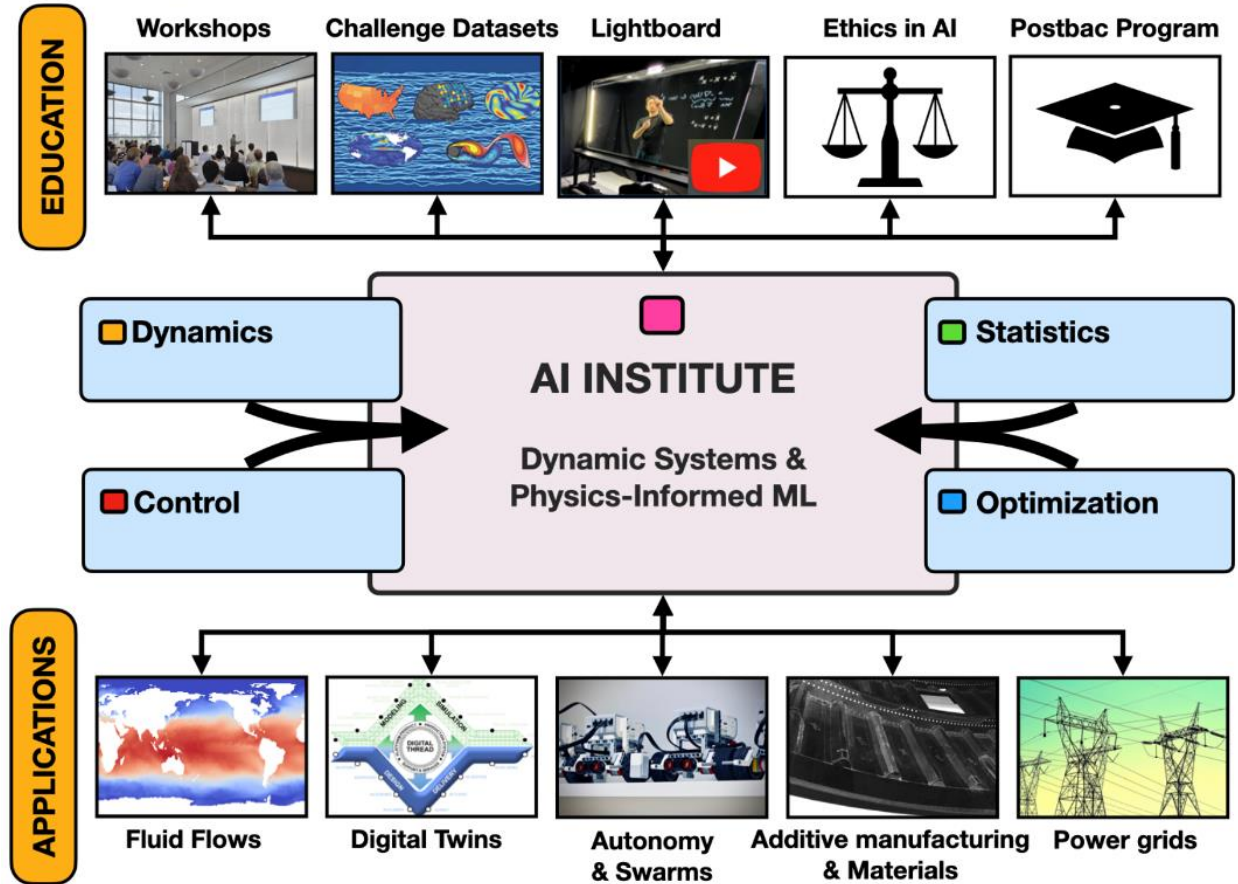


Advertisement for a Post-Doctoral Researcher under the topic of Physics-Informed Machine Learning



Come work at University of Hawaii with Dr. Frances Zhu and Dr. Zhuoyuan Song as a part of the prestigious NSF Artificial Intelligence Institute in Dynamic Systems! We are looking to co-advise a Post-Doctoral Researcher in up to a 3-year position to conduct research broadly under the intersection of dynamics / controls and machine learning. Specific research topics include:

- Autonomous navigation in unstructured, uncertain, dynamic environments;
- Control, modeling, and state estimation of multi-robot or novel morphological systems;
- Data-driven dynamics modeling using adaptive sampling with mobile sensors;
- Mobile robots (marine, aerial, & spaceflight) prototyping and testing.

Responsibilities include:

- Carries out fundamental research to understand the structure, behavior, and control of dynamic systems based on data-driven approaches.
- Derives machine learning theory of surrogate models to represent data from dynamic robots.
- Designs experiments and experiment metrics to evaluate performance of algorithms.
- Interprets results in the context of our understanding of dynamic systems and control policies.
- Writes up results for publication in peer-reviewed journals.
- Carries out independent research on a topic of the candidate's choosing.

Incentives:

- University of Hawaii's unique geographic location and facilities ([Hawaii Space Flight Lab](#), Robotic Space Exploration Lab, and Robot Autonomy and Navigation Lab)
 - Dr. Zhu's website: franceszhu.space
 - Dr. Song's website: <http://www2.hawaii.edu/~zsong/>
- Network and collaborate with the Artificial Intelligence Institute's large network of academic and industrial partners, which constitutes a \$20M investment on NSF's behalf to develop to the frontier of safe and certifiable real-time learning and control of complex dynamic systems.
 - Annual meetings and professional development opportunities
- Academic freedom and support to pursue research topics under this large umbrella.

Minimum Qualifications:

- Education/Training: PhD from an accredited college or university in dynamics, controls, machine learning, or related field.
- Experience: Up to one (0-1) year of research experience in at least one of the following areas of physics-informed machine learning: system identification, control theory, active learning, or reinforcement learning.
- Knowledge:
 - Basic knowledge of dynamics, controls, or machine learning.
 - Detailed knowledge about the field of PhD study.
 - Familiarity with a scientific programming language, like MATLAB or Python.
 - Familiarity with Windows or Mac computer operating systems and common software, such as Microsoft Office, Adobe products, etc.
 - Familiarity with robot hardware, such as embedded systems, sensors, and actuators.
- Abilities and Skills:
 - Good abilities in scientific programming.
 - Must possess good verbal and written communication skills.

How to apply:

For full consideration, please email Prof. Zhuoyuan Song (zsong@hawaii.edu) and Prof. Frances Zhu using the subject "[PostDoc 2022] <Your Name>" and attach a single PDF file containing:

- (1) Cover letter
- (2) CV/Resume and earliest start date
- (3) Transcript (unofficial is fine)
- (4) Name and contact information of two academic references

