Energy Harvesting Laboratory

http://www.eng.uwaterloo.ca/~salehian/

Location

DC 1702

Management

Director:

- Armaghan Salehian PhD P. Eng (salehian@uwaterloo.ca)

Tours:

- Contact Armaghan Salehian (salehian@uwaterloo.ca)

Users

- Graduate Students (Mechanical and Mechatronics Engineering)

Research

- Smart material for vibrations energy harvesting, sensing, and active actuations
- Structural dynamics, modal analysis, and vibrations testing
- Inflatable space structures dynamics and vibrations
- Self-contained piezoelectric MEMS-based sensing for smart grids
- Energy harvesting for smart grids current measurement
- Wrinkle modelling and flatness control of inflatable antenna membranes
- Dynamics modelling of cable-harnessed space structures
- A smart materials-based active compression system to increase venous return
- GNSS reflectometry technique for sea ice thickness measurement of the Arctic Sea using micro-satellites
- Vibrations control of unmanned vehicles

Selected Projects

- Smart material for vibrations energy harvesting, sensing, and active actuations
- Self-contained piezoelectric MEMS-based sensing for smart grids
- Energy harvesting for smart grids current measurement
- Wrinkle modelling and flatness control of inflatable antenna membranes
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Equipment

- Laser head and vibrometer
- Shaker
- Konica Minolta digitizer
- Harvesting units made by Tim Pollock

- Current sensors made by Steven Lao for Silicon Pro
- LMS DAQ
- Voltage amplifiers by smart materials

Supporting Partners

- Riley's 321 Sleep
- Silicone Pro
- Canadian Space Industry
- Lockheed Martin
- U.S. Air Force

Access Rights

- Other researchers can only access the lab if a current group member is present. Contact Dr. Armaghan Salehian to arrange initial meeting.
- Interested parties should contact Dr. Armaghan Salehian as early as possible to discuss project details.
- All the lab equipment require training.