## Energy Harvesting Laboratory

## <http://www.eng.uwaterloo.ca/~salehian/>

## Location

## DC 1702

## Management

Director:

* Armaghan Salehian PhD P. Eng ([salehian@uwaterloo.ca](mailto:salehian@uwaterloo.ca))

Tours:

* Contact Armaghan Salehian ([salehian@uwaterloo.ca](mailto: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
* Dynamics modelling of cable-harnessed space structures
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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.