

# Draper Sensors and Comms Research Interests

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## Introduction

Draper prides itself on high performance, low SWAP sensing technologies across a wide range of sensing modalities able to operate in operational environments.

To support these sensors, we are also interested in low-power communications technologies and other supportive methods and technologies

### *About Draper Laboratory ([www.draper.com](http://www.draper.com))*

*Draper is an independent, not-for-profit corporation, chartered to work on problems in the national interest. Draper is **seeking collaborative research partners from universities** to further the state of the art in key technologies of mutual interest. Research Whitepapers describing Draper's technology interests and Technical Points of Contact can be found on the Draper Scholars webpage ([Draper Scholar Program | Draper](#)). The Draper Scholars Program funds thesis-bearing MS and PhD students at partner universities as one of the effective ways to progress the technology. Other means of collaborative research (e.g. joint proposals, sabbaticals, etc.) are also encouraged. Please contact [education@draper.com](mailto:education@draper.com) if you have further questions.*

## Research Interests

### 1. *Novel Low SWAP Sensors (most modalities)*

Draper seeks advanced concepts, designs and demonstrations of novel, low SWAP sensing across a wide range of sensing modalities - emphasizing, but not limited to inertial, clocks, optical, CBRN, EO/IR, quantum (sensing only) and magnetic. Sensor packaging for harsh environments and sensor integration for broader system use are also of interest.

### 2. *Low SWAP Communications Technology*

Draper seeks advanced concepts, designs and demonstrations of novel, low SWAP communications technology and networks. Of particular interest is temporary and dynamic systems in operational environments. Low frequency electromagnetic systems (sensors, transmitters, and signal processing) are also of merit.

### 3. *Sensor Fusion*

Novel methods for sensor fusion that increase the information content using multiple sensors with different sensing modalities continues to be a challenge of interest. Demonstrations of advanced estimation and fusion algorithms with simulated and / or actual data are of most benefit. AI/ML methods should be able to work with sparse data, or have application areas that are known to have abundant data.

We would be targeting PhD students for the development of novel approaches; and MS students for the application of existing approaches to specific problems of interest to Draper.