**Project title:** Radar Imaging Based on Compressive Sensing

**Overview:** Our research group uses radars with multiple, spaced antennas to construct 3D images of plasma waves and other phenomena in the Earth’s upper atmosphere. Imaging work performed in the past used methods based on optimal beamforming and on Bayesian inversion. A new imaging paradigm based on compressive sensing has recently emerged. The method has been demonstrated on synthetic data using a simple programming toolbox. This project involves developing robust imaging software and testing it with real radar data.

**Specific MEng contribution:** For this project, one or two MEng students are being sought to assist with the development of a new imaging algorithm based on compressive sensing. The student(s) will also test the algorithm using some of our accumulated radar data.

**ECE field advisor name:** David Hysell, 2116 Snee, S-0630, dlh37@cornell.edu

**Project website:** http://landau.geo.cornell.edu

**Number of MEng students needed:** 1–2

**Required skills:** Interest in RF, communications, signals; experience programming in C, Fortran-90, or python, LINUX.

**Estimated project time frame:** Fall 2017 + Spring 2018 semesters.