2018 Upstate Institute Summer Field School Fellowship

**Title:** Use of aerial photography mapping to establish photographic record of land trust properties

**Community Partner:** Southern Madison Heritage Trust

*A GIS project that will ask a student to develop maps of local conservation easement using drone technology for two local land trusts.*

**Project Description:**
Southern Madison Heritage Trust (SMHT) is required to annually monitor properties covered by conservation easements held by their organization. Some portions of properties are not easily accessible on foot, so aerial photography can supplement the on-the-ground monitoring. In the fall semester of 2017, Professor Loranty taught a class on aerial surveillance using autonomous aerial vehicles – drones. In that class, he and students did an overflight of a 39 acre property owned by SMHT and soon to be covered with a conservation easement. The subsequent analysis of their work served as model for this project.

This summer, a Fellow will develop an overflight plan of each of SMHT's properties and collect aerial photography with a Colgate-owned drone. The Fellow will use available software to produce the composite aerials, and provide an analysis of vegetation, wetlands, topography and other factors gleaned from the drone flights. Any structures or unusual features will be noted and compared with prior on-the-ground monitoring reports. Any significant difference will be noted and explored with site visits.

Given that SMHT has only five properties, the Fellow will also survey as many properties of the partner organization Chenango Land Trust (CLT) as time permits in a similar manner. SMHT & CLT land trusts cover the areas of southern Madison County, all of Chenango County and parts of Broome County. Aerial (drone) photography and analysis would benefit both land trusts in their required monitoring responsibilities and serve as a model for other land trusts in the region. This project would enable these all-volunteer land trusts to do a better job of monitoring the properties. SMHT & CLT, and perhaps others, could in the future, share a technically sophisticated drone and the necessary software to perform aerial monitoring more easily and effectively.

**About the Community Partner:**
Southern Madison Heritage Trust works to conserve, for public benefit, natural resources in and around the townships of Brookfield, Eaton, Georgetown, Hamilton, Lebanon and Madison in Madison County, NY. SMHT strives to protect land, water, unique habitats, scenic landscapes, recreational sites and historic features through stewardship, public education and support of practices that advance natural resource conservation. Similarly, the Chenango Land Trust is a non-governmental, not-for-profit organization whose mission is to protect vital natural areas in and around Chenango County in Central New York State for the health of the environment and the enjoyment of the public.

**Required Skills:**
The Fellow will be able to hone their skills in GIS mapping, drone technology and analysis of aerial photography applied to the particular needs of the land trusts. Exposure to the operations and approach of land trusts to conservation would enhance the student’s understanding of the mechanisms of land conservation and the importance of conserving land for future generations. It also would provide insight into the inner workings of nonprofits by attending board meetings and interacting with various board members in the two organizations.
Logistics:
This is a full-time paid research position (35 hours per week) to last approximately 10 weeks, conducted under the joint supervision of the Upstate Institute and SMHT, with assistance from Professor Loranty and Doug Higgins in ITS at Colgate. Field School Fellows receive a research stipend of $4500 plus reimbursement for any costs associated with transportation for this project. A car is not required for this project, but may be helpful. A board member from one of the two partnering organizations will always be present during overflights. SMHT locations are all within three miles of campus, but some CLT sites are up to 70 miles away.