



Middlebury College
Computer Science Alumni Seminar

**UAS-RX:
Design and Field Experiments of a micro-UAS
for Prescribed Fire Ignition**

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Unmanned Aerial System (UASs) are increasingly being used for everything from crop surveying to pipeline monitoring. They are significantly cheaper than the traditional manned airplane or helicopter approaches to obtaining aerial imagery and sensor data. The next generation of UASs, however, will do more than simply observe. In this talk, I will discuss recent advances we have made in the Nimbus Lab in developing the first UAS that can ignite prescribed fires. Prescribed fire is a critical tool used to improve habitats, combat invasive species, and reduce fuels to prevent wildfires. In the United States alone federal and state governments use prescribed burns on over 3 million acres each year, with private landowners prescribing even more. Yet this activity can be extremely dangerous, especially when performing interior ignitions in difficult terrain. In this talk, I will discuss the history of this project and the challenges associated with flying near and igniting fires. In addition, I will detail the mechanical and software design challenges we have had to overcome in this project. I will also present the results of the first two prescribed burns that were successfully ignited by a UAS. Finally, I will discuss automated software analysis techniques we are developing to detect and correct system errors to reduce risk and increase safety when using UASs to ignite prescribed burns.

Friday, March 24, 2017

12:30 – 1:20 p.m.

McCardell Bicentennial Hall 104

Pizza will be served at 12:25 p.m.

Career Q&A session following the talk, 1:30 – 2:30 pm

This event is sponsored by the Computer Science Department and the Center for Careers & Internships