

# The Field Robotics Center

## Seminar Series

Wednesday 29th April

GHC 2109 1pm – 2pm

Food will be served



**Luke Yoder**

M.S. Student

Robotics Institute

### Autonomous Exploration for Modeling Structures with a Micro Aerial Vehicle

**Abstract:** Micro aerial vehicles (MAVs) are an exciting technology for mobile sensing of infrastructure as they can easily navigate to hard to reach areas and collect data. Although MAVs equipped with 3D sensing are starting to be used in industry, currently they must be remotely controlled by skilled pilot. In this talk I present an approach that plans exploration paths for MAVs equipped with 3D range sensors like lidar. The only user input is a 3D bounding box around the structure. Our method incrementally plans a path for a MAV to scan all surfaces of the structure up to a resolution and detects when exploration is finished. The method is demonstrated in the field by modeling a small train bridge.

**Speaker Bio:** Luke is a staff engineer and M.S. student at the Robotics Institute advised by Sebastian Scherer. Since joining the Robotics Institute he has contributed to several autonomous aerial vehicle and agricultural robotics projects. Luke earned a B.S. from Lehigh University in mechanical engineering with a aerospace engineering minor. Outside of academia he has worked as an engineer at several robotics companies.



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