

# Mapping Historic Structures Using UAV Technology

## Researchers

Jason Blankenship<sup>1</sup> - Paulo Fernandes<sup>2</sup>

## Supervisor

Dr Hongbo Su<sup>3</sup>

Florida Atlantic University

777 Glades Road, Boca Raton Florida 33431

[jblankenship2014@fau.edu](mailto:jblankenship2014@fau.edu) [pferna10@fau.edu](mailto:pferna10@fau.edu) [hsu@fau.edu](mailto:hsu@fau.edu)

## ABSTRACT

This study is intended to find an accurate and cost effective solution to document large historical architectural infrastructures. There are currently over twenty-five historical lighthouses in Florida. We selected the Jupiter Inlet Lighthouse, situated in Jupiter, Florida as our subject. The Jupiter Lighthouse is approximately 105 feet in height upon of a 43 foot natural hill. The characteristics of the site and lighthouse provided a great opportunity for research. One of the new technologies in solving this problem is the use of Unmanned Aerial Vehicles (UAV) to collect aerial data of locations of limited or no access. This technology has an amazing potential in facilitating the collection of data in these areas because it is fast and affordable. With this research we compared the data collected by the UAV with data collected by a Terrestrial Laser Scanning (TLS) so we can determine the accuracy of the UAV. Our findings support the use of UAVs in documenting historical architectural structures such as lighthouses to be a cost effective method.

*Keywords: Unmanned Aerial Vehicle (UAV), Terrestrial Laser Scanning (TLS), Historical Architecture, Infrastructure*