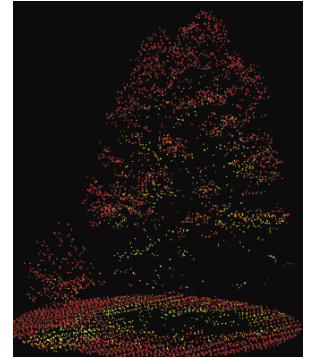


GEOG 4/510: ADVANCED LIDAR ANALYSIS AND APPLICATIONS (MW 11:30-13:20, FALL 2013)

Instructor: Byungyun Yang (yys0910@gmail.com)



LiDAR Point Cloud (South Padre Island Pointillism By Reuben Reyes)

Point cloud(Tree)

Class Objectives and Contents

This course stresses on fundamental theories, methods, and practical aspects of Light Detection and Ranging (LiDAR) technology. LiDAR technology has been used for many applications such as flood mapping, coastal erosion, forestry timber volumes, forest fire modeling, transportation, emergency management, urban planning, Geologic Fault Mapping, Cadastral Mapping and so on. In particular, we will be covering a range of topics focused on airborne, terrestrial LiDAR, and its applications. There will also be some flexibility in the schedule to accommodate specific topics of interest to the class. In general, we will be discussing about the following questions: What is LiDAR? How is LiDAR created? How is LiDAR used? and How are LiDAR data evaluated? Students are expected to have prior GIS and Photogrammetry knowledge and experiences as covered in GEOG 4/588, GEOG 4/580 and 4/581, and GEOG 4/593. Interested students, however, are encouraged to talk with the instructor if not sure about the readiness to take this class.

Suggested Texts and Readings

Main texts: Maune, D. F., ed. 2007. *Digital Elevation Model Technologies and Applications: The DEM Users Manual, 2nd edition*. Bethesda, MD. American Society for Photogrammetry and Remote Sensing. ISBN 1-57083-082-7. [Link to ASPRS Bookstore](#).

Shan, J. and C. Toth, ed. 2009. *Topographic Laser Ranging and Scanning, Principles and Processing*. Boca Raton, FL. Taylor & Francis Group. ISBN 9781420051421. [Link to ASPRS Bookstore](#).

Required Articles: The research articles will be introduced from the Instructor (TBD) and will be posted on the D2L during this semester.

Grade Weighting Scheme

Lab Assignment: 30%, Mid-term exam: 20%, Final Project: 40%, Class participation: 5%, Student-Led Discussion: 5%.

This course can be counted as an elective course in the GIS certificate program.