Ver 1

Plan for 3D Deep

Jungwon Kang, Maryam Jameela, Razieh Ramak

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Objectives

- Building 1st Version Deep Network for Each Task

Task	Major Contributor	Objectives
Noise filtering (for Optech)	Razieh Ramak	Point cloud segmentation (Noise/Non-noise), non real-time
Point cloud segmentation (for Optech)	Maryam Jameela	Point cloud segmentation (N-class objects), non real-time
3D object detection (for Thales)	Jungwon Kang	Real-time 3D object detection

Schedule

Month	Task	Deliverable
Oct 2018	• Problem definition • Dataset preparation • Literature survey	• Document describing problem definition, dataset, and literature survey • Visualization of dataset
Nov	• Practicing deep library • Design & implementation	• Document describing design
Dec	• Implementation	• Source code (Dec 31)
Jan 2019	• Documentation	• Document describing implementation (Jan 15)

*Submission deadline of major conferences starts from March.

Management Policy

- Regular meeting or discussion biweekly

- Team website:
  - https://github.com/yorku-ausml/deep3d

To-do List

- Problem definition, including
  - Cause of Noise (Razieh)
  - Object classes (Maryam, Jungwon)
- Dataset description, including
  - Existing Optech airborne dataset (Razieh)
  - Dataset size
  - Current repository
  - Visualization
- Etc
  - Finding point cloud label tool (for making ground-truth)
  - Finding visualization tool

Key Literature

- Point cloud segmentation
  - Large-scale point cloud segmentation with superpoint graphs
    https://github.com/loicland/superpoint_graph
    *Rank 1 in http://www.semantic3d.net/
  - PointNet++: deep hierarchical feature learning on point sets in a metric space
    https://github.com/charlesq34/pointnet2
    *Rank 4 in http://www.semantic3d.net/
- Object detection
  - Joint 3D proposal generation and object detection from view aggregation
    https://github.com/kujason/avod

*Literature list is also available at https://github.com/yorku-ausml/deep3d/wiki/Related-works