1. Abstract
2. Introduction
   1. SHM
   2. Related Work
      1. Geography
      2. BIM
      3. Aerial Mapping / GPS layering
      4. Pointcloud to CAD
3. Background
   1. Point Cloud Collection
      1. LiDAR
      2. Stereogrammetry
      3. Structure from motion
   2. Filtering
   3. Machine Learning
      1. Supervised
         1. CNN
         2. SVM
         3. RNN
      2. Unsupervised
         1. K-means
         2. Hierarchical
         3. Fuzzy
   4. Meshing
      1. Delaunay Triangulation
      2. Voronoi Diagrams
   5. Mesh Filtering
      1. Laplacian
      2. Thresholding
4. Hypothesis: Autonomously isolated objects from point cloud data can be analyzed from a structural health monitoring perspective
   1. CAD modeling
   2. Deformation tracking
   3. \*Crack propagation tracking\* -- Dependent on resolution –
5. Technical Approach
   1. Generate “clean” dataset as POC
   2. Add noise to verify robustness
   3. Real lab dataset
6. Results
   1. Segmentation
      1. Clean dataset
      2. Noisy dataset
      3. Lab test
   2. Meshing & Analysis
      1. CAD Compatibility
      2. Feature
7. Conclusion
8. Future Work
   1. Training sets for CNN
   2. Crack Propagation tracking
   3. Deformation updating