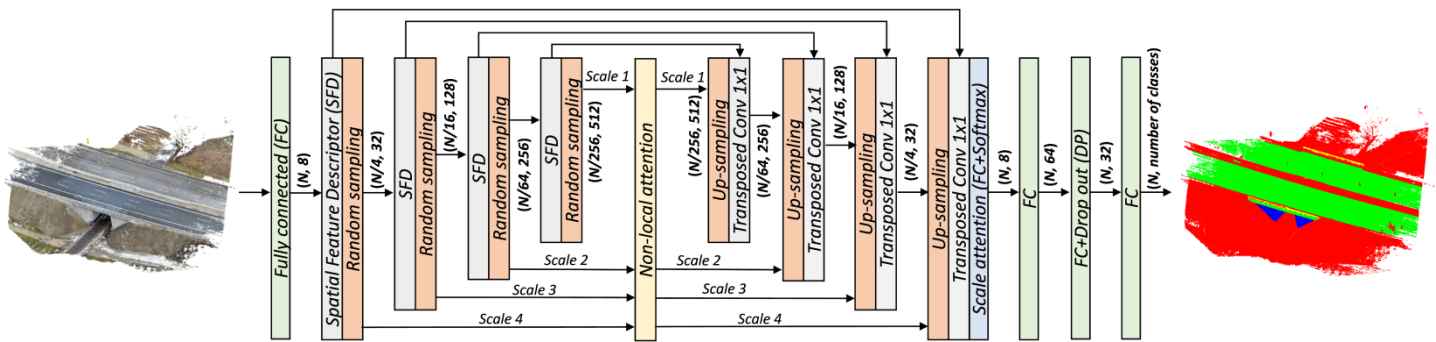


Software Lab:

A novel deep learning architecture for semantic segmentation of point clouds

Description

Semantic segmentation of point clouds is the process of classifying point clouds into multiple regions, which is widely applied to different domains, like environment reconstruction, autonomous driving, etc. In deep learning, the aim of classification problems is to predict the classes to which the data belongs based on a set of features present in the input data. While predicting unknown labels is the classification problem in deep learning, point cloud segmentation can also be seen as a classification problem for each point in the point cloud. Many networks are designed to solve the classification problem and segmentation problem in one architecture framework when processing point clouds. In this project, you are supposed to do a thorough literature review at the beginning and then create DL models for semantic segmentation of point clouds and test their performance.



The architecture of a 3D DL model

Tasks

- Review state-of-the-art 3D DL models (papers & codes) to realize the weaknesses and strengths of the existing 3D DL models.
- Address the weaknesses and combine the selected blocks of the existing models.
- Train and test the model on the annotated point clouds.

Requirements

- Programming knowledge in Python
- Preferable if you have experience in DL frameworks, like Pytorch or Tensorflow

Supervisor

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