Project Proposal:
Domain Generalization by Matching Feature Distributions

Seungmin Lee (profile2697@gmail.com; 2013-11420), Dept. of Computer Science and Engineering, Seoul National University

1. Main Idea and Motivation

Main Idea   In this project, I will tackle the *Domain Generalization* (DG). The main idea of this project is to employ consistency loss between two data points that share the same label but have different domains. This idea is based on a simple concept and can be easily integrated with other methods.

Motivation   The primary purpose of domain generalization is to train a model that generalizes well to the unseen target domain. For this purpose, we should induce a model to encode features taht are sufficiently semantic and consistent across domains. Therefore, It is natural to add consistency loss between same-labeled data points but sampled from different domains.

Some of the previous works have attempted to learn domain invariant features. However, those methods did not care about the task at hand, so they achieved suboptimal performance. Unlikely, this project explicitly concerns about the task at hand by using labels. Furthermore, the consistency loss acts as a regularizer that prevents the feature extractor from encoding redundant information like style or texture. It is also easier to implement than other multi-task based methods like JiGen [1].

2. The Project Plan

References

[1] F. M. Carlucci, et al. Domain generalization by solving jigsaw puzzles, 2019. 1