University of Stuttgart
Germany

Institute of Signal Processing and System Theory
Prof. Dr.-Ing. Bin Yang

Supervisor:
Pascal Schlachter

Tel. (0711) 685-67337
pascal.schlachter@iss.uni-stuttgart.de

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Thesis offering for Research/Master Thesis

Area:

This thesis will study **Universal Domain Adaptation (UniDA)** for **semantic segmentation**. UniDA is a framework designed to simultaneously address two key challenges:

- **Domain shift:** Differences arise in input feature distributions between the training data (source domain) and the test data (target domain).
- **Category shift:** The label spaces of the source and target domains are not identical. Some classes exist solely in the target domain but not in the source domain, and/or vice versa.

Hence, the goal of UniDA is to adapt a model, pre-trained on the source data in a closed-set manner, to the target domain, which is subject to both a domain and category shift.

Task:

While UniDA has primarily been applied to classification problems, there is a notable lack of methods addressing semantic segmentation. This is especially true for **source-free** and/or **online UniDA** approaches. The goal of this thesis is to fill this gap by studying UniDA specifically for semantic segmentation.

Prerequisites:

- Strong interest in the topic and a high level of self-motivation
- Ability to work independently
- Excellent grades in relevant courses at ISS
- Experience in programming with Python (ideally with experience in PyTorch)

How to apply:

Write an email to pascal.schlachter@iss.uni-stuttgart.de including your current transcript of records and a brief introduction of yourself.