OSTBAYERISCHE TECHNISCHE HOCHSCHULE REGENSBURG

Technische Universität München

Master Thesis – Machine Learning

Autoencoder Latent Space Disentanglement for Absorption Spectroscopy

Background:

Absorption spectroscopy is a molecular spectroscopy method often used in gas sensing. Each molecule has a characteristic absorption profile which allows identification and concentration estimation. Those absorption profiles are disturbed by environmental influences including pressure and temperature.

Research Question:

The goal of this thesis is to investigate, implement and combine different disentanglement approaches from the (computer vision) autoencoder research. Those may include adversarial approaches, regularization approaches or semi-supervised learning. A more concrete approach will be devised with the candidate. An area of application is disentangeling pressure and temperature from absorption cross sections.

Data:

For this research simulated absorption cross sections (1D Line Profiles) will be used. They are provided by the supervisor.

If you're interested, just send me an application and we can set up a zoom meeting.

Supervisor:

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