

Anmeldung eines Themas für ein/e

Forschungsseminar
Methodenseminar
Masterarbeit (bitte eines oder mehrere ankreuzen)

Thema Datum	Detecting climate patterns in ERA-5 by exploring the latent space of deep Autoencoders
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Kurzbeschreibung :	The deep neural networks have shown great capabilities in capturing complex patterns [1,2]. The Autoencoder [3,4] can be used to reduce the data dimension while preserving the main data structure. In this thesis, an autoencoder should be used on ERA5 circulation patterns (Mean Sea Level fields), and the latent space should be explored for finding and determining possible climate patterns. One clear detected signal is the seasonal cycle, but other periodic patterns in the dataset need to be investigated.
Literatur:	<ol style="list-style-type: none"> 1- LeCun, Y., Bengio, Y. and Hinton, G., 2015. Deep learning. nature, 521(7553), 436-444, doi:10.1038/nature14539 2- Chollet, F., 2021. Deep learning with Python(Second edition.). Shelter Island, NY: Manning. 3- Guo, X., Liu, X., Zhu, E. and Yin, J., 2017, November. Deep clustering with convolutional autoencoders. In International conference on neural information processing, 373-382, doi:10.1007/978-3-319-70096-0_39. 4- https://www.jeremyjordan.me/autoencoders/