

Masterthesis

Title of my awesome bachelor thesis

submitted in fulfilment of the requirements for the degree of

M. Sc. Physikalische Ingenieurwissenschaft

Author:

Henry, 327752

Submission:

Berlin, 23th July 2018

Examiner:

Prof. Dr. sc. techn. habil. Jörn Sesterhenn

Prof. Dr. rer. nat. Julius Reiss

© Copyright 2020 Henry

All Rights Reserved

Declaration

I hereby declare and confirm that this thesis is entirely the result of my own original work. Where other sources of information have been used, they have been indicated as such and properly acknowledged. I further declare that this or similar work has not been submitted for credit elsewhere.

Berlin, March 1, 2020

Henry

Abstract

Abstract in english

Kurzfassung

Kurzfassung selbe wie abstract nur in deutsch

Contents

1	Introduction	1
	1.1 Thesis outline	1

Bibliography

- [1] Bhatnagar, Gross, and Krook. A model for collision processes in gases. 1954.
- [2] Thomas Franz. Reduced-order modeling of steady transonic flows via manifold learning. 2016.
- [3] Steve L. Brunton and J. Nathan Kutz. Data driven science and engineering. 2019.
- [4] Florian Bernard, Angelo Iollo, and Sebatian Riffaud. Reduced-order model for the bgk equation based on pod and optimal transport. 2018.
- [5] Kookjin Lee and Kevin T. Carlberg. Model reduction of dynamical systems on nonlinear manifolds using deep convolutional autoencoders. 2019.
- [6] Ian J. Goodfellow, Yoshua Bengio, and Aaron Courville. *Deep Learning*. MIT Press, Cambridge, MA, USA, 2016. http://www.deeplearningbook.org.
- [7] D.E. Rumelhart, G.E. Hinton, and R.J. Williams. Learning internal representations by error propagation. 1986.
- [8] Dana H. Ballard. Modular learning in neural networks. 1987.
- [9] Salah Rifai, Pascal Vincent, Xavier Muller, Xavier Glorot, and Yoshua Bengio. Contractive auto-encoders: Explicit invariance during feature extraction. 2011.
- [10] Salah Rifai, Yann N Dauphin, Pascal Vincent, Yoshua Bengio, and Xavier Muller. The Manifold Tangent Classifier. Curran Associates, Inc., 2011.
- [11] Salah Rifai, Yoshua Bengio, Yann Dauphin, and Pascal Vincent. A generative process for sampling contractive auto-encoders. 2012.