DAEDALUS Retreat
02 May 2019 – 03 May 2019
Place: DAS SCHMÖCKWITZ, Wernsdorfer Straße 43, 12527 Berlin

Program

02 May 2019

8:50 – 9:00	Welcome Gitta Kutyniok

PhD talks, session 1 – Chair: Gitta Kutyniok

9:00 - 9:15	Ann-Kathrin Dombrowski - ‚Predicting and analyzing turbulent flows' (Supervisors: K.-R. Müller, W.-C. Müller, F. Noé)
9:15 - 9:30	Philipp Krah - 'Reduced model based optimization for flows with shocks' (Supervisors: V. Mehrmann, J. Sesterhenn; Co-Supervisor: J. Reiss)
9:30 - 9:45	Ines Ahrens - 'Randomized techniques for model reduction' (Supervisors: V. Mehrmann, G. Kutyniok; Co-Supervisor: M. Voigt)
9:45 - 10:00	Lara Booth - 'Sparse identification of cellular kinetics models from data' (Supervisors: C. Schütte, K.-R. Müller; Co-Supervisor: J. Eisert)
10:00 - 10:15	Ingo Gühring - 'Finding multiscale structures in high-dimensional data' (Supervisors: G. Kutyniok, K.-R. Müller, C. Schütte)
10:15 – 10:30	Jiahan Wang - 'Detection and analysis of coherent structures in direct numerical simulations of complex flows' (Supervisors: W.-C.- Müller, V. Mehrmann, R. Schneider; Co-Supervisor: J. Reiss)
10:30 – 10:45	**Coffee break**

Meetings Thesis Committees

10:45 – 11:15	Project 2 (K.-R. Müller, W.-C. Müller, F. Noé & A.-K. Dombrowski) Project 13 (V. Mehrmann, J. Sesterhenn, J. Reiss & P. Krah)
11:15 – 11:45	Project 11 (V. Mehrmann, G. Kutyniok, M. Voigt & I. Ahrens) Project 7 (K.-R. Müller, J. Eisert & L. Booth)
11:45 – 12:15	Project 1 (G. Kutyniok, K.-R. Müller, C. Schütte & I. Gühring) Project 10 (W.-C.- Müller, V. Mehrmann, R. Schneider, J. Reiss & J. Wang)
12:15 – 13:15	**Lunch**

PhD talks, session 2 – Chair: Wolf-Christian Müller

13:15 – 13:30	Paul Schwerdtner - ‚System identification with Loewner matrices and iterative optimized excitation' (Supervisors: V. Mehrmann, M. Voigt)
13:30 – 13:45	Oleksandr Zlatov - 'Active learning for better co-adaptation of user and BCIs' (Supervisors: B. Blankertz, A. Carpentier; Co-Supervisor: H. Siebert)
13:45 – 14:00	Qiao Luo - 'Multiscale sparsity models' (Supervisors: G. Kutyniok, F. Noé, C. Schütte; Co-Supervisor: J. Eisert)

14:00 – 14:15 Nils Harmening - ‘Enhancing estimations of individual head models’
(Supervisors: B. Blankertz, A. Carpentier)

14:15 – 14:30 Benjamin Beck - ‘Reduced order turbulence models in incompressible magnetohydrodynamics’
(Supervisors: W.-C. Müller, V. Mehrmann)

14:30 – 14:45 Jonas Köhler - ‘Deep learning of kinetics from large-scale molecular dynamics data’
(Supervisors: F. Noé, G. Kutyniok, K.-R. Müller)

14:45 – 15:00 **Coffee Break**

Meetings Thesis Committees

15:00 – 15:30 Project 3 (G. Kutyniok, F. Noé, C. Schütte, J. Eisert & Q. Luo)
Project 5 (B. Blankertz, A. Carpentier, H. Siebert & O. Zlatov)
Project P. Schwerdtner (V. Mehrmann, M. Voigt & P. Schwerdtner)

15:30 – 16:00 Project 6 (B. Blankertz, A. Carpentier & N. Harmening)
Project 12 (W.-C. Müller, V. Mehrmann & B. Beck)
Project 4 (F. Noé, G. Kutyniok, K.-R. Müller & J. Köhler)

16:00 – 17:00 Faculty Assembly Meeting part 1

PhD talks, session 3 – Chair: Benjamin Blankertz

17:00 – 17:15 Vera Röhr - ‘Postoperative Delirium-A Data-driven and Model-based Approach’
(Supervisors: B. Blankertz, J. Sesterhenn)

17:15 – 17:30 Alex Goessmann - ‘Extracting Dynamical Laws by Deep Neural Networks’
(Supervisors: G. Kutyniok, F. Noé, B. Zwicknagl)

17:30 – 17:45 Leon Sallandt - ‘Numerical solution of the Hamilton–Jacobi–Bellman (HJB) equation’
(Supervisors: R. Schneider, W.-C. Müller)

17:45 – 18:00 Paul Schwarz - ‘Image-based data assimilation in complex flows with low Reynolds number’
(Supervisors: J. Sesterhenn, F. Noé)

Meetings Thesis Committees

18:00 – 18:30 Project V. Röhr (B. Blankertz, J. Sesterhenn & V. Röhr)
Project A. Goessmann (Gitta Kutyniok, Frank Noé & A. Goessmann)

18:30 – 19:00 Project 9 (J. Sesterhenn, F. Noé & P. Schwarz)
Project 14 (R. Schneider, W.-C. Müller & L. Sallandt)

19:00 – 20:00 **Dinner**

20:00 – 21:00 Faculty Assembly Meeting part 2

03 May 2019

Paper Presentations PhD Students - Chair: Gitta Kutyniok

9:00 – 9:10	**Paul Schwerdtner** – 'Parseval Networks: Improving Robustness to Adversarial Examples' by Moustapha Cisse *et al*.
9:10 – 9:20	**Alex Goessmann** –' Why does deep and cheap learning work so well?' by Lin and Tegmark
9:20 – 9:30	**Vera Röhr** – 'Learned Primal-dual Reconstruction' by Jonas Adler & Ozan Öktem
9:30 – 9:40	**Leon Sallandt** – 'A Multilinear Singular Value Decomposition'
9:40 – 9:50	**Ingo Gühring** – 'Image Inpainting for Irregular Holes Using Partial Convolutions'
9:50 – 10:00	**Philipp Krah** – 'Data Science with Quantum Computers' based on "Quantum machine learning" by Jacob Biamonte *et al*.
10:00 – 10:10	**Ann-Kathrin Dombrowski** – 'Neural Ordinary Differential Equations' by Ricky T. Q. Chen *et al*.
10:10 – 10:20	**Benjamin Beck** – 'Large Scale Computing in Science and Engineering'
10:20 – 10:30	**Qiao Luo** – 'Generative Adversarial Nets'
10:30 – 10:45	**Coffee break**

Paper Presentations PhD Students - Chair: Wolf-Christian Müller

10:45 – 10:55	**Ines Ahrens** – 'Finding Structure with Randomness'
10:55 – 11:05	**Jonas Köhler – '**Wasserstein Auto-Encoders' by Ilya Tolstikhin *et al*.
11:05 – 11:15	**Jiahan Wang** – ‚Kalman filter - A New Approach to Linear Filtering and Prediction Problems' by R. E. Kalman
11:15 – 11:25	**Oleksandr Zlatov** – 'Neural Network Dynamics for Model-Based Deep Reinforcement Learning with Model-Free Fine-Tuning' by Anusha Nagabandi *et al*.
11:25 – 11:35	**Paul Schwarz** – ‚LayoutNet: Reconstructing the 3D Room Layout from a Single RGB Image'
11:35 – 11:45	**Nils Harmening** – 'Artificial Neural Networks for Solving Ordinaryand Partial Differential Equations' by Isaac Elias Lagaris *et al*.
11:45 – 11:55	**Lara Booth** – 'Towards a mathematical formalism for classifying phases of matter' by Andreas Bauer *et al*.
12:00 – 13:00	**Lunch**