Curriculum Vitae

Personal Information

Name:	Evelyn Christin Herberg
Birthdate:	20.11.1993
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Nationality:	German

Education

2020 - 2022	Online Courses in Machine Learning and Deep Learning
2019 - 2021	Dr.rer.nat. Mathematics, University Koblenz-Landau, Germany, Supervisor: Prof. Dr. Michael Hinze, PhD Dissertation: Sparse discretization of sparse control problems with measures
2017 - 2019	PhD Student Mathematics, University of Hamburg, Germany, Supervisor: Prof. Dr. Michael Hinze
2015 - 2017	M.Sc. Business Mathematics, University of Hamburg
2012 - 2015	B.Sc. Business Mathematics, University of Hamburg
2011	Abitur, Marion-Dönhoff Gymnasium, Mölln, Germany

Academic Career

2022 - current	Postdoctoral Researcher, Interdisciplinary Center for Scientific Computing (IWR), Ruprecht-Karls-University Heidelberg, Germany, Supervisor: Prof. Dr. Roland Herzog
2021 - 2022	Postdoctoral Researcher, Center for Mathematics and Artificial Intelligence (CMAI), George Mason University, U.S.A., Supervisor: Prof. Dr. Harbir Antil
2019 - 2021	Research Assistant, Mathematical Institute, University of Koblenz-Landau, Supervisor: Prof. Dr. Michael Hinze
2017 – 2019	Research Assistant, Department of Mathematics, University of Hamburg, Supervisor: Prof. Dr. Michael Hinze
2017 - 2019	Finance Officer, SIAM Chapter Hamburg
2018 – 2019	Finance Officer, GAMM Chapter Hamburg
2018	Co-Founder of GAMM Chapter Hamburg

External Funding

2018 "Model Order Reduction Summer School",
Funding Sources:
- University of Hamburg, Mathematics, Informatics, and Natural Sciences (MIN) Graduate School;
- Deutsche Forschungsgesellschaft (DFG) Schwerpunktprogramm (SPP) 1962;
- Control and Optimization, Nonlinear PDEs, Calculus of Variations, Scientific Computing and Numerical Analysis (COPDESC)

Funds raised: ~15,500€

Publications

1. A general purpose framework for second order optimization with applications in dynamic optimization using randomized sketching
with M. Alshehri, H. Antil and D. P. Kouri - Under Preparation.

2. Adaptive Randomized Sketching for Dynamic Nonsmooth Optimization
with H. Antil, R. Baraldi and D. P. Kouri – Submitted, 2022.

3. An Optimal Time Variable Learning Framework for Deep Neural Networks
with H. Antil and H. Díaz - Submitted to Annals of Mathematical Sciences and Applications, 2022.

4. Variational discretization of one-dimensional elliptic optimal control problems with BV functions based on the mixed formulation
with M. Hinze - Mathematical Control & Related Fields, 2022.
doi:10.3934/mcrf.2022013

5. Variational discretization approach applied to an optimal control problem with bounded measure controls
with M. Hinze - Radon Series on Computational and Applied Mathematics Volume 29, "Optimization and Control for Partial Differential Equations", 2021. doi:10.1515/9783110695984-006

6. Maximal discrete sparsity in parabolic optimal control with measures
with M. Hinze and H. Schumacher - Mathematical Control & Related Fields, 2020. doi: 10.3934/mcrf.2020018

7. Sparse discretization of sparse control problems
with M. Hinze and H. Schumacher - PAMM. Volume 19, Issue 1, 2019.
doi:10.1002/pamm.201900105

Conference Talks and Posters

- Oberseminar Albert-Ludwigs-Universität Freiburg, Germany, November 2022.
Talk: "Learning the time step size in Deep Neural Networks".
- Chemnitz Finite Element Symposium 2022, Herrsching am Ammersee, Germany, September 2022.
Talk: "An Optimal Time Variable Learning Framework for Deep Neural Networks".

- International Conference on Continuous Optimization 2022, Bethlehem, PA, USA, July 2022.
  Talk: "Sketching for Nonsmooth PDE Constrained Optimization Problems".
- Accurate ROMs for Industrial Applications at Virginia Tech (ARIA@VT), Blacksburg, VA, USA, July 2022.
  Talk: "Sketching for Nonsmooth PDE Constrained Optimization Problems".
- The Finite Element Circus Spring 2022, Gainesville, FL, USA, April 2022.
  Talk: "An Optimal Time Variable Learning Framework for DNNs".
- East Coast Optimization Meeting 2022, Fairfax, VA, USA, March 2022.
  Talk: "An Optimal Time Variable Learning Framework for DNNs".
- The Finite Element Circus Fall 2021, State College, PA, USA, November 2021.
  Talk: "Sketching in dynamic constrained optimization".
- 44th SIAM Southeastern Atlantic Section Conference, Auburn, AL, USA, September 2021.
  Talks: "Variational discretization for optimal control with BV functions based on the mixed formulation" and "Sparse discretization of optimal control problems with PDEs".
- IFIP TC 7 Conference on System Modeling and Optimization, Quito, Ecuador, August 2021.
  Talk: "Variational discretization applied to sparse control problems with BV functions".
- GAMM 91st Annual Meeting, Kassel, Germany, March 2021.
  Talk: "Variational discretization approach applied to an optimal control problem with bounded measure controls“.
- Lothar-Collatz-Seminar, University of Hamburg, Germany, January 2020.
  "Variational discretization approach applied to an optimal control problem with bounded measure controls".
- Workshop: New trends in PDE constrained optimization, Linz, Austria, October 2019.
  Talk: "Variational discretization of PDE constrained optimal control problems with measure controls".
- International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 2019.
  Talk: "Sparse discretization in PDE constrained optimization with measure controls" and Poster.
- GAMM 90th Annual Meeting, Vienna, Austria, February 2019.
  Talk: "Sparse discretization of sparse control problems" and Poster: "Studentchapter Hamburg".
- Model Order Reduction Summer School, Hamburg, Germany, September 2018.
  Talk: "Introduction to optimal control".
- IFIP TC 7 Conference on System Modeling and Optimization, Essen, Germany, July 2018.
  Talk: "Maximal discrete sparsity in parabolic optimal control with measures".
- Young Researchers Meeting and CSE Workshop, Plön, Germany, March 2018.
  Talk: "Time-sparse discretization for parabolic optimal control with measures".
- Winter School Modern Methods in Nonsmooth Optimization, Würzburg, Germany, February 2018.
  Poster: "Time-sparse discretization for parabolic optimal control with measures“.

Mentoring

2022	Co-Mentoring Mohammed Alshehri (PhD student of Prof. Dr. Harbir Antil)

Teaching

Winter 2022/23	Seminar Mathematical Machine Learning (Master), and Seminar Advanced Topics of Numerics (Bachelor), Ruprecht-Karls-University Heidelberg
Spring 2022	Research Interaction and Training Seminar, George Mason University
Summer 2021	Optimization I (Master), Organization of Exercise Classes, University of Koblenz-Landau
Winter 2020/21	Optimization II (Master), Organization of Exercise Classes, University of Koblenz-Landau
Winter 2020/21	Applied Differential Equations (Master), Exercise Class, University of Koblenz-Landau
Summer 2020	Optimization I (Master), Organization of Exercise Classes, University of Koblenz-Landau
Winter 2019/20	Optimization II (Master), Organization of Exercise Classes, University of Koblenz-Landau
Summer 2019	Optimization I (Master), Organization of Exercise Classes and Substitute Lecture, University of Koblenz-Landau
Winter 2018/19	Numerics (Bachelor), Exercise Classes and 3 Substitute Lectures, University of Hamburg
Summer 2018	Optimization (Bachelor), Exercise Classes and Substitute Lecture, University of Hamburg
Winter 2017/18	Differential Equations I (Bachelor), Exercise Classes, Technical University of Hamburg
Summer 2017	Optimization (Bachelor), Exercise Classes, University of Hamburg
Winter 2016/17	Numerics (Bachelor), Exercise Classes, University of Hamburg
Winter 2016/17	"Girls go math", Exercise Classes for Highschool Students, University of Hamburg
Winter 2016/17	Preparation Course Mathematics for Mathematics, University of Hamburg
Summer 2016	Linear Algebra II (Bachelor), Exercise Classes, University of Hamburg
Winter 2015/16	Linear Algebra I (Bachelor), Exercise Classes, University of Hamburg
Winter 2015/16	Preparation Course Mathematics for Business Administration, University of Hamburg
Summer 2015	Optimization (Bachelor), Exercise Classes, University of Hamburg
Winter 2014/15	Numerics (Bachelor), Exercise Class, University of Hamburg

Conferences and Seminars Organized

2022	Co-Organisation Minisymposium with H. Antil and U. Shanbhag "Recent Advances in Hierarchical and PDE Con strained Optimization", International Conference on Continuous Optimization, Lehigh University, U.S.A.
2022	Support Team Member East Coast Optimization Meeting, George Mason University
2021 - 2022	Support Team Member CMAI Colloquium, George Mason University
2018	Co-Organisation "Model Order Reduction Summer School", University of Hamburg

Skills

Languages	English (fluent), French (good), Spanish (basics)
Programming	MATLAB, Python

References

- Prof. Dr. Michael Hinze, University of Koblenz-Landau, Germany, email: hinze@uni-koblenz.de
- Prof. Dr. Harbir Antil, George Mason University, U.S.A., email: hantil@gmu.edu
- Prof. Dr. Roland Herzog, Ruprecht-Karls-University Heidelberg, Germany, email: roland.herzog@iwr.uni-heidelberg.de