

Mario Teixeira Parente

Academic CV

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Experience

10/2020 – now *Jülich Centre for Neutron Science (JCNS)*
Postdoctoral researcher
Subject Machine learning-based data analysis of neutron experiments

Education

10/2016 – 09/2020 *Technical University of Munich (TUM)*
Mathematics (Dr. rer. nat.)
PhD Thesis Active Subspaces in Bayesian Inverse Problems

10/2013 – 04/2016 *Ludwig-Maximilians-Universität Munich (LMU)*
Mathematics (M.Sc.)
Master Thesis Brownian Motion and the Dirichlet Problem

10/2010 – 09/2013 *University of Applied Sciences Munich (HM)*
Scientific Computing (B.Sc.)
Bachelor Thesis N.V. Krylov's Proof of the de Moivre-Laplace Theorem

Scholarships

04/2012 – 05/2016 **German Academic Scholarship Foundation** (Studienstiftung des deutschen Volkes)
04/2012 – 04/2016 **Max Weber-Program of the State of Bavaria** (Max Weber-Programm Bayern)
10/2011 – 03/2012 **Deutschlandstipendium**

Teaching

Summer 2020 **Mathematical Models for UQ in Hydrology**, *Module construction*, TUM
Winter 2019/20 **Introduction to Numerical Linear Algebra**, *Exercise coordinator*, TUM
Summer 2019 **Numerics of PDEs for Engineers**, *Exercise coordinator*, TUM
Winter 2018/19 **Modeling and Simulation with ODEs**, *Tutor*, TUM
Summer 2018 **Numerics for ODEs**, *Tutor*, TUM
Winter 2017/18 **Introduction to Numerical Linear Algebra**, *Tutor*, TUM
Summer 2017 **Introduction to Programming**, *Tutor*, TUM
Summer 2017 **Hauptseminar: Uncertainty Quantification with Efficient Monte Carlo Methods**, TUM
Winter 2015/16 **Stochastics**, *Tutor*, LMU
Winter 2014/15 **Analysis I**, *Tutor*, LMU
Winter 2011/12 **Linear algebra and Software engineering**, *Tutor*, HM

Certificates

2017 – 2019 **Certificate for Teaching in Higher Education of the Bavarian Universities**, *Introductory and Advanced Level*, TUM ProLehre

Articles

Preprints

Journal papers

2020 **TP., M.**, Wallin, J., Wohlmuth, B. (2020). Generalized bounds for active subspaces. *Electronic Journal of Statistics*, 14(1), 917–943.



- 2020 Bittner, D., **TP., M.**, Mattis, S., Wohlmuth, B., & Chiogna, G. (2020). Identifying relevant hydrological and catchment properties in active subspaces: An inference study of a lumped karst aquifer model. *Advances in Water Resources*, 135, 103472.
- 2019 **TP., M.**, Bittner, D., Mattis, S., Chiogna, G., & Wohlmuth, B. (2019). Bayesian calibration and sensitivity analysis for a karst aquifer model using active subspaces. *Water Resources Research*, 55(8), 7086–7107.
- 2019 **TP., M.**, Mattis, S., Gupta, S., Deusner, C., & Wohlmuth, B. (2019). Efficient parameter estimation for a methane hydrate model with active subspaces. *Computational Geosciences*, 23(2), 355–372.

Not published

TP., M., *A probabilistic framework for approximating functions in active subspaces*

Talks, Conferences, etc.

- 05/2019 **Statistics Seminar**, *Active subspaces in Bayesian inverse problems*, Department of Statistics, Lund University
- 03/2018 **M2 Oberseminar**, *Active subspaces for Bayesian inversion, Application for a methane hydrate model*, Garching (slides)
- 09/2017 **FrontUQ** (Frontiers of Uncertainty Quantification in Engineering), Munich

Trainings

- 03/2017 **Parallel Programming of High Performance Systems**, Leibniz Computing Centre (LRZ)
- 02/2017 **Advanced C++ with Focus on Software Engineering**, Regionales RechenZentrum Erlangen (RRZE)

Other experiences

- 05/2019 **Research stay abroad**, Department of Statistics, Lund University, Topic: Theory of active subspaces
- 02/2019 – 03/2018 **Research stay abroad**, University of Texas at Austin (UT), Project: UNcertainties due to boundary conditions in predicting MIXing in groundwater (UNMIX)
- 06/2016 – 09/2016 **Student assistant**, HM, Project: Modeling and simulation of pedestrian movement
- 04/2016 – 05/2016 **Research internship**, Yale University (USA), Image processing of nanoscopic images in cell biology
- 10/2012 – 11/2013 **Student assistant**, HM, Project: Modeling and simulation of pedestrian movement

Munich, October 2, 2020