Felix Lucka

Curriculum Vitae

Personal Information

Born in Hannover, Germany on May 23, 1985, nationality: German

email Felix.Lucka@cwi.nl

homepage felixlucka.github.io

Research Interests

Theoretical Inverse problems, machine learning, Bayesian inference, uncertainty quantification, variational regularization, compressed sensing, mathematical modeling

Methodical Monte Carlo sampling, computational optimization, numerics for PDEs

Applications Biomedical imaging and computing

Work Groups

since 2017 **Member of "Computational Imaging"**, *Centrum Wiskunde & Informatica*, supervisor: Prof. Dr. Joost Batenburg.

since 2014 **Member of "The Center for Medical Image Computing"**, *Department of Computer Science, University College London*, supervisor: Prof. Dr. Simon Arridge.

2013 **Research Visit to UCLA**, *Department of Mathematics*, invited by Prof. Dr. Andrea Bertozzi and Prof. Dr. Stanley Osher.

2010-2014 **Member of "Workgroup Imaging"**, *Institute of Computational and Applied Mathematics, University of Münster*, headed by Prof. Dr. Martin Burger.

2008-2014 **Member of "SIM-NEURO: Stimulation, Imaging and Modeling of NEUROnal networks in the human brain"**, *Institute for Biomagnetism and Biosignalanalysis, University of Münster*, headed by PD Dr. Carsten H. Wolters.

Five Key Publications

[1] F. Lucka, N. Huynh, M.M. Betcke, E. Zhang, P. Beard, B. Cox and S.R. Arridge. Enhancing Compressed Sensing 4D Photoacoustic Tomography by Simultaneous Motion Estimation. *SIAM Journal of Imaging Science*, 11(4):2224-53, 2018.

[2] S.R. Arridge, P. Beard, M.M. Betcke, B. Cox, N. Huynh, F. Lucka, O. Ogunlade, and E. Zhang. Accelerated high-resolution photoacoustic tomography via compressed sensing. *Physics in Medicine and Biology*, 61(24):8908, 2016.

[3] M. Burger and F. Lucka. Maximum a posteriori estimates in linear inverse problems with log-concave priors are proper Bayes estimators. *Inverse Problems*, 30(11):114004, 2014.

[4] F. Lucka. Fast Markov chain Monte Carlo sampling for sparse Bayesian inference in high-dimensional inverse problems using L1-type priors. *Inverse Problems*, 28(12):125012, 2012.

The electronic version of this document contains hyperlinks to institutions, persons and further explanations, e.g., about terms and details of the German academic system.

[5] F. Lucka, S. Pursiainen, M. Burger, and C.H. Wolters. Hierarchical Bayesian inference for the EEG inverse problem using realistic FE head models: Depth localization and source separation for focal primary currents. *NeuroImage*, 61(4):1364–1382, 2012.

PhD Thesis

Title	*Bayesian Inversion in Biomedical Imaging*
Supervisors	Prof. Dr. Martin Burger and PD Dr. Carsten H. Wolters
Sub./Defense	Dec. 2014 / 23.01.2015
Degree	*summa cum laude*

Scientific Activities

Symposia	SIAM Imaging Science, Bologna, 2018: *Imaging with Light and Sound.*
	Applied Inverse Problems, Hangzhou, 2017: *New tricks for old problems: Novel computational methods for inverse problems.*
	SIAM Imaging Science, Albuquerque, 2016: *Imaging in the fast lane: in pursuit of dynamical information.*
	Applied Inverse Problems, Helsinki, 2015: *Bayesian Computation.*
Reviewer	Biomedical Physics & Engineering Express, Computer Methods and Programs in Biomedicine, Computational Statistics and Data, IEEE Transactions on Computational Imaging, IEEE Transactions on Medical Imaging, IEEE Transactions on Image Processing, Inverse Problems, Inverse Problems and Imaging, Inverse Problems in Science and Engineering, Journal of Biomedical Optics, Journal of Inverse and Ill-posed Problems, Journal of Mathematical Imaging and Vision, Jounal of Optics, Journal of the Optical Society of America A, Mathematical Problems in Engineering, NeuroImage, Neurological Research, Optics Express, Physics in Medicine & Biology SIAM Journal on Imaging Sciences, SPARS.
Referee	German National Academic Foundation (Studienstiftung des deutschen Volkes), University of Innsbruck, Austria.

Teaching

2015-2017	Teaching assistant for the lecture *Inverse Problems in Imaging*
2013	Introductory course to Matlab
2012	MSc seminar Mathematical Imaging and Inverse Problems.
since 2012	Supervision of Bachelor and Masters theses.
2009–2010	Student tutor for an exercise for the course *Stochastics*
2007–2008	Student mentor for the courses *Theoretical Physics III and IV*

Education

2005-2011	**Studies in Mathematics with minor in Physics**, *University of Münster*, grade of diploma: 0.85 (with greatest distinction).
2006-2011	**Studies in Physics with minor in Computer Science**, *University of Münster*, grade of intermediate diploma: 1.0.
1995–2004	**Secondary education (Abitur)**, *Gymnasium Mellendorf*, final grade: 1.0.

1991–1995 **Primary education**, *Grundschule Bissendorf*.

Funding and Scholarships

2018-21 **Research funding**, *Co-Applicant in British Heart Foundation New Horizons Grant no. NH/18/1/33511, "Towards comprehensive assessment of heart disease in children using real-time cardiovascular magnetic resonance".*

2011 **Research visit funding**, *Funding for a two week research visit at the RTWH Aachen by the annual meeting of the DMV (German mathematical society).*

2011-2014 **PhD-Scholarship**, *German National Academic Foundation (Studienstiftung des deutschen Volkes).*

2005-2011 **Scholarship**, *German National Academic Foundation (Studienstiftung des deutschen Volkes).*

Experience

since 2017 **Tenure track researcher**, *Centrum Wiskunde & Informatica, Amsterdam.*

since 2014 **Research associate**, *Department of Computer Science, University College London.*

2012-2014 **Research assistant**, *Institute for Computational and Applied Mathematics, WWU.*

2009–2010 **Student assistant**, *Institute of Mathematical Statistics, WWU.*

2008–2009 **Student assistant**, *Institute for Biomagnetism and Biosignalanalysis, WWU.*

March 2008 **Internship**, *Max-Planck-Institute for Dynamics and Self-Organization*, Göttingen.

2007–2008 **Student assistant**, *Institute for Theoretical Physics, WWU.*

2004–2005 **Alternative civilian service (Zivildienst)**, *gemeinnützige Gesellschaft für integrative Sozialdienste mbH (GIS), school escort for a disabled child.*

Engagement

University Students' union (Fachschaft), faculty council (Fachbereichsrat), miscellaneous faculty committees, faculty task force *Public Relations*, faculty task force *Networking*, organizer of the *Lange Nacht der Mathematik* (*Long Night of the Sciences* for mathematics), co-organizer of the awarded project *Studies an die Schulen*

Gymnasium Student council (Schülervertretung), school president (Schülersprecher)

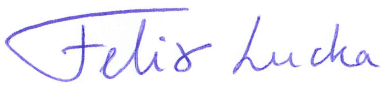
Miscellaneous Local youth council (Jugendparament der Gemeinde), miscellaneous political activities

References

Prof. Dr. Joost Batenburg: K.J.Batenburg@cwi.nl

Prof. Dr. Simon Arridge: s.arridge@cs.ucl.ac.uk

Prof. Dr. Martin Burger: martin.burger@uni-muenster.de



Amsterdam, March 19, 2019

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