Joana Sarah Grah

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Curriculum Vitae

Work Experience

05/2018 - date	Research associate at Graz University of Technology, Austria
10/2017 - 03/2018	Research associate at The Alan Turing Institute, London, UK
05/2014 - 10/2014	Scientific researcher at University of Münster, Germany
07/2007 - 08/2013	Sales assistant at Hennes & Mauritz B.V. & Co. KG Essen/Dorsten, Germany

Education

University of Cambridge, UK

10/2014 - 02/2018 **PhD in Applied Mathematics**

PhD thesis: Mathematical imaging tools in cancer research - from mitosis analysis to sparse regularisation

Supervisors: Prof. Carola-Bibiane Schönlieb, Dr Stefanie Reichelt

University of Münster, Germany

04/2012 - 04/2014 **Master of Science in Mathematics**

Master thesis: Methods for automatic mitosis detection and tracking in phase contrast images

Supervisors: Prof. Martin Burger, Prof. Carola-Bibiane Schönlieb, Dr Rachel Hegemann, Dr Stefanie Reichelt

10/2007 - 03/2012 **Bachelor of Science in Mathematics**

Bachelor thesis: Using homological persistence to segment 2D grayscale images: several methods

Supervisor: Dr Chantal Oberson-Ausoni

Albert-Schweitzer-Gymnasium Marl, Germany

08/1998 - 07/2007 **Allgemeine Hochschulreife** (Higher education entrance qualification)

International Research Stays

02/2017 - 04/2017	Technion - Israel Institute of Technology, Haifa, Israel Team of Prof. Guy Gilboa, Electrical Engineering Department
01/2017 - 02/2017	La Trobe University, Melbourne, and University of Sydney, Australia Visiting Prof. Reinout Quispel and Prof. Lamiae Azizi
09/2013 - 02/2014	University of Cambridge, UK Cambridge Image Analysis group, Prof. Carola-Bibiane Schönlieb, Department of Applied Mathematics and Theoretical Physics, and Light Microscopy Core Facility, Dr Stefanie Reichelt, Cancer Research UK Cambridge Institute

Awards, Grants and Scholarships

10/2017 Faculty of Mathematics Photography Competition 2017: Winner 'Mathematics at Cambridge' (overall) and 'Life at CMS' with V. Corona and J. Hjorth

10/2014 - 09/2017 NIHR Cambridge Biomedical Research Centre PhD fellowship

2015 - 2017 Travel grants from Robinson College and the Cambridge Philosophical Society

02/2017 - 04/2017 Technion International scholarship

03/2014 EPSRC Science Photo Competition 2013: First place 'People', Photo 'Mathematical analysis can make you fly' with C.-B. Schönlieb and K. Papafitsoros

09/2013 - 02/2014 PROMOS scholarship, DAAD (German Academic Exchange Service)

Research Communication

Papers

2019 E.-M. Brinkmann, M. Burger, JSG. Unified Models for Second-Order TV-Type Regularisation in Imaging - A New Perspective Based on Vector Operators. *Journal of Mathematical Imaging and Vision*, 61(5), 571-601, 2019. [article] [arXiv]

2017 M. Benning, G. Gilboa, JSG, C.-B. Schönlieb. Learning Filter Functions in Regularisers by Minimising Quotients. *Scale Space and Variational Methods in Computer Vision*, 511-523. Springer, 2017. [article] [arXiv]

2017 J. Pike, P. Mascalchi, JSG, S. Reichelt. Event Driven Automated Microscopy. Applications in Cancer Research. *Imaging & Microscopy*, 2017. [article]

2017 JSG, J. Harrington, S. B. Koh, J. Pike, A. Schreiner, M. Burger, C.-B. Schönlieb, S. Reichelt. Mathematical Imaging Methods for Mitosis Analysis in Live-Cell Phase Contrast Microscopy. *Methods*, 115: 91-99, 2017. Image Processing for Biologists. [article] [arXiv]

2015 E.-M. Brinkmann, M. Burger, JG. Regularization with Sparse Vector Fields: From Image Compression to TV-Type Reconstruction. *Scale Space and Variational Methods in Computer Vision*, 191-202. Springer, 2015. [article] [arXiv]

Selected Talks

06/2018 SIAM Conference on Imaging Science, Bologna, Italy

09/2017 LMS Workshop: Variational Methods Meet Machine Learning, Centre for Mathematical Sciences, University of Cambridge, UK

06/2017 Meeting of the Catalan, Spanish, Swedish Math Societies, Umeå, Sweden

05/2017 Applied Inverse Problems Conference, Hangzhou, China

05/2017 Mini Workshop on Bayesian Inverse Problems and Imaging, Shanghai, China

01/2017 Network of Mind Workshop, Sydney, Australia

12/2016 IFIP WG 7.4 Workshop on Inverse Problems and Imaging, Mülheim, Germany

03/2016 POEMS Workshop on Big Data, Multimodality & Dynamic Models in Biomedical Imaging, Isaac Newton Institute, Cambridge, UK

07/2015 The Microscience Microscopy Congress, Manchester, UK

06/2015 Workshop on Big Data in Medicine, Cancer Research UK Cambridge Institute

05/2015 Applied Inverse Problems Conference, Helsinki, Finland

03/2015 GAMM 86^{th} Annual Scientific Conference, Lecce, Italy

Co-Organisation of Minisymposium

2019 2-part minisymposium on 'Deep Learning and Inverse Problems' at the International Congress on Industrial and Applied Mathematics, Valencia, Spain

Teaching Experience

2018/2019, 2019/2020 Introduction to Scientific Writing / Writing Scientific Papers, Graz University of Technology

2017 Co-supervision of summer student, University of Cambridge (Margaret Duff)

Lent 2016, 2017, 2018 Biological Imaging and Analysis MPhil Computational Biology lecture (one of four) at the Department of Applied Mathematics and Theoretical Physics

2015, 2016 MATLAB courses at the Cancer Research UK Cambridge Institute

2015 Co-leader of workshop on Light Microscopy - Essentials and Advances, Churchill College

2014 Co-supervision of Bachelor thesis, University of Münster (Jonas Geiping)

Outreach, Voluntary Work

2019 - date Editorial Board member of Journal of Mathematics and the Arts

2018 Article in Eureka journal, issue 65

2018 Curator of the Faculty of Mathematics Twitter account @FacultyMaths, April

2016/2017 Robinson College MCR Committee: Women's Welfare Officer

2016 'Open Book' project: One-on-one supervision

2015 - 2017 Mentor in CyberMentor e-mentoring programme for female German STEM students (school)

2015 - date Science Communication at Open Lab Night (Graz University of Technology), Maths Fair (Cambridge Science Festival), Women in Science Festival (Robinson College), Ada Lovelace Day (Long Road Sixth Form College Cambridge), and others

2014 Talk on my experience in the UK in context of project 'Fliegendes Seniorenheim' (flying nursing home), foundation 'Bürger für Münster' (citizens for Münster)

Language Skills

German: Native, English: Proficient (IELTS: 8.0), French/Spanish: Basic, Qualification in Latin (Latinum)

IT Skills

MATLAB, Python, PyTorch, TensorFlow, LaTeX, office suites, various operating systems

Interests

Dancing (Musical, Modern, Contemporary, Latin), Running (Leader qualification obtained from England Athletics), Yoga, Pilates, Languages, Travelling

Graz, 31 March 2020