

Florian Schäfer

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Caltech, MC 305-16, 1200 E. California Blvd., Pasadena CA 91125

EDUCATION

California Institute of Technology (Caltech), Pasadena CA

- Ph.D. in Applied and Computational Mathematics
Advisor: Prof. Houman Owhadi expected *June 2020*

Rheinische Friedrich-Wilhelms Universität, Bonn, Germany

- M.S. in Mathematics *fall 2015*
Thesis title: The Time Discrete Exponential Map in the Space of Images
Advisor: Prof. Martin Rumpf
- B.S. in Mathematics, with Physics as secondary subject (*Nebenfach*) *fall 2013*
Thesis title: Gibbs-Young Measures
Advisor: Prof. Stefan Müller

University of Paris VI *Pierre et Marie Curie*, Paris, France

- Exchange student in Mathematics, via the Erasmus Programme *2013-2014*

TEACHING EXPERIENCE

TA for ACM104 (Applied Linear Algebra) at Caltech *fall 2016*

- Graded homework and exams, held weekly office hours

RESEARCH PROJECTS

Fast Inversion of Dense Kernel Matrices *ongoing*

- In collaboration with Profs. Tim Sullivan (FU-Berlin) and Houman Owhadi (Caltech), development of a fast Probabilistic Numerics method for the inversion of dense kernel matrices

Multi-Scale Computation of Localised Approximate Eigenbases *ongoing*

- In collaboration with Profs. Lei Zhang (Shanghai Jiaotong University) and Houman Owhadi (Caltech), development of multi-scale methods for the sparse approximation of eigenspaces of elliptic partial differential operators

The Time Discrete Exponential Map in the Space of Images *2014-2016*

- In collaboration with Alexander Effland and Prof. Martin Rumpf (Univ. of Bonn), theoretical and computational analysis of the exponential map in the variational time discretisation of the metamorphosis model for image analysis. Conditions for the existence and uniqueness of the exponential map were given and an efficient algorithm for its computation was proposed. The publication of the results is in preparation.

Machine Learning for Landmark Matching Medical Image Analysis *summer 2014*

- In collaboration with Prof. Laurent Younes (Johns Hopkins University), developed a machine learning method to rapidly estimate the position of points of interest in MRI images of the heart