Jannick Wolters

Applied Mathematician



About me

I am currently living in the beautiful city of Aachen, working on my Ph.D. at Karlsruhe Institute of Technology.

During my studies I developed a passion for solving complex real world problems from the realm of transport equations on modern HPC architectures.

Being a quick learner and reliable team player, I have successfully been working on a wide range of problems with fellow Ph.D. students as well as industry partners.

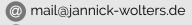
As I am now close to finishing my Ph.D., I am looking forward to work on new and exiting top-

Personal

Jannick Wolters Aachen, Germany 31 years old

Interests

GPU/FPGA Accelerators Transport simulations Machine Learning High Performance Computing Data Science Teaching





in in/jannick-wolters

jannick-wolters.de

profile/jannick_wolters

Work Experience

03/2018

Research Scientist

- 05/2021 Karlsruhe Institute of Technology

Steinbuch Centre for Computing (SCC)

Computational Science and Mathematical Methods (CSMM)

03/2017 **EFRE.NRW Project: ZEBRA** - 05/2020

Karlsruhe Institute of Technology & AiNT GmbH

R&D Project to develop an innovative measurement system for nondestructive elemental analysis of raw materials and contaminated sites based on PGNAA.

Role: Method development and FEM transport solver implementa-

tion

04/2017 - 03/2018

Research Scientist

RWTH Aachen

Center for Computational Engineering Science (MathCCES)

Simulation in Nuclear Technology

Note: Continued at KIT

10/2015

Student research and teaching assistant

-04/2017 **RWTH Aachen**

Research: 'Fully coupled MHD-simulations in OpenFOAM

Teaching: 'Partial differential equations'

10/2013

-03/2014

Research Internship

ABB Switzerland Ltd. Research Center Baden

Subject: 'Power Device Simulations in OpenFOAM'

Supervisor: Dr. Vincent Dousset

COMPUTER SCIENCE

MATHEMATICS

Topics

· Transport equations

AREAS OF EXPERTISE

- Boltzmann
- Navier-Stokes
- Magnetohydrodynamics
- · Uncertainty Quantification
- · Inverse Problems
- · (Bayesian) Statistics
- · Data Science

Numerics

- · Finite Volume Method
- · Finite Element Method
- · Sparse Reconstruction
- Optimization
- Krylov Solver
- · High-dimensional Integration

Languages

C++





Matlab 📣 julia





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RWTHAACHEN INVERSITY

High Performance Computing

- · MPI / OpenMP / OpenACC
- PETSc / Eigen

Machine Learning

- Tensorflow
- Keras

SOFTWARE PACKAGES

- FEniCS
- · OpenMC
- OpenFOAM
- Gmsh
- deal.ii
- Paraview

EDUCATION

- 10/2021

03/2018

Mathematics

PH.D. STUDENT · Karlsruhe Institute of Technology

Steinbuch Centre for Computing (SCC)

Computational Science and Mathematical Methods (CSMM) Thesis: 'Uncertainty Quantification for the Evaluation of

PGNAA Spectra'

Supervisor: Prof. Dr. Martin Frank

03/2017 Mathematics

- 05/2020 Ph.D. STUDENT · RWTH Aachen

Center for Computational Engineering Science (MathCCES)

Supervisor: Prof. Dr. Martin Frank

Note: Continued at KIT

04/2015 M.Sc. Computational Engineering Science

- 03/2017 STUDENT · RWTH Aachen

Thesis 'Uncertainty Quantification for Wind Farm Models'

Supervisor: Prof. Dr. Martin Frank

10/2010 B.Sc. Computational Engineering Science

- 03/2015 STUDENT · RWTH Aachen

Thesis 'MHD Simulations in OpenFOAM' Supervisor: Prof. Dr. Manuel Torrilhon

NTHAACHEN

RWTHAACHEN UNIVERSITY

Management abilities

Projects

- EU / state NRW funded project in very close collaboration with external company for three years
- Research group projects with multiple Ph.D. students

Students

- Supervised 8 successful thesis (2 Bachelor 6 Master)
- Topics: Machine Learning (4), Data Science (3), Inverse Problems (1)

SOFT SKILLS (TOP 3)

- Determination
- Teamwork
- Persistence

OTHER VALUABLE SKILLS

- Deep Linux knowledge
- SCRUM / Agile Development
- Versioning systems GIT / SVN
- Teaching (University lectures / exercises)
- · Docker / Vagrant

PUBLICATIONS

2021 Sparse signal reconstruction for prompt gamma neutron activation analysis
J. Wolters, K. Krycki, M. Frank

Submitted to

2021 Uncertainty Quantification of Offshore Wind Farms Using Monte Carlo and Sparse Grids

P. RICHTER, J. WOLTERS, M. FRANK

Journal of Energy Sources, Part B: Economics, Planning, and Policy

2021 Entropy-Based Methods for Uncertainty Quantification of Hyperbolic Conservation Laws

M. FRANK, J.KUSCH, J. WOLTERS Springer International Publishing

2020 Uncertainty Quantification of Offshore Wind Farms Using Monte Carlo and Sparse Grids.

J.Kusch, J. Wolters, M. Frank Journal of Computational Physics

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