

Helge Eichhorn

Curriculum Vitae

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Personal Information

Date of Birth 19/12/1986
Nationality German

Professional Experience

Head of Mission Operations

- 7/2018 – present Planetary Transportation Systems GmbH (formerly PTScientists GmbH)
- Lead of the Mission Analysis & Flight Dynamics Team
 - Ground segment architect and overall project manager
 - Technical officer for operations support provided by ESOC (flight dynamics, communications, flight and surface operations)

Software Engineer

- 2/2017 – 6/2018 Telespazio VEGA Deutschland GmbH
- Implementation of an attitude guidance generation tool for the mission planning system of ASI's PRISMA mission
 - Evolution and maintenance of ESA's UMF (Universal Modelling Framework) for model-based development of operational simulators
 - Validation of the EGS-CC (European Ground Systems - Common Core) Monitoring and Command Model kernel

Freelance Consultant in Mission Analysis

- 1/2014 – 10/2016 ESOC – European Space Operations Centre, European Space Agency
- Design and development of a new software infrastructure for lunar mission analysis
 - Evaluation of modern programming languages for next-generation astrodynamics systems

Research Assistant in the Department of Computer Integrated Design (DiK)

- 11/2013 – 10/2016 Technische Universität Darmstadt
- Research in model-based engineering, data modelling, and computational science
 - Benchmarking of LOTAR-compliant product data archiving systems for Airbus Group (2015-2016)
 - DFG-funded research project *SCoPE – Smart Components within Smart Production Processes and Environments* (2014)
 - Organisational and teaching support for the lecture *Virtual Product Development C – Product and Process Modelling*

Internship and Master's Thesis in Mission Analysis

- 11/2012 – 10/2013 ESOC – European Space Operations Centre, European Space Agency
- Design and development of the FASTOP software tool for launcher ascent trajectory optimization
 - Reconstruction of the Apollo 15 trajectory for the reevaluation of X-ray measurements

University Education

Doctor's Degree in "Mechanical Engineering" – Expected 2019

11/2013 – present Technische Universität Darmstadt

Thesis – *Model-Based Space Mission Design (working title)*

Advisor: Prof. Dr.-Ing. Reiner Anderl

Master's Degree in "Mechanical and Process Engineering"

10/2011 – 10/2013 Technische Universität Darmstadt

21/10/2013 Master's Thesis – *Knowledge-Based Simulation Models for the Payload Assessment of Launch Systems*

Advisor: Prof. Dr.-Ing. Reiner Anderl

Bachelor's Degree in "Mechanical and Process Engineering"

10/2007 – 9/2011 Technische Universität Darmstadt

25/5/2011 Bachelor's Thesis – *Image Post-Processing of the Impact of Super-Cooled Drops*

Advisor: Prof. Dr.-Ing. Cameron Tropea

8/2008 – 10/2008 Stay abroad: Kunglia Tekniska Högskolan (KTH) Stockholm, Sweden

Civilian Service

10/2006 – 6/2007 Paramedic – DRK Rettungsdienst Rheinhessen-Nahe gGmbH, Mainz

Education

8/1997 – 3/2006 Rabanus-Maurus-Gymnasium, Mainz

1/2003 – 6/2003 Stay abroad: Belmont Secondary Highschool Victoria, B.C., Canada

Additional Qualifications

Language Skills

German Native speaker

English Fluent

Software Development

Expert Julia, Python, MATLAB, Fortran

Intermediate Java, C/C++, Bash

General IT

OS Linux, macOS, Windows

other LaTeX, Microsoft Office, LibreOffice

Relevant Publications

- Eichhorn, Helge; Steindorf, Lukas; Cano, Juan Luis: Astrodynamics.jl: A Julia-Based Open Source Framework for Orbital Mechanics. In: Proceedings of the 7th International Conference on Astrodynamics Tools and Techniques (ICATT 2018), Oberpfaffenhofen, Germany, 6-9 November, 2018.
- Eichhorn, Helge; Cano, Juan Luis; McLean, Frazer; Anderl, Reiner: A Comparative Study of Programming Languages for Next-Generation Astrodynamics Systems. In: CEAS Space Journal (2017). <https://doi.org/10.1007/s12567-017-0170-8>.
- Eichhorn, Helge; Anderl, Reiner: Plyades: A Python Library for Space Mission Design. In: Proceedings of the 8th European Conference on Python in Science (EuroSciPy 2015), Cambridge, United Kingdom, 28-29 August, 2015 (pp. 9-12).