Helge Eichhorn

Curriculum Vitae

Holzhofallee 22b
64295 Darmstadt, Germany
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helge@helgeeichhorn.de

Personal Information

Date of Birth 19/12/1986
Nationality German

Professional Experience

Software Engineer

since 2/2017 Telespazio VEGA Deutschland GmbH

- Maintenance of ESA's Universal Modelling Framework (UMF) for model-based development of operational simulators
- Validation testing of the EGS-CC Monitoring and Control Model (MCM) kernel

Freelance External Contractor in Mission Analysis

1/2015 – 10/2016 European Space Operations Centre, European Space Agency

- Design and development of a new software infrastructure for lunar exploration mission analysis
- Maintenance and extension of the FASTOP software tool for launcher ascent trajectory optimization
- Evaluation of modern programming languages for next-generation astrodynamics software 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
- Industry cooperation with Airbus Group (2015-2016)
  - Evaluation and benchmarking of LOTAR-compliant product data archiving systems
- DFG-funded research project *SCoPE – Smart Components within Smart Production Processes and Environments* (2014)
  - Development of an integrated component data model in cooperation with two Brazilian universities (UNIMEP, Poli-USP)
- Organisational and teaching support for the lecture *Virtual Product Development C – Product and Process Modelling*

Master's Thesis in Mission Analysis

5/2013 – 10/2013 European Space Operations Centre, European Space Agency

- Design and development of the Fortran-based FASTOP software tool for launcher ascent trajectory optimization and payload assessment

Internship in Mission Analysis

11/2012 – 4/2013 European Space Operations Centre, European Space Agency

- Reconstruction of the Apollo 15 trajectory on behalf of ESAC for the reevaluation of X-ray measurements

University Education

Doctor's Degree in "Mechanical Engineering" – Expected 2018

since 11/2013 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; 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).

Darmstadt, February 6, 2018