Jonathan Haag

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Education

Since 10/2021 — **M.Sc. Simulation Technology**
University of Stuttgart, Germany
Current grade: 1.2 (Germany)

08/2022-06/2023 — **Exchange student (Erasmus+)**
Royal Institute of Technology (KTH), Stockholm, Sweden
Average Grade: 3.9/4

10/2017-03/2021 — **B.Sc. Engineering Cybernetics**
University of Stuttgart, Germany
Final grade: 1.5 (Germany)

09/2016-12/2016 — **CAE Certificate**
EF International Language Campus, San Diego, USA
Final grade: Grade A, Overall score: 200

09/2008-06/2016 — **A levels (Abitur)**
Ellentalgymnasien, Bietigheim-Bissingen, Germany
Final grade: 1.6 (Germany)
Prize by the German Mathematical Society ("Abiturpreis der DMV")

Research Experience

Since 12/2024 — **Research internship and MSc thesis project for neuromorphic engineering**
Institute for Neuroinformatics (INI), UZH/ETH Zurich, Switzerland
Implementation of a novel learning algorithm for spiking neural networks based on target propagation and feedback control signals on mixed-signal neuromorphic hardware

11/2023-10/2024 — **Research internship and student research assistant for ecological modelling**
Helmholtz-Centre for Environmental Research (UFZ), Leipzig, Germany
Conceptualized, implemented, and analyzed a trade network optimization model to investigate grassland farmers' drought risk using a spatial equilibrium approach

09/2023-03/2024 — **Research internship for data-driven surrogate modelling**
Institute for Modelling Hydraulic and Environmental Systems and Institute for Applied Analysis and Numerical Simulation, both University of Stuttgart, and Bosch Research, Renningen, Germany
Conceptualized, implemented, and tested a surrogate modelling framework for real-time automatic control of heat pumps using dynamic mode decomposition

11/2020-10/2021 — **BSc thesis project and student research assistant for computer vision**
Institute for System Dynamics, University of Stuttgart, Germany
Conceptualized, implemented, and tested a coupled simulation-vision framework for deformable environments combining finite element simulations with visual SLAM, designed a graphical user interface, contributed to publication [1]

04/2020-
03/2022 **Student research assistant for soft robotics**
Institute for System Dynamics, University of Stuttgart, Germany
Conducted experiments and tested a simulation framework to validate measurement data for a pneumatically driven soft robot, contributed to paper on energy efficient pneumatics [2]

Publications

[1] "A Model-based Simultaneous Localization and Mapping Approach for Deformable Bodies"
J. Schüle, **J. Haag**, P. Somers, C. Veil, C. Tarín and O. Sawodny *(2022)*
IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)
Won Student Best Paper Award

[2] "Energy Efficient Pneumatics: Aspects of Control and Systems Theory"
D. Müller, **J. Haag**, J. Wickert, A. Raisch, K. Hoffmann, K. Schmidt and O. Sawodny (2022)
International Journal of Fluid Power

Work Experience in Industry

09/2019-
02/2020 **Working student for radar development for driver assistance systems**
Robert Bosch GmbH, Abstatt, Germany

07/2017-
08/2017 **Internship for supplier evaluation and recourse**
Porsche AG, Weissach, Germany

Extracurricular Activities

06/2024 **Summer School "Neuro-AI: Harnessing AI to understand computation in mind and brain"**
University of Amsterdam, Netherlands

Since 2016 **Tutoring**
Math for high school students
Applied mechanics and real-time data processing tutorials and labs at university
Winter school on ecological modelling at UFZ

04/2021-
03/2022 **Member of the School for Talents of the University of Stuttgart**
Series of workshops on Design Thinking
Recruiting sponsors for and organization of sustainability challenge on the university campus

Skills & Interests

Languages German (native), English (C2), Spanish (B1), Latin (B1)
Technology Python (Advanced), Julia (Intermediate), Matlab (Intermediate), C (Beginner)
git, Docker, LaTeX
Numpy, SciPy, PyTorch, JuMP, Makie
Interests Outdoor sports, Literature, Theatre, Cooking

March 03, 2025