



# Dr. Daniel Siemssen

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## Profile

Currently developing software in the area of artificial intelligence and machine learning; former researcher and lecturer in mathematical physics. Fast learner with strong analytical skills and attention to detail. Effective at coming up with innovative and efficient solutions. Reliable team-player with excellent communication skills. Proficient in taking projects from initial ideas to completion. Passionate about programming with more than 20 years of experience.

## Experience

- Aug 2022 – present **Senior Data Scientist** · CARIAD  
Creating automotive grade tools to enable the development of artificial intelligence and machine learning applications across the company and the Volkswagen Group.
- Oct 2021 – Mar 2022 **Researcher** · *University of Wuppertal, Department of Mathematics*  
Working on deep learning and uncertainty quantification solutions for autonomous driving. Semantic segmentation and sensor fusion of camera and lidar data using deep neural networks. Generation of synthetic datasets. Refactoring and packaging existing Python scripts to improve the research group's tooling. Mentoring junior researchers on software development tools and best practices.
- Oct 2019 – Sep 2021 **Associate Lecturer in Mathematical Physics** · *University of York, Department of Mathematics*  
Taught classes on quantum information & computing, quantum mechanics, and general relativity. Organized and taught an online course for 200+ international PhD students and researchers. Supervised 11 bachelor and master theses on topics including reinforcement learning, optimizers for deep learning, and quantum algorithms. Mentor for more than 20 undergraduate and graduate students. Research on mathematical aspects of quantum field theory.
- Oct 2018 – Sep 2019 **Interim Professor in Applied Mathematics** · *University of Wuppertal, Department of Mathematics*  
Taught classes on subjects of probability theory, mathematical finance, and mathematical analysis. Managed a team of teaching assistants. Co-supervised a PhD student. Research on mathematical aspects of quantum field theory.
- Oct 2017 – Sep 2018 **Postdoctoral Researcher** · *University of Wuppertal, Department of Mathematics*  
Completed a co-authored research project on the coupling of gravity and quantum fields. Supported lectures and seminars on machine learning. Organised a scientific workshop.
- Oct 2015 – Sep 2017 **Postdoctoral Fellow (FUGA Fellowship)** · *University of Warsaw, Faculty of Physics*  
Principal investigator for a two-year research project on quantum field theory in curved spacetimes and associated questions in the theory of differential equations. Taught exercise classes on topics in mathematical physics. Co-organized a scientific conference.
- Mar 2015 – May 2015 **Postdoctoral Fellow (Riemann Fellowship)** · *University of Hannover, Riemann Center*  
Research on a quantum field theory of electrodynamics in general media in collaboration with researchers at the Center of Applied Space Technology and Microgravity, Bremen.
- Jan 2003 – Mar 2015 **Freelancer, Web Development and Programming**  
Developed web applications using PHP, Ruby (on Rails) and SQL databases. Designed web pages using HTML, CSS and JavaScript. Contributed to open-source software projects.
- Aug 2000 – May 2005 **Network & Web Administrator** · *Leibniz-Gymnasium Bad Schwartau*  
Administered the school's network, including the classroom Windows computers and the central Linux server. Developed software, including a content management system and a remote control tool.

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## Education

- **PhD in Mathematics** · University of Genova (with 6 months at University of York) · Feb 2015  
Thesis: *The Semiclassical Einstein Equation on Cosmological Spacetimes*
- **Diploma in Physics** · University of Hamburg (with 1 year at NTNU, Trondheim) · Jun 2011  
Thesis: *Quantization of the Electromagnetic Potential in Asymptotically Flat Spacetimes*

## Awards and Achievements

- Published **12 peer-reviewed articles** in leading journals
- Gave **more than 40 talks** to international audiences at conferences and seminars
- Won a two-year **FUGA grant** from the Polish National Science Centre (NCN)
- Won a three-months **Riemann fellowship** from the Riemann Center, University of Hannover
- Won a one-month **PROMOS scholarship** from the German Academic Exchange Service (DAAD)
- Co-authored a successful **research grant** from the German Research Foundation (DFG)
- Nominated '**Teacher of the Year**' at the University of York; consistently highly evaluated teaching
- Certified '**Administrator – Computer Network**' by the Chamber of Industry and Commerce Lübeck (IHK Lübeck)

## Skills

- Current **programming languages**: Python and Julia
- Advanced knowledge of **PyTorch, NumPy** and other relevant Python packages
- 20+ years of experience with **Linux and Unix-based operating systems**
- Proficient with **HPC and container software**, e.g., Slurm, Docker and Singularity
- Long-term user of **Git** and GitHub (since 2008)
- Advanced **programming expertise**; following best practices for reliable, performant and maintainable software
- Strong and proven ability to **formulate research problems**, and to **develop innovative solutions**
- Effective at **working independently** and **collaboratively** in dynamic international environments
- Competent in **managing projects** and **teams**
- Experienced in **presenting to small and large audiences**, in-person and remotely
- Excellent **scientific writing skills**, targeting specialist and non-specialist audiences
- **Languages**: German – native, English – fluent, Polish – basic