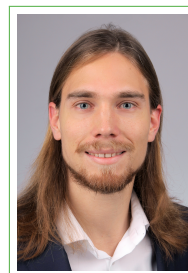


# Julian Bitterwolf

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## Education

- 2014 **MSc Mathematics**, *École Polytechnique & Université Paris Sud 11*, Palaiseau/Orsay, FR, avg. grade: 15.3/20.  
Program: "Mathematics: Analysis, Arithmetics and Geometry"
- 2017 **BSc Mathematics**, *Karlsruhe Institute of Technology*, Karlsruhe, DE, 1.1.  
Bachelor in Mathematics. Thesis on "Models for Synthetic Differential Geometry" with supervisors Prof. F. Herrlich and Dr. Felix Wellen, Institute of Algebra and Geometry
- 2015 **BSc Physics**, *Karlsruhe Institute of Technology*, Karlsruhe, DE, 1.3.  
Bachelor in Physics with minor in Business Administration. Thesis with the title "Path Integration via Infinitesimal Complex Time Phases" on instantons with supervisors Prof. J. Schmalian and Dipl.-Phys. Pia Gagel, Institute for Theoretical Condensed Matter Physics
- 2012-2013 **Erasmus Year**, *École Polytechnique*, Palaiseau.  
3rd year of EP's mathematics program. Final presentations on representation theory and quantum groups
- 2009 **Abitur**, *Lessing-Gymnasium*, Karlsruhe, 1.4.

## Master thesis

- title **The Eilenberg-MacLane Theorem for Simplicial Sheaves**
- supervisor Prof. Dr. Fabien Morel, LMU München
- description In this work, I showed that the result  $H^n(X, M) \cong [X, K(M, n)]$ , linking cohomology and homotopy, does not only hold in the classical context where  $X$  is a simplicial set and  $M$  an abelian group with its Eilenberg-MacLane space  $K(M, n)$ , but also in the generalization of  $X$  as a simplicial sheaf and  $M$  as a sheaf of abelian groups.

## Experience

### Vocational

- 2017- **Research Assistant**, *Research Center for Information Technology (FZI), in the SIM group*, Karlsruhe, DE.  
Research on the influence of environmental effects on deep learning models for image recognition in autonomous driving
- 2015, 2016, 2017 **Lecturer: Preparatory course in physics for geodesy and transportation management/civil engineering/economics**, *Karlsruhe University of Applied Sciences*, Karlsruhe, DE.  
Preparing and holding a week of introductory physics lectures for beginning students.

- 2017 **Lecturer: Preparatory course in mathematics for economics.**
- 2009–2010 **Combat Signaller**, *Command Support Battalion 291 of the Bundeswehr*, Sigmaringen, DE, Obligatory military service in the German armed forces, including basic military training and training as an IT-soldier.
- Miscellaneous**
- 2016 **Gap Year**, TH, LA, KH, MY, ID, SG.  
Travelling Asia, learning a lot about different cultures, life in challenging circumstances, extreme weather situations, and myself
- 2016 **Dive Master**, *Scuba Junkie Komodo*, Flores, ID.  
Six week internship program, leading to the PADI Dive Master certification which qualifies for working as diving group leader
- 2011–2015 **Secretary of Hector-Seminar-Alumni e.V.**, Heidelberg, DE.
- 2011–2012 **IT System Administrator**, for the research group *Number Theory and Algebraic Geometry*, *Institute of Algebra and Geometry*, KIT, Karlsruhe, DE.
- 2010–2011 **Tutor**, *Institute of Algebra and Geometry*, KIT, Karlsruhe, DE.  
Holding a tutorial accompanying the lecture "Linear Algebra and Analytic Geometry I" by Prof. D. Hug and Prof. W. Tuschmann.
- 2008 **Project leader on human flows measurement**, *Hector-Seminar*, Karlsruhe, DE.  
Conceptualizing, planning, organizing and executing a 5-month weekly project for 18 participants.

## Languages

German *native speaker*      English *fluent*      French *very good command*

## Computer skills

Programming	C++, Python	Graphics	Inkscape, GIMP, OpenCV
Office	LaTeX, LibreOffice	Calculation	MATLAB, TensorFlow,
Proving	Isabelle, Lean, Coq		Caffe, Pytorch

## Prizes, honours and extracurricular education

- 2017 Participant at the EUTypes Summer School in Ohrid, MK
- 2012 – 2013 **Deutschlandstipendium**
- 2002 – 2009 Participant of the **Hector-Seminar**, a weekly seminar class on mathematics, computer science, natural science and technology, for selected highly gifted pupils.
- 2009 Second place in the regional **Jugend forscht**-competition with the chemistry project „Nitration of toluene – challenging poorly documented school book statements“
- 2007 Invited participant at a workshop on spacetime descriptions within the Deutsche Schülerakademie with a talk on gravitational waves

## Publications

J. Bitterwolf, E. Rusak, S. Reiter, A. Viehl, and O. Bringmann. An artificial neural network for automated fault detection. Submitted to *Information Technologies for Intelligent Decision Making Support*, Ufa, Russia, May 2018.