



Felix Jonathan Boes

Curriculum Vitae

Personal information

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Education & Position

since 2022 **Akademischer Rat (Lecturer)**, *Institut for Computer Science, University of Bonn*
2018 – 2022 **Postdoc with Michael Meier**, *IT Security work group University of Bonn*
2018 **Dr. rer. nat., Grade 0.7**, *University of Bonn, Mathematics*
2014 **Master of Science, Grade 1.1**, *University of Bonn, Mathematics*
2012 **Bachelor of Science, Grade 1.5**, *University of Bonn, Mathematics*
2008 **Abitur, Grade 1.2**, *Lessing Gymnasium Düsseldorf*

Publications

in preparation **Script on foundations of Algorithms and Programming**, *planned: 200 – 260 pages*, The current version: https://gitlab.com/DerFelix/alpro/-/blob/main/alpro_skript.pdf
in preparation **Topological Data Analysis of Sybil Attacks**, *Joint with Christian Bungartz*
Aug. 2022 **On the Feasibility of Supervised Machine Learning for the Detection of Malicious Software Packages**, *Joint with Marc Ohm, Christian Bungartz and Michael Meier*, Proceedings of the 17th International Conference on Availability, Reliability and Security

- Apr. 2022 **Supporting the Detection of Software Supply Chain Attacks through Unsupervised Signature Generation**, *Joint with Marc Ohm, Lukas Kempf and Michael Meier*, GI Sicherheit 2022
- Jan. 2022 **Credential Intelligence Agency - A Threat Intelligence Approach to Mitigate Identity Theft**, *Joint with Timo Malderle, Gina Muuss, Matthias Wuebbeling and Michael Meier*, https://link.springer.com/chapter/10.1007/978-3-030-94900-6_6
- Sep. 2020 **Privacy-Preserving Warning Management for an Identity Leakage Warning Network**, *Joint with Saffija Kasem-Madani, Timo Malderle and Michael Meier*, <https://www.fvv.um.si/eicc2020/>
- Jun. 2018 **On moduli spaces of Riemann surfaces**, *Dissertation, 158 pages*, https://net.cs.uni-bonn.de/fileadmin/user_upload/boes/dissertation.pdf
- May. 2017 **On the homotopy type of the space of Sullivan diagrams**, *Preprint joint with Daniela Egas Santander, 59 pages*, <https://arxiv.org/abs/1705.07499>
- Apr. 2017 **C-Programmierkurs für Fortgeschrittene**, *Joint with Clelia Albrecht and Johannes Holke, 64 pages*, https://net.cs.uni-bonn.de/fileadmin/user_upload/boes/Albrecht__Holke__Boes_-_AdvProgKurs.pdf
- Apr. 2017 **Python Skript**, *Joint with Clelia Albrecht and Johannes Holke, 73 pages*, https://net.cs.uni-bonn.de/fileadmin/user_upload/boes/python_skript.pdf

Scholarships and Awards

- Jul. 2022 **Lehrpreise der Mathematisch-Naturwissenschaftlichen Fakultät der Universität Bonn**, *With the award, the faculty recognises outstanding personal commitment to teaching*
- 2014 – 2018 **Max Planck Research School on Moduli Spaces**

Organized Events

- since 2020 **Recurring events for cross-disciplinary gender equality promotion**, *University of Bonn*, <https://www.informatik.uni-bonn.de/de/gleichstellung>
- since 2019 **Research Seminar of the departement for Computer Science 4**, *University of Bonn*, <https://net.cs.uni-bonn.de/research/oberseminar/>
- Apr. 2017 **C und Python Programmierkurs für Mathematiker SS 2017**, *University of Bonn*, Coorganizer and Speaker together with Clelia Albrecht and Johannes Holke, 2 weeks, ca. 70 participants, https://net.cs.uni-bonn.de/fileadmin/user_upload/boes/Albrecht__Holke__Boes_-_AdvProgKurs.pdf

- Oct. 2015 **Introductory School on Moduli Spaces**, *Max Planck Institute for Mathematics Bonn*, Coorganizer and speaker together with Elba García Failde and Federico Zerbini, 2 weeks, 10 speakers, ca. 50 participants, <https://www.mpim-bonn.mpg.de/node/6179>
- Sep. 2013 **Schülerwoche 2013**, *University of Bonn*, Coorganizer with Dr. Michael Meier and Clelia Albrecht, 4 days, 4 speakers, ca. 90 pupils from 42 schools, <https://www.mathematics.uni-bonn.de/mathematik-in-bonn/veranstaltungen/weitere/inhalte/11.-14.-sep.-2013-schuelerwoche-2013>

Given Talks

- Jun. 2018 **On moduli spaces of Riemann surfaces**, *University of Bonn*, Promotion-skolloquium
- Apr. 2018 **On the homotopy type of the stable harmonic compactification**, *University of Bonn*, 29th NRW Topology Meeting
- Jun. 2017 **The moduli space of Riemann surfaces its harmonic compactification**, *University of Berlin*, Research Seminar
- Apr. 2017 **Lecture on Python**, *University of Bonn*, https://net.cs.uni-bonn.de/fileadmin/user_upload/boes/python_skript.pdf
- Oct. 2016 **The unstable Homology of Mapping Class Groups of Surfaces**, *University of Copenhagen*, Research Seminar Algebra and Topology
- Sep. 2016 **On the Homology of a Compactification of the Moduli Space of Surfaces**, *Nijmegen*, European Autumn School in Topology 2016
- Jan. 2016 **Combinatorial aspects of the compactification of Moduli Spaces of Riemann Surfaces**, *Serbian Academy of Sciences and Arts, Belgrade*, Research Seminar: Combinatorics in Geometry, Topology and Algebra
- Oct. 2015 **The Moduli Space of Riemann Surfaces – Models and Computations; The Moduli Space Polygons**, *Max Planck Institute Bonn*, Introductory School on Moduli Spaces
- Sep. 2015 **On Computations of the Homology of Moduli Spaces of Riemann Surfaces**, *University of Hamburg*, DMV Jahrestagung
- May. 2015 **The Moduli Space of Riemann Surfaces**, *FU Berlin*, Topological Combinatorics Oberseminar
- Dec. 2014 **Three talks on Hilbert Uniformization, Homology Operations and Calculations**, *University of Bonn*, Research Seminar of the Bonn Topology Group, Joint with Prof. Bödigheimer

Attended Conferences

- Jun. 2018 **DIMVA 2018**, *Gesellschaft für Informatik / Campus Paris–Saclay*
- Jun. 2018 **ESSoS 2018**, *Gesellschaft für Informatik / Campus Paris–Saclay*

- Apr. 2018 **Sicherheit 2018**, *Gesellschaft für Informatik / HTWG Konstanz*
- Apr. 2018 **29th NRW Topology Meeting**, *University of Bonn*
- Sep. 2017 **Applied and Computational Algebraic Topology (Part 2)**, *Hausdorff Research Institute for Mathematics Bonn*
- Jul. 2017 **Young Topologist Meeting**, *University of Stockholm*
- Summer 2017 **K-Theory and Related Fields**, *Hausdorff Research Institute for Mathematics Bonn*
- Apr. 2017 **Applied and Computational Algebraic Topology (Part 1)**, *Hausdorff Research Institute for Mathematics Bonn*
- Nov. 2016 **26th NRW Topology Meeting**, *University of Osnabrück*
- Oct. 2016 **Configuration Spaces and Moduli Spaces in Homotopy Theory**, *University of Bonn*
- Sep. 2016 **European Autumn School in Topology 2016**, *Nijmegen*
- Sep. 2016 **Topology**, *Hausdorff Research Institute Bonn*
- Jul. 2016 **Young Topologist Meeting**, *University of Copenhagen*
- Apr. 2016 **25th NRW Topology Meeting**, *University Duisburg–Essen*
- Oct. 2015 **Introductory School on Moduli Spaces**, *Max Planck Institute for Mathematics Bonn*
- Sep. 2015 **DMV Jahrestagung**, *Deutsche Mathematiker Vereinigung / University of Hamburg*
- Sep. 2015 **Computational Algebraic Topology**, *University of Oxford, CMI-LMS Research School 2015*
- Aug. 2015 **Conference on Topology and Geometry**, *Hausdorff Research Institute for Mathematics Bonn*
- Jun. 2015 **Convex geometry - discrete and computational**, *TU Berlin and FU Berlin*
- May. 2015 **Topological Combinatorics of Configuration Spaces**, *Oberwolfach Seminar*
- May. 2015 **Homotopy theory, manifolds, and field theories**, *Hausdorff Research Institute Bonn*
- Dec. 2014 **Polymake Conference**, *TU Berlin*
- Nov. 2014 **Discrete, Computational and Algebraic Topology**, *University of Copenhagen*

Teaching

- since 2022 **Bachelors course on Objectoriented Programming Projects**
- since 2021 **Bachelors course on the foundation of Algorithms and Programming**
- since 2021 **Preliminary Course on Python**, *two weeks for first-year students*
- since 2021 **Masters course on Side Channel Attacks**

- since 2021 **Speaker in the annual “Tutor:innenschulung der Mathematik”** , a workshop to improve the quality of the exercise sessions
- since 2019 **Supervision of Bachelor’s Theses and Master’s Theses**
- 2018 – 2022 **Teaching assistant of Prof. Meier**
- 2016 – 2017 **Teaching assistant and supervision of exercise sessions of Prof. Bödigheimer**
- 2016 **Supervision of exercise sessions of Prof. Teichner**
- 2014 – 2016 **Teaching assistant and supervision of exercise sessions of Prof. Bödigheimer**
- 2012 – 2014 **Supervision of the participants of the annual “Tutorenschulung”**, a workshop to improve the quality of the exercise sessions
- 2010 – 2013 **Supervision of exercise sessions**

Responsible positions

- 2013 – 2014 **Member of the “Schulteam” of the Hausdorff Center for Mathematics**, *The HCM Schulteam’s tasks include: The communication of mathematics to pupils via self contained lectures and workshops; The organization and execution of cultural events of the mathematical community*, <https://www.mathematics.uni-bonn.de/mathematik-in-bonn/schulportal>
- 2011 – 2013 **Elected member of the “Fachschaftsvertretung”**

Software projects

- since Nov. 2020 **MintMobilApp**, *Multiplattform App (Android, iOS, Web) which is part of workshop for pupils on secure key exchange, 2,000 lines of code, ReactNative and Rust*
- since 2018 **FATDATA**, *Scientific software written in Python and C++17 for analyzing datasets with common and topological tools. Joint with Christian Bungartz, more than 60,000 lines of code*
- since 2015 **hosd**, *Scientific software written in Python and C++11 for computing the homology of string diagrams*, <https://github.com/felixboes/hosd>, More than 2,400 lines of code
- 2016 **dnes**, *An emulator for the Nintendo Entertainment System (NES) written in C++11, More than 3,000 lines of code*
- since 2013 **Kappa**, *Scientific software written in C++11 and Python for exact homology computations, Joint with Anna Hermann, More than 8,000 lines of code*

Programming languages

- C **good**, Familiar concepts and libraries: Standard library, Unix Sockets, POSIX Threads, OpenMP, GNU Multiprecision Library, Simple Direct Media Layer

C++ **good**, Familiar concepts and libraries: Standard (template) library, Template metaprogramming, Concurrent computing via `std::thread`, Boost

Python **good**, Familiar concepts and libraries: Standard library, C bindings via Extension Modules and CTypes, TkInter, SageMath

Java **basic**

Languages

German **native**

English **fluent**

French **basic**