

# Curriculum Vitae

Prof. Dr. Rolf Drechsler

## Personal Data

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Affiliation (office)      University of Bremen  
 Faculty 3 - Mathematics and Computer Science  
 German Research Center for Artificial  
 Intelligence GmbH  
 Cyber-Physical Systems  
 Bibliothekstr. 5  
 28359 Bremen, Germany  
 Phone: +49 421-218 63932,  
 Fax: +49 421-218 98 63932  
 Email: [drechsler@uni-bremen.de](mailto:drechsler@uni-bremen.de)  
<http://www.informatik.uni-bremen.de/agra>



## Education

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- 1988-1992    Student of Mathematics and Computer Science, J.W. Goethe-Universität in Frankfurt am Main, Germany
- 1992        Diploma in Computer Science, J.W. Goethe-Universität in Frankfurt am Main, Germany, Advisor: Prof. Dr. B. Becker  
 Thesis (in German): *Synthesis of Fully Testable Adders under the Robust Path-Delay Fault Model*
- 1995        Dr. phil. nat. (summa cum laude), J.W. Goethe-Universität in Frankfurt am Main, Germany, Advisor: Prof. Dr. B. Becker  
 Thesis (in German): *Ordered Kronecker Functional Decision Diagrams and their Applications*
- 1999        Habilitation, Albert-Ludwigs-Universität in Freiburg im Breisgau, Germany, Advisor: Prof. Dr. B. Becker  
 Topic (in German): *Automation of Synthesis and Verification in Computer Aided Circuit Design*

## Scientific Career

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- 1992        Researcher in the group of Prof. Dr. G. Hotz, Department of Computer Science, Universität des Saarlandes, Germany
- 1993-1995    Researcher in the group of Prof. Dr. B. Becker, Department of Computer Science, J.W. Goethe-Universität in Frankfurt am Main, Germany
- 1995-1996    Researcher in the group of Prof. Dr. B. Becker, Faculty of Applied Science, Albert-Ludwigs-Universität in Freiburg im Breisgau, Germany
- 1996-2000    PostDoc in the group of Prof. Dr. B. Becker, Faculty of Applied Science, Albert-Ludwigs-Universität in Freiburg im Breisgau, Germany
- 2000-2001    Senior Engineer (Corporate Technology), Siemens, Munich, Germany
- 2001-2002    Professor (C3) for Computer Architecture, Universität Bremen, Germany
- since 2002    Professor (C4 - since July 2008 W3) for Computer Architecture, Universität Bremen, Germany
- since 2011    Director of the Department of Cyber-Physical Systems at the German Research Center for Artificial Intelligence (DFKI) in Bremen, Germany
- 2012-2019    Term Member, Duke University, Durham, USA
- 2014-2016    International Guest Professor, IIT Kharagpur, India
- 2018-2020    Adjunct Professor at Indian Statistical Institute, Kolkata, India

## Selected Professional Activities

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- **Publications:** In the last 10 years, the applicant published more than 20 books and 500 scientific papers in international journals and conferences (as listed in DBLP). The complete list of publications can be found at:  
[https://agra.informatik.uni-bremen.de/team\\_me.php?id=1&lang=de](https://agra.informatik.uni-bremen.de/team_me.php?id=1&lang=de)
- **Conferences:** Member of Program Committees of numerous conferences, e.g., DAC, ICCAD, DATE, ASP-DAC, FDL, MEMOCODE, EMO, FMCAD; Symposiums Chair ISMVL 1999 and 2014, , General Co-Chair FDL 2016, General Co-Chair ETS 2018, Program Chair ICCAD 2020, General Chair ICCAD 2021
- Regular **reviewer** for journals, conferences, awards, e.g., ACM TODAES, IEEE TC, IEEE TCAD, IEEE Design & Test, DFG, DAAD, ITG, AvH, NSERC, MIUR, ISF, FWO, ACM Outstanding Ph.D. Dissertation Award in EDA, Best Paper Award Selection Committee for ACM TODAES, EDAA Achievement Award
- **Editor** of books and journals, e.g. Associate Editor of IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), ACM Journal on Emerging Technologies in Computing Systems (JETC), International Journal on Multiple-Valued Logic and Soft Computing, Design Automation for Embedded Systems (DAES), IET Cyber-Physical Systems: Theory & Applications, IEEE Transactions on Very Large Scale Integration Systems (TVLSI)
- **Member of professional interest groups**, e.g., Speaker of Fachgruppe 3: *Methoden des Entwurfs und der Verifikation digitaler Schaltungen und Systeme* of the German Computer Society (GI), *Chair of Technical Committee of Multiple-Valued Logic* of the *Institute of Electrical and Electronics Engineers (IEEE)*
- **IEEE Fellow, IEEE CEDA Distinguished Lecturer (2023-2024)**
- **ACM Fellow, ACM Distinguished Speaker (2024-2027)**
- **Vice-Rector** for Research and Young Academics at University of Bremen (2008-2013), **Dean** of the Faculty of Mathematics and Computer Science at University of Bremen (2018-2025)
- Member of the **DFG Review Board** (German Research Foundation (2016-2024))
- **Founder of the Graduate School** of Embedded Systems (GESy) jointly with J. Peleska, **Founder and Coordinator of the Graduate School** System Design (SyDe) founded within the German Excellence Initiative
- **Founder and Spokesperson of the Data Science Center (DSC)** at the University of Bremen
- **Nominating host:** Research award of the Alexander von Humboldt Foundation (AvH) for K. Roy (Purdue, USA) and K. Chakrabarty (Duke, USA)
- **Best paper awards** at *Haifa Verification Conference (HVC)*, *Forum on specification & Design Languages (FDL)*, *Digital System Design (DSD)*, *IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems (DDECS)*, *ACM/IEEE International Conference on Computer Aided Design (ICCAD)*, *Euromicro DSD*,
- **ASP-DAC Prolific Author Award, ASP-DAC 10-year Retrospective Most Influential Paper Award**
- **Supervised more than 50 PhD Students**, several **Awards by PhD Students**, like TTTC's E.J. McCluskey Best Doctoral Thesis Award, DATE PhD Forum Best Poster Prize, Best Student Forum Paper Award of ISVLSI, EDAA Outstanding Dissertation Award
- Award for **Outstanding Doctoral Supervision** from the University of Bremen, 2021
- Former **PhD Students became professors** (2 Assistant Professors, 6 Full Professors)
- **Berninghausen Award** for Excellence in Teaching at University of Bremen, 2018

**Funded Projects:** The applicant has been PI or Co-PI on more than **25 grants** funded by the German Research Foundation (DFG), the German Federal Ministry of Education and Research (BMBF), the European Union (EU), the German Academic Exchange Service (DAAD), and several industrial partners. Together, these grants have provided more than **25 million Euro** of funding allocated to the applicant's research group. This includes joint projects **together with partners from academia** (e.g. Prof. K. Chakrabarty, Prof. G. De Micheli, Prof. K. Roy, Prof. R. Brayton) **and industry** (e.g. AMD, Bosch, Concept Engineering, Ferchau, Infineon, Intel, Mentor Graphics, NXP, Siemens). In the following, selected projects are listed.

- **Basic research:** Projects funded by the German Research Foundation (DFG) since 1996 as primary investigator or co-investigator
  - Reinhart Koselleck-Project "PolyVer: Polynomial Verification of Electronic Circuits"
  - One project ("OptiSecure: Securing Nano-Circuits against Optical Probing" in collaboration with J.-P. Seifert (TU Berlin) and F. Sill Torres (DLR)) in the Priority Program (PP) "Nano Security: From Nano-Electronics to Secure Systems"
  - "VerA: Fully Automatic Formal Verification of Arithmetic Circuits" in collaboration with D. Große (JKU Linz) and C. Scholl (ALU Freiburg)
  - "HDL-based Synthesis and Verification for Programmable Logic-in-Memory Architectures"
  - Reinhart Koselleck-Project "Development of a Continuous Verification Flow for ESL Design"
  - One project (P4: "Formalizations and properties of plans") in the Collaborative Research Center (CRC) "EASE – Everyday Activity Science and Engineering"
  - Two projects (P1: "Predictor Function", P2: "Heuristic, Statistical and Analytical Experimental Design" in collaboration with P. Maaß (U Bremen)) in the Collaborative Research Center (CRC) "Farbige Zustände"
  - "MANIAC: BDD Manipulation for Approximate Computing"
  - "Efficient Proof Techniques for Test Pattern Generation"
  - "Formal Robustness Checking in Electronic Design Automation" in collaboration with G. Fey (U Bremen)
  - "Quality-driven Synthesis of Large Functions in Reversible Logic"
  - "Formal Circuit Verification using High-Level Information"
- **Application:** Projects on the development of formal methods with industrial partners, e.g., AMD, Bosch, IBM, Infineon Technologies, Intel, NXP, Philips, Siemens, since 2001 – partially in the context of projects funded by the BMBF as
  - Subcontractor: VALSE-XT, URANOS, Verisoft, MAYA, Herkules, RESCAR
  - Consortium member/coordinator: Verisoft XT, SANITAS, VisES, SolVerTec, SPECIFIC, EffectiV, Selfie, CONFIRM, CONVERS, SecRec, SATISFy, Scale4edge, VerSys
- **International:** Since 1999 participation in projects funded by EU and DAAD with partners e.g., from Dallas, Duke/Durham, Haifa, Paris, Purdue/Lafayette, Tokyo, Toronto, Kolkata, Shanghai
  - EU: "DIAMOND - Diagnosis, Error Modelling and Correction for Reliable Systems Design"
  - DAAD: "Design Methodology for Embedded Systems" jointly with G. Fey (U Bremen) in collaboration with University of Tokyo