



# Martin Kumm

*Professor for Embedded Systems*

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## Personal Information

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Born 19.03.1980 in Fulda, Germany  
Nationality German

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## Education

04/2004–09/2007 **Dipl.-Ing., Electrical Engineering and Information Technology,**  
*Technical University of Darmstadt.*

Grading 1.96  
Thesis Topic “Hardware- und Software-Entwicklung einer Mikrocontroller-Leiterplatte  
für eine automatische Verstärkungsregelung”

09/1999–07/2003 **Dipl.-Ing. (FH), Electrical Engineering and Information Technol-**  
**ogy,** *Fachhochschule Fulda, Germany.*

Grading 1.4  
Thesis Topic “FPGA-Realisierung eines Offset-Lokaloszillators basierend auf PLL- und  
DDS-Technologien”

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## Work Experience

- 10/2003–02/2009 **R&D Engineer**, *GSI Helmholtz Centre for Heavy Ion Research*, Darmstadt, Division of Radio Frequency Technology and Accelerator Structures. Tasks: Circuit design (analog/digital), architecture design for FPGAs, Software Engineering  
07/2007–02/2009: Team Leader “Electronics & Control Systems” (Expert Group with about 10 R&D engineers)

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## Scientific Career

- 03/2009–05/2009 **Scientific Staff**, *Technical University of Darmstadt*, Faculty of Computer Science, Prof. Dr.-Ing. Andreas Koch.
- 06/2009–10/2015 **Scientific Staff**, *University of Kassel*, Kassel, Faculty of Electrical Engineering and Computer Science, Prof. Dr.-Ing. Peter Zipf.
- 10/2015 **Dissertation (Dr.-Ing.)**, *University of Kassel*, Kassel, Faculty of Electrical Engineering and Computer Science.
- Topic Multiple Constant Multiplication Optimizations for Field Programmable Gate Arrays
- Supervisor Prof. Dr.-Ing. Peter Zipf
- Grading Summa Cum Laude
- 11/2015–12/2018 **Scientific Staff (Post-Doc)**, *University of Kassel*, Kassel, Faculty of Electrical Engineering and Computer Science, Prof. Dr.-Ing. Peter Zipf.
- 01/2019–present **Full Professor**, *University of Applied Sciences Fulda*, Fulda, Faculty of Applied Computer Science, Embedded Systems.

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## Awards

- 2018 **Best Paper Award**, M. Kumm, O. Gustafsson, F. de Dinechin, J. Kappauf & P. Zipf, *Karatsuba with Rectangular Multipliers for FPGAs*, IEEE Symposium on Computer Arithmetic (ARITH), 2018.
- 2019 **Best Paper Award**, G. Gambardella, J. Kappauf, M. Blott, C. Doehring, M. Kumm, P. Zipf and K. Vissers, *Efficient Error-Tolerant Quantized Neural Network Accelerators*, IEEE Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology Systems (DFT), 2019.
- 2020 **Nomination as Best Paper Candidate**, P. Sittel, J. Wickerson, M. Kumm and P. Zipf, *Modulo Scheduling with Rational Initiation Intervals in Custom Hardware Design*, Asia and South Pacific Design Automation Conference (ASP-DAC), 2020.

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## Memberships

- since 2011 Institute of Electrical and Electronics Engineers (IEEE)
- since 2017 VLSI Systems & Applications Technical Committee (VSATC) of the IEEE Circuits and Systems (CAS) Society

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## Professional Activity

### Conferences

- 2017 Technical Program Committee, 24th IEEE International Conference on Computer Arithmetic (ARITH), 2017
- 2017 Session Chair, IEEE International Conference on Circuits and Systems (ISCAS), 2017
- 2017 Session Chair, 24th IEEE International Conference on Computer Arithmetic (ARITH), 2017
- 2018 Technical Program Committee, 25th IEEE International Conference on Computer Arithmetic (ARITH), 2018
- 2018 Review Committee, IEEE International Conference on Circuits and Systems (ISCAS), 2018
- 2018 Technical Program Committee (SC7 Digital Circuits and Embedded Systems), IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2018
- 2018 Session Chair, IEEE International Conference on Circuits and Systems (ISCAS) 2018
- 2018 Area Chair, IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS) 2019
- 2018 Technical Program Committee, 26th IEEE International Conference on Computer Arithmetic (ARITH), 2019
- 2019 Review Committee, IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS) 2020
- 2019 Technical Program Committee, IEEE International Conference on Computer Arithmetic (ARITH), 2020

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## Reviewer Activities

### Journals

- since 05/2010 Transactions on Circuits and Systems I (IEEE)
- since 03/2012 Transactions on Circuits and Systems II (IEEE)
- since 12/2016 Transactions on Computers (IEEE)
- since 08/2017 Transactions on Computer-Aided Design of Integrated Circuits and Systems (IEEE)
- since 08/2017 Transactions on Very Large Scale Integration Systems (IEEE)
- since 10/2017 Access (IEEE)
- since 06/2017 EURASIP Journal on Advances in Signal Processing (Springer)
- since 12/2017 EURASIP Journal on Wireless Communications and Networking (Springer)
- since 12/2017 Journal of Signal Processing Systems (Springer)
- since 08/2015 Integration, the VLSI Journal (Elsevier)
- since 10/2015 Digital Signal Processing (Elsevier)

- since 05/2016 Microprocessors and Microsystems (Elsevier)
- since 08/2017 Computers and Electrical Engineering (Elsevier)
- since 11/2019 Transactions on Reconfigurable Technology and Systems (ACM)
- since 01/2020 Transactions on Very Large Scale Integration Systems (IEEE)

### Conferences

- since 2010 IEEE International Conference on Circuits and Systems (ISCAS)
- since 2012 IEEE International Conference on Field Programmable Logic and Applications (FPL)
- since 2012 IEEE International Conference on Electronics, Circuits, and Systems (ICECS)
- since 2012 IEEE International Symposium on Computer Arithmetic (ARITH)
- since 2016 Design, Automation & Test in Europe (DATE)
- since 2016 New Generation of Circuits and Systems (NGCAS)

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### Research Visits

- 10/2013 ERASMUS research visit at Linköping University, Schweden, Prof. Oscar Gustafsson
- 04/2014 ERASMUS research visit at Linköping University, Schweden, Prof. Oscar Gustafsson
- 04/2016 ERASMUS research visit at *Institut national des sciences appliquées* (INSA) Lyon, France, Prof. Florent de Dinechin
- 03/2018 Reserch visit at *University of Sydney*, Australia as part of a DAAD project, Prof. Philip Leong
- 06/2018 ERASMUS research visit at *Institut de Recherche en Informatique et Système Aléatoires* (IRISA) Rennes, Frankreich, Dr. Silviu-loan Filip
- 11/2018 ERASMUS research visit at *École Normale Supérieure de Lyon* (ENS) Lyon, Frankreich, Prof. Jean-Michel Muller

Kassel, January 16, 2020