Kuan-Hsun Chen

Dr.-Ing.

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Present Work

Sep. 2021 – Present	**Assistant Professor (tenured since 01.05.2022)**, *Department of Computer Science, University of Twente, the Netherlands*.

Professional Experience

Aug. 2019 – Aug. 2021	**Postdoctoral Researcher**, *at the Chair of Design Automation for Embedded Systems, TU Dortmund University, Germany*.
Apr. 2014 – Jul. 2019	**Research Associate**, *at the Chair of Design Automation for Embedded Systems, TU Dortmund University, Germany*.
Mar. 2013 – Mar. 2014	**Research Associate**, *at the Chair of Micro Hardware Technologies for Automation, Karlsruhe Institute of Technology, Germany*.

Education

2015 – 2019	**Dr.-Ing. in Computer Science**, *TU Dortmund University, Germany*.
	Dissertation: Optimization and Analysis for Dependable Application Software on Unreliable Hardware Platforms, defended on 22.05.2019, Rate: Auszeichnung (a.k.a. summa cum laude) Examiners: Prof. Dr. Jian-Jia Chen and Prof. Dr.-Ing. Rolf Ernst
2011 – 2013	**M.Sc in Computer Science**, *National Tsing Hua University, Taiwan*.
	GPA 4.2/4.3, Thesis: Support of Just-in-Time Compiler for Android on Indigenous Platforms
2007 – 2011	**B.A. in Humanities and Social Sciences**, *National Tsing Hua University, Taiwan*.
	Minor: Computer Science, 43 Credits

Awards and Honors

Promotion by ACM Special Interest Group on Design Automation (SIGDA) on "Who's who" on May 1st, 2022

Ph.D. Dissertation Award, TU Dortmund University, Germany, 2019

Best Paper Award in Euromicro Conference on Real-Time Systems (ECRTS 2023), Vienna, Austria

Best Paper Nomination in ACM/IEEE Design, Automation & Test in Europe Conference (DATE 2021)

Best Student Paper Award in IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA 2018), Hakodate, Japan

4TU.NIRICT Community Funding 2022 for "Dutch Real-Time Systems", Recipient

ASCI Research School Educational Grant 2023-2024 for "Design and Implementation of Real-Time Systems", Recipient, the Netherlands

University of Teaching Qualification, 4TU.Education, the Netherlands, 2022

Programme for Project-Related Personal Exchange (PPP) (2021-2022), German Academic Exchange Service (DAAD), Principal Investigator, Germany

Postdoctoral Fellowship 2021, Summer Programme, Japan Society for the Promotion of Science (JSPS) and German Academic Exchange Service (DAAD), Recipient

P^5-Project Group Practice Award 2020, Alumni of Computer Science in TU Dortmund, Supervisor

Ten Selected Publications

Bruno Endres Forlin, **Kuan-Hsun Chen**, Nikolaos Alachiotis, Luca Cassano, Marco Ottavi, *Lightweight Instrumentation for Accurate Performance Monitoring in RTOSes*, In Design, Automation & Test in Europe Conference & Exhibition (DATE), 2024

Christian Hakert, Asif-Ali Khan, **Kuan-Hsun Chen**, Fazal Hameed, Jeronimo Castrillon, Jian-Jia Chen. *Racetrack Memory Optimized Linear Layout and Efficient Decomposition of Decision Trees*, In IEEE Transactions on Computers (TC), 2023

Nils Hölscher, Christian Hakert, Hassan Nassar, **Kuan-Hsun Chen**, Lars Bauer, Jian-Jia Chen, Jörg Henkel, *Memory Carousel: LLVM-Based Bitwise Wear Leveling for Nonvolatile Main Memory*, In IEEE Transaction of Computer Aided Design Integrated Circuits Systems (TCAD), 2023

Christian Hakert, **Kuan-Hsun Chen**, Horst Schirmeier, Lars Bauer, Paul R. Genssler, Georg von der Brüggen, Hussam Amrouch, Jörg Henkel, Jian-Jia Chen. *Software-Managed Read and Write Wear-Leveling for Non-Volatile Main Memory*, In ACM Transactions Embedded Computing Systems (TECS), 2022

Yen-Ting Tsou, **Kuan-Hsun Chen**, Chia-Lin Yang, Hsiang-Yun Cheng, Jian-Jia Chen, Der-Yu Tsai. *This is SPATEM! A Spatial-Temporal Optimization Framework for Efficient Inference on ReRAM-based CNN Accelerator*, In Asia and South Pacific Design Automation Conference (ASP-DAC), 2022

Christian Hakert, Asif-Ali Khan, **Kuan-Hsun Chen**, Fazal Hameed, Jeronimo Castrillon, Jian-Jia Chen. *Layout Optimization of Decision Trees on Racetrack Memory*, In ACM/IEEE Design Automation Conference (DAC), 2021

Mikail Yayla, Sebastian Buschjager, Aniket Gupta, Jian-Jia Chen, Jorg Henkel, Katharina Morik, **Kuan-Hsun Chen**, Hussam Amrouch *FeFET-based Binarized Neural Networks Under Temperature-dependent Bit Errors*, In IEEE Transactions on Computers (TC), 2021

Sebastian Buschjäger, Jian-Jia Chen, **Kuan-Hsun Chen**, Mario Günzel, Christian Hakert, Katharina Morik, Rodion Novkin, Lukas Pfahler, Mikail Yayla. *Margin-Maximization in Binarized Neural Networks for Optimizing Bit Error Tolerance.* In ACM/IEEE Design, Automation & Test in Europe Conference (DATE), 2021

Kuan-Hsun Chen, Jian-Jia Chen, Florian Kriebel, Semeen Rehman, Muhammad Shafique, Jörg Henkel, *Task Mapping for Redundant Multi-threading in Multi-Cores with Reliability and Performance Heterogeneity*, In IEEE Transactions on Computers (TC), 2016

Semeen Rehman, **Kuan-Hsun Chen**, Florian Kriebel, Anas Toma, Muhammad Shafique, Jian-Jia Chen, Jörg Henkel. *Cross-Layer Software Dependability on Unreliable Hardware.* In IEEE Transactions on Computers (TC), 2016

Academic Activities

Journal Editors

Since 2023   Review Editor, Integrated Circuits and VLSI, specialty section of Frontiers in Electronics

Guest Editor, Special Issue on In/Near Memory and Storage Computing for Embedded Systems in ACM Transctions on Embedded Computing Systems (TECS)

Guest Editor, Special Issue on Fault-Resilient Cyber-Physical Systems in ACM Transctions on Cyber-Physical Systems (TCPS)

Guest Editor, Special Issue on Systems Optimizations for DSP and AI Applications in Springer Journal of Signal Processing Systems (JSPS)

Journal Peer Reviewer

ACM Transactions on Embedded Computing Systems (TECS)

IEEE Transactions on Internet of Things (TIOT)

IEEE Transactions on Computer Aided Design of Integrated Circuits & Systems (TCAD)

IEEE Transactions on Big Data (TBD)

IEEE Transaction on Dependable and Secure Computing (TDSC)

ACM Transactions on Cyber-Physical Systems (TCPS)

ACM Transactions on Design Automation of Electronic Systems (TODAES)

IEEE Transactions on Vehicular Technology (TVT)

IEEE Transactions on Emerging Topics in Computing (TETC)

IEEE Transactions on Computer (TC)

IEEE Transactions on Automatic Control (TAC)

IEEE Embedded Systems Letters

IEEE Access

Springer Journal of Systems Architecture (JSA)

Springer Journal of Signal Processing Systems (JSPS)

Springer Journal of VLSI (Integration)

Springer Journal of Sustainable Computing

Springer Journal of Time-Critical Computing Systems (TIME)

Springer Journal of Scheduling

Conference/Workshop Chairs

2024   Program Co-Chair, Workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPERT)

2024   Publicity Chair, Euromicro Conference on Real-Time Systems (ECRTS)

2024   Webchair, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)

2023   Multimedia Chair, IEEE Real-Time Systems Symposium (RTSS)

2023   Co-Chair, ASCI CompSys (National Conference for Dutch Computer Systems)

2023   Social-Media Chair for Euromicro Conference on Real-Time Systems (ECRTS)

2023   Multimedia Chair for International Conference on Real-Time Networks and Systems (RTNS)

2021   Multimedia Chair for IEEE Real-Time Systems Symposium (RTSS)

Program Committees, Member of

2024   ACM/USENIX/IFIP Middleware Conference (MIDDLEWARE)

2024   IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)

2024   ACM/IEEE Design, Automation & Test in Europe Conference & Exhibition (DATE)

2024   Asia and South Pacific Design Automation Conference (ASP-DAC)

2023   ACM/IEEE International Conference on Computer-Aided Design (ICCAD)

2023	ACM/IEEE International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)
2023	IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology (DFTS)
2023, 2022, 2021	IEEE Real-Time Systems Symposium Artifact Evaluation (RTSS-AE)
2023	IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)
2023	IEEE International Conference on Computer Design (ICCD)
2023, 2022, 2021	IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)
2023, 2022, 2020	ACM/IEEE Workshop on Machine Learning for CAD (MLCAD)
2022	IEEE International Conference on High Performance Computing, Data, & Analytics (HiPC)
2020	Junior Researcher Workshop on Real-Time Computing, 2020
2020	IEEE Real-Time and Embedded Technology and Applications Symposium, Brief Presentation Track (RTAS-BP)