Kuan-Hsun Chen

Dr.-Ing.

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Present Work

Since Sep. 2021 **Assistant Professor (UD1, tenured)**, *Computer Architecture for Embedded Systems (CAES) group, University of Twente, the Netherlands*.
- Appointed member of Young Academy Twente (YAT) since 2024 for 4 years
- Elected member and research committee chair of faculty council for the faculty of electrical engineering, mathematics and computer science (2022 – 2024)
- Parental leave: Oct 3–21, 2022 and Feb 8–24, 2023

Education

2015 – 2019 **Dr.-Ing. in Computer Science**, *TU Dortmund University, Germany*.
Dissertation Title: Optimization and Analysis for Dependable Application Software on Unreliable Hardware Platforms, defended on 22.05.2019
Rate: Auszeichnung (a.k.a. summa cum laude)
Dissertation 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 (Max 4.3)
Thesis: Support of Just-in-Time Compiler for Android on Indigenous Platforms
Supervisor: Prof. Jenq-Kuen Lee

2007 – 2011 **B.A. in Humanities and Social Sciences**, *National Tsing Hua University, Taiwan*.
Minor: Computer Science, 43 Credits

Professional Experience

Aug. 2019 – Aug. 2021 **Postdoctoral Researcher**, *at the Chair of Design Automation for Embedded Systems, TU Dortmund University, Germany*.
DFG Projects:
- Collaborative Research Center (SFB 876): Providing Information by Resource-Constrained Data Analysis
- DFG-MOST Project: Non-Volatile One Memory Architecture (NVM-OMA)

Apr. 2014 – Jul. 2019 **Research Associate**, *at the Chair of Design Automation for Embedded Systems, TU Dortmund University, Germany*.
- Collaborative Research Center (SFB 876): Providing Information by Resource-Constrained Data Analysis
- DFG Priority Program (SPP 1500) : Dependable Embedded Systems: Generating and Executing Dependable Application Software on Unreliable Embedded Systems

Mar. 2013 – Mar. 2014 **Research Associate**, *at the Chair of Micro Hardware Technologies for Automation, Karlsruhe Institute of Technology, Germany*.
Projects:
- DFG Priority Program (SPP 1500): Dependable Embedded Systems: Generating and Executing Dependable Application Software on Unreliable Embedded Systems

2007 – 2012 **Research Intern on the Water Resources Agency Project**, *National Center for High-Performance Computing (NCHC), Hsinchu, Taiwan*.

Awards and Honors

Community Related

2024-2028	**Appointed Member of Young Academy Twente**, University of Twente, 2024-2028
May 2024	**Invited Article by ACM Special Interest Group on Embedded Systems (SIGBED)** for SIGBED Blog
May 2022	**Promotion by ACM Special Interest Group on Design Automation (SIGDA)** on "Who's who"

Research Related

2025	**Best Paper Nomination** in International European Conference on Parallel and Distributed Computing (Euro-Par)
2024	**Outstanding Reviewer Award**, ACM International Conference on Hardware/Software Codesign and System Synthesis (CODE+ISSS)
2023	**Best Paper Award** in Euromicro Conference on Real-Time Systems (ECRTS)
2021	**Best Paper Nomination** in ACM/IEEE Design, Automation & Test in Europe Conference (DATE)
2021-2022	**Programme for Project-Related Personal Exchange (PPP)** (2021-2022), German Academic Exchange Service (DAAD), Principal Investigator, Germany
2021	**Postdoctoral Fellowship**, Japan Society for the Promotion of Science (JSPS) and German Academic Exchange Service (DAAD), due to COVID, visa was not granted.
2019	**Ph.D. Dissertation Award**, TU Dortmund University, Germany, 2019
May 2019	Ph.D. was distinguished as "**Summa cum Laude**", Dortmund, Germany
2018	**Best Student Paper Award** in IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)

Teaching Related

2022	**University of Teaching Qualification**, 4TU.Education, the Netherlands
2020	**Project Group Practice Award**, Alumni of Informatik in TUDo, Supervisor
2020	**Best Projektgruppe** (based on teaching eval.), "PG629: F1/10-Autonomous Racing: Head-To-Head Racing Capabilities"
2019	**Best Projektgruppe** (based on teaching eval.), "F1/10-Autonomous Racing"

Selected Publications (google scholar | scopus)

[1] Kay Heider, Christian Hakert, **Kuan-Hsun Chen**, Jian-Jia Chen, *LazyTick: Lazy and Efficient Management of Job Release in Real-Time Operating Systems* , In ACM SIGBED International Conference on Embedded Software (EMSOFT), 2025, In Press

[2] Elijah Cishugi, Tijmen T. Smit, Bruno Endres Forlin, Cazzaniga Carlo, **Kuan-Hsun Chen**, Marco Ottavi, *Bloom Filter-Based Soft Error Detection in Instruction memory: Insights from Neutron Beam and FI campaigns*, In IEEE International Symposium on On-Line Testing and Robust System Design (IOLTS), 2025

[3] Hassan Nassar, Ming-Liang Wei, Chia-Lin Yang, Jörg Henkel, **Kuan-Hsun Chen**. *PEAR: Non-Volatile Memory PUF with Endurance-Aware Resilience against Learning-based Attacks*, In ACM/IEEE Design, Automation & Test in Europe Conference & Exhibition (DATE), 2025

[4] Elijah Seth Cishugi, Sebastian Buschjäger, Martijn Noorlander, Marco Ottavi and **Kuan-Hsun Chen**. *TrackScorer: Skyrmion Logic-in-Memory Accelerator for Tree-based Ranking Models*, In ACM/IEEE Design, Automation & Test in Europe Conference & Exhibition (DATE), 2025

[5] 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

[6] Junjie Shi, Niklas Ueter, Jian-Jia Chen, **Kuan-Hsun Chen**. *Average Task Execution Time Minimization under (m,k) Soft-Error Constraint*. In IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2023

[7] **Kuan-Hsun Chen**, Mario Günzel, Georg von der Brüggen, Jian-Jia Chen. *Critical Instant for Probabilistic Timing Guarantees: Refuted and Revisited*, In IEEE Real-Time Systems Symposium (RTSS), 2022

[8] 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 (ACM-TECS), 2022

[9] Mario Günzel, **Kuan-Hsun Chen**, Niklas Ueter, Georg von der Brüggen, Marco Dürr, Jian-Jia Chen. *Timing analysis of asynchronized distributed cause-effect chains*, In IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2021

[10] Sebastian Buschjäger, **Kuan-Hsun Chen**, Jian-Jia Chen, Katharina Morik. *Realization of Random Forest for Real-Time Evaluation through Tree Framing*, In IEEE International Conference on Data Mining (ICDM), 2018

Invited Talks / Forums / Panels

July 2025 (Panellist)	Behind-the-Scenes: Perspective of Recruitment Committee in Aboard Institutes, TYRA Mentor-Mentee Program, Streaming on Youtube
Oct. 2024 (Panellist)	How to Enhance The Research cooperation between Taiwan and the Netherlands/European Countries: Perspectives from Young Scholars, in Taiwan Research Days, Rotterdam, in the Netherlands
July 2024 (Invited Talk)	Costly and Unsafe? A good case for Reinforcement Learning, in ML-RT Agenda Towards a research agenda for learning-enabled safety-critical real-time systems, France
May. 2024 (Invited Talk)	Timely vs. In Time: A perspective in real-time systems, at "Special Day On Sustainable Computing", in Design, Automation & Test in Europe Conference, Valencia, Spain
Sep. 2023 (Panellist)	Academia in Europe, in 2nd European-Taiwanese Conference for Science and Technology, ETH Zürich, Swiss
June. 2023 (Invited Talk)	Memory-Centric Embedded System Designs, in National Yang Ming Chiao Tung University, Taiwan
May. 2023 (Keynote)	Good Old Trees along with Emerging Memories, in 28th Workshop on Compiler Techniques and System Software for High-Performance and Embedding Computing
Sep. 2022 (Invited Talk)	Doing University Teaching Qualification as Doing Research, UTQ Ceremony, in University of Twente, the Netherlands
Sep. 2021 (Invited Lecture)	Dependable Real-Time Embedded Systems, Conference of Taiwan Elite in DACH-region on Advanced Engineering and Biomedical Technologies, Germany

Dec. 2019 (Invited Talk)	Compensate or Ignore? Meeting Control Robustness Requirements through Adaptive Soft-Error Handling, in Diskussionskreis Fehlertoleranz at TU Dortmund, Germany
Jun. 2019 (PhD Forums)	Optimization and Analysis for Dependable Software on Unreliable Hardware Platforms, in ACM/SIGDA at the IEEE/ACM 55th Design Automation Conference (DAC), USA

Academic Activities

Journal Editors

Since 2024	Associate Editor, IEEE Nanotechnology Magazine
Since 2023	Community Editor, Integrated Circuits and VLSI, speciality section of Frontiers in Electronics
2023 – 2024	Guest Editor, Special Issue on In/Near Memory and Storage Computing for Embedded Systems in ACM Transactions on Embedded Computing Systems (TECS)
2023 – 2024	Guest Editor, Special Issue on Fault-Resilient Cyber-Physical Systems in ACM Transactions on Cyber-Physical Systems (TCPS)

Journal Reviewers

ACM Transactions on Embedded Computing Systems (TECS)

ACM Transactions on Design Automation of Electronic Systems (TODAES)

ACM Transactions on Cyber-Physical Systems (TCPS)

ACM Transactions on Internet of Things (TIOT)

ACM Transactions on Storage (TOS)

IEEE Transaction on Computers (TC)

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

IEEE Transaction on Dependable and Secure Computing (TDSC)

IEEE Transactions on Big Data (TBD)

IEEE Transactions on Vehicular Technology (TVT)

IEEE Transactions on Emerging Topics in Computing (TETC)

IEEE Transactions on Reliability (TR)

Springer Journal of Time-Critical Computing Systems (TIME)

Springer Journal of Systems Architecture (JSA)

Conference/Workshop Chairs

2026	Web Chair, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)
2026	Workshop Chair, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)
2025	Track Chair, IEEE International Conference on Computer Design (ICCD)
2025	Co-Chair, Ph.D. Forum at CPS-IoT Week
2025	Chair, Annual workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPERT)
2025	Co-Publicity Chair, IEEE International Conference on Embedded and Real-Time Computing Systems and Application (RTCSA)
2024	Co-Chair, Annual workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPERT)
2024	Publicity Chair, Euromicro Conference on Real-Time Systems (ECRTS)
2024	Web Chair, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)
2024	Web Chair, IEEE Real-Time Systems Symposium (RTSS)
2024	Submission Chair, ACM/IEEE International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)
2023	Multimedia Chair, IEEE Real-Time Systems Symposium (RTSS)

2023	Co-Chair, ASCI National Conference for Dutch Computer Systems (CompSys)
2023	Social-Media Chair, Euromicro Conference on Real-Time Systems (ECRTS)
2023	Multimedia Chair, International Conference on Real-Time Networks and Systems (RTNS)
2021	Multimedia Chair, IEEE Real-Time Systems Symposium (RTSS)

Technical Program Committees, Member of

2025 – 2026	ACM/SIGAPP Symposium On Applied Computing (SAC)
2025	ACM/IEEE Design Automation Conference (DAC)
2023 – 2025	ACM/IEEE International Conference on Computer-Aided Design (ICCAD)
2024 – 2025	ACM/IEEE Design, Automation & Test in Europe Conference & Exhibition (DATE)
2024	ACM/IEEE International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES)
2023 – 2025	ACM/IEEE International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)
2023 – 2025	Asia and South Pacific Design Automation Conference (ASP-DAC)
2021, 2024 – 2025	IEEE Real-Time Systems Symposium (RTSS)
2023 – 2025	IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)
2021 – 2025	IEEE International Conference on Embedded and Real-Time Computing Systems and Application (RTCSA)
2024 – 2025	ACM/USENIX/IFIP Middleware Conference (MIDDLEWARE)
2023 – 2024	European Conference on Machine Learning and Knowledge Discovery in Databases (ECML-PKDD)
2023 – 2025	IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology (DFTS)
2020 – 2025	ACM/IEEE International Symposium on Machine Learning for CAD (MLCAD)