

# REACT Workshop

## REconfigurable Architecture, Chips, and Technologies

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|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date                 | Monday, June 22, 2026                                                                                                                                                                                                                                |
| Location             | Heidelberg, Germany                                                                                                                                                                                                                                  |
| Venue<br>(afternoon) | ZITI, Im Neuenheimer Feld 368, 69120 Heidelberg                                                                                                                                                                                                      |
| Contact              | Prof. Dirk Koch < <a href="mailto:dirk.koch@ziti.uni-heidelberg.de">dirk.koch@ziti.uni-heidelberg.de</a> ><br>Prof. Yoshiki Yamaguchi < <a href="mailto:yamaguchi.yoshiki.ge@lila.cs.tsukuba.ac.jp">yamaguchi.yoshiki.ge@lila.cs.tsukuba.ac.jp</a> > |

### About This Workshop

The REACT Workshop brings together researchers from Universität Heidelberg (ZITI — Novel Computing Technologies) and the University of Tsukuba (LILA — Laboratory for Innovative Custom Logic Architecture) and to share recent advances in reconfigurable computing and edge AI semiconductors, and to lay the groundwork for sustained international collaboration between the two institutions.

The workshop provides a forum to discuss emerging research directions, explore joint project opportunities, and build personal connections that can seed future exchanges of students and researchers.

### Organizers

| Co-organizer                                                                                                                                                                                                                       | Co-organizer                                                                                                                                                                                                              |
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| Novel Computing Technologies (NCT) ZITI —<br>Institut für Technische Informatik Universität<br>Heidelberg<br><a href="https://ziti.uni-heidelberg.de/en/research/nct.html">https://ziti.uni-heidelberg.de/en/research/nct.html</a> | JST ASPIRE for Top Scientists<br>Adopting Sustainable Partnerships for Innovative<br>Research Ecosystem<br>Japan Science and Technology Agency<br><a href="https://jst.go.jp/aspire/en/">https://jst.go.jp/aspire/en/</a> |
| In collaboration with                                                                                                                                                                                                              |                                                                                                                                                                                                                           |
| LILA.CS (Laboratory for Innovative Custom Logic Architecture, University of Tsukuba)<br><a href="https://www.lila.cs.tsukuba.ac.jp">https://www.lila.cs.tsukuba.ac.jp</a>                                                          |                                                                                                                                                                                                                           |

## Program

| Time                                             | Session                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Location                       |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>Morning — Neckar River</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |
| 10:00                                            | <b>Room available</b><br>Informal gathering / preparation                                                                                                                                                                                                                                                                                                                                                                                                                                 | EINC, Im Neuenheimer Feld 225a |
| 10:30–13:30                                      | <b>River Session</b><br>Research talks & informal discussion on board                                                                                                                                                                                                                                                                                                                                                                                                                     | Neckar river boat tour         |
| <b>Midday — Downtown Heidelberg (Altstadt)</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |
| 13:30–14:15                                      | <b>Lunch</b><br><a href="#">Zeughaus-Mensa im Marstall</a>                                                                                                                                                                                                                                                                                                                                                                                                                                | Downtown Heidelberg            |
| <b>Afternoon — ZITI, Im Neuenheimer Feld 368</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |
| 15:00                                            | <b>NCT Lab Tour</b><br>Novel Computing Technologies group                                                                                                                                                                                                                                                                                                                                                                                                                                 | ZITI, Im Neuenheimer Feld 368  |
| 16:00–18:00                                      | <b>Colloquium Talk &amp; Networking</b><br><br>Prof. Dr. Dirk Koch (Heidelberg University)<br>Reconfigurable Devices and Techniques<br>for Present and Future Processing Applications<br><br>Prof. Dr. Takuya Kojima (University of Tsukuba)<br>Toward Efficient and Flexible SoC Design in the AI<br>Era<br><br>Prof. Dr. Keisuke Sugiura (University of Tsukuba)<br>T.B.A.<br><br>Prof. Dr. Yoshiki Yamaguchi<br>The FPGA Renaissance: Emerging Players and<br>Unconventional Computing | ZITI, Im Neuenheimer Feld 368  |
| <b>Evening</b>                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |
| 19:00                                            | <b>Dinner</b><br>Restaurant Krokodil                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Heidelberg                     |

## Notes

### Colloquium format

The colloquium is open to a broader ZITI audience (approx. 30–40 people). Talks will be shared among Prof. Yamaguchi, Prof. Kojima, Prof. Sugiura, and LILA researchers, followed by networking. The session is intended to showcase LILA research and promote future collaboration, including student and researcher exchanges.

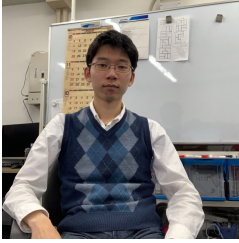
### Accommodation

Note: another event is taking place in Heidelberg on the same weekend. Hotels are in high demand — please book accommodation as early as possible. Contact Prof. Koch if assistance is needed.

## Towards International Collaboration

This workshop marks an important step towards a long-term partnership between Universität Heidelberg and the University of Tsukuba in the area of reconfigurable and AI computing. We envision joint research projects, co-supervised doctoral students, researcher exchanges, and co-organised events as outcomes of this first meeting.

## Speakers

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|    | <p><b>Prof. Dr. Dirk Koch (Heidelberg University)</b></p> <p>Prof. Dr. Dirk Koch leads the Novel Computing Technologies group at Heidelberg University. Before, he worked in the Advanced Processor Technologies Group at the University of Manchester, the University of Oslo, UBC Vancouver, and the University of Erlangen Nuremberg. His main research interests include run-time reconfigurable systems based on FPGAs, embedded systems, computer architecture, VLSI design, and hardware security. Dirk's group developed the GoAhead tool for implementing partial reconfiguration on FPGAs, the FPGADefender bistream virus scanner, and the FABulous open-source embedded FPGA generation framework. The latter was used to design chips in TSMC and Skywater processes including a memristor (ReRAM) non-volatile FPGA. Dirk Koch is the author of the book "Partial Reconfiguration on FPGAs" and a co-editor of the book "FPGAs for Software Programmers". (Source: <a href="#">FPGA Conference Europe</a>)</p>  |
|    | <p><b>Prof. Dr. Takuya Kojima (University of Tsukuba)</b></p> <p>Dr. Takuya Kojima is an Associate Professor at the University of Tsukuba. Previously, he was an Assistant Professor at The University of Tokyo from 2021 to 2025 and a JSPS Research Fellow from 2019 to 2021. He received the B.E., M.E., and Ph.D. degrees from Keio University, Japan, in 2017, 2019, and 2021, respectively. His research interests include reconfigurable computing, coarse-grained reconfigurable architectures, compiler and mapping techniques for accelerators, low-power computer architecture, SoC designs, and hardware security, with a particular focus on efficient and programmable accelerator architectures for embedded systems. He is currently promoting research as a Co-PI of "Development of Design Framework of VLSI Circuits with Advanced Process Nodes," which has been selected for support under JST ASPIRE: Adopting Sustainable Partnerships for Innovative Research Ecosystem.</p>                          |
|  | <p><b>Prof. Dr. Keisuke Sugiura (University of Tsukuba)</b></p> <p>Dr. Keisuke Sugiura is an Assistant Professor in the Faculty of Engineering, Information and Systems at the University of Tsukuba. He received his Ph.D. in Information and Computer Science from Keio University, where he conducted research on computer architecture, reconfigurable computing, and high-performance systems. His research interests include FPGA-based system design, computer architecture, hardware accelerators, and efficient computing platforms for emerging applications. He has contributed to the development of high-performance and energy-efficient computing systems through both academic research and industry collaboration. Dr. Sugiura received the IPSJ Computer Science Young Researcher Award in recognition of his contributions to computer systems research. His current work focuses on next-generation computing architectures and FPGA-based acceleration technologies for data-intensive applications.</p> |
|  | <p><b>Prof. Dr. Yoshiki Yamaguchi (University of Tsukuba)</b></p> <p>Dr. Yoshiki Yamaguchi is a Professor at the University of Tsukuba and a Cross-Appointed Professor at Kumamoto University. He also serves as a Fellow of the Technology Strategy Center (TSC) at the New Energy and Industrial Technology Development Organization (NEDO) and is a member of the Engineering Academy of Japan (EAJ). His research focuses on reconfigurable computing, FPGA architectures, high-performance computing, and embedded systems, with applications in AI acceleration, quantum computing, storage systems, and ultra-low-latency processing. He has contributed to the FPGA research community for over 15 years through leadership roles in the IEICE Technical Committee on Reconfigurable Systems and has served as an Organizing Committee Member, Vice Chair, and Technical Program Chair for major international conferences, including FPL, FPT, EuroPAR, ASAP, A-SSCC, HEART, and so on.</p>                          |