Q2/2025 ICCAS NEWSLETTER

20 Years of ICCAS

Two decades of research for the medicine of the future

Dear readers,

How do we shape the medicine of the future - networked, intelligent, responsible? We deal with this question every day at ICCAS. In the second quarter of 2025, in addition to many exciting events and research activities, the focus was also on a very special anniversary: 20 years of ICCAS!
In this issue, we take you on a tour of our projects, present new applications of digital technologies and provide insights into our work. Compact, understandable and practical. Enjoy reading!

Best regards

Andreas Melzer & Thomas Neumuth

TOPICS IN Q2

OUR HIGHLIGHTS THIS QUARTER

ICCAS at the DMEA 2025

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Future of Medical Technology

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20 Years of ICCAS

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📢 RESEARCH COMPACT

- Better transplant monitoring through AI
- Predicting disease progression from blood values
- How safe is the decision? AI with an awareness of uncertainty

▶ ICCAS ON THE MOVE

- IEEE RoboSoft 2025, Lausanne
- dHealth 2025, Vienna
- MedConf 2025, Munich
- IEEE 6G Summit, Dresden
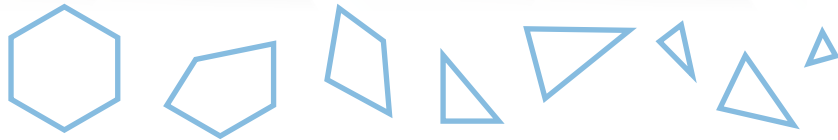- TI-Summit 2025, Leipzig
- EAES Congress, Belgrad

▶ COOPERATIONS & PROJECTS

- Project launch KIMed - Network for AI in Medicine
- Research cooperation with Fenjax GmbH
- Projekt start Data-driven decision support for longterm treatment of stroke (DaDriv-StAC)

▶ BEYOND RESEARCH

- Leipzig becomes a OneHealth location with a high-tech focus
- ICCAS at the "Lange Nacht der Wissenschaften"
- Company Run 2025 - team spirit on the track

April 08th-10th, 2025 - Berlin
ICCAS at the DMEA 2025 – Innovation you can touch

What will emergency medicine look like in the future? At DMEA 2025 - Europe's leading trade fair for digital healthcare - visitors were able to experience this first-hand: From April 8th to 10th, we had a diverse trade fair presence in Berlin - at two stands and with a fully equipped, digitally networked ambulance in the outdoor area.

At the joint VDE stand, we presented the 6G Health research project together with partners such as Vodafone, DFKI and inomed Medizintechnik. The focus: wireless sensor technology in the OR. One highlight was the wireless EMG demonstrator, which opened up new possibilities for more flexibility and safety in intraoperative neuromonitoring (IONM).

At the same time, we presented smart solutions for the intensive care unit at the OR.NET e.V. stand. Together with tetronik GmbH and Infrafon, we showed how alarm messages can be forwarded in a context-sensitive manner - a promising strategy to reduce the problem of alarm fatigue.

In the outdoor area, the focus was on the "ambulance of the future". Together with XITASO, we demonstrated live how digital administration shells (IDTA) can be integrated with the IEEE 11073 SDC standard in a realistic emergency scenario. Visitors were able to directly experience how medical devices will communicate across manufacturers in the future - seamlessly, securely and standardized.

The DMEA was not only a stage for us, but also a meeting place. Numerous discussions with interested parties, partners and practitioners resulted in new ideas and contacts - and the clear impression: connected medical technology is no longer a dream of the future, but a reality in development.

> **IEEE 11073 SDC** (Service-oriented Device Connectivity) is an open communication standard that enables medical devices from different manufacturers to be networked securely and across manufacturers. The aim is interoperable, dynamic and automated communication in the operating theater, intensive care unit or other clinical areas - without any proprietary interfaces.

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Group photo at the OR.NET e.V. booth at DMEA 2025, which once again impressively demonstrated the significance of digital transformation in healthcare – with great interest in SDC solutions and exciting showcases.

April 28th, 2025 - Leipzig
Shaping the future together: Industry meets research at ICCAS

How can science and industry work together to shape the future of medicine? This question was the focus of a special network meeting at ICCAS on April 28th, 2025. Around 50 guests from industry, research and politics accepted the invitation from ICCAS and the Industrieverein Sachsen 1828 e.V. - to an afternoon full of exchange, insights and new ideas.

Our researchers presented the latest developments in medical technology at six interactive stations. These included digital surgical assistance, modern imaging, a networked patient room and robotic systems that could make clinical processes safer and more efficient in the future. It became clear that these technologies are not only exciting for everyday clinical practice - they also offer concrete points of contact for SMEs.

For many guests, it was an encounter with the future - practical, tangible, networked.

In her welcome speech, Inés Obergfell, Rector of Leipzig University, emphasized how important it is to actively shape the digital transformation in the healthcare sector: "At ICCAS, we see how research directly turns into innovation."

Ingo Bechmann, Dean of the Faculty of Medicine, also emphasized the importance of the center for training the next generation of doctors: "Our students are already learning how to use technology to heal in a meaningful way."

Thomas Neumuth - Technical Director - made it clear what is important: "Our goal is to develop technologies that really help in everyday clinical practice - applicable, safe and in the interests of patients."

Such events show: When science, business and society enter into dialog, innovation is created with impact. We are delighted by the great interest - and look forward to further formats that build bridges between ideas, people and applications.

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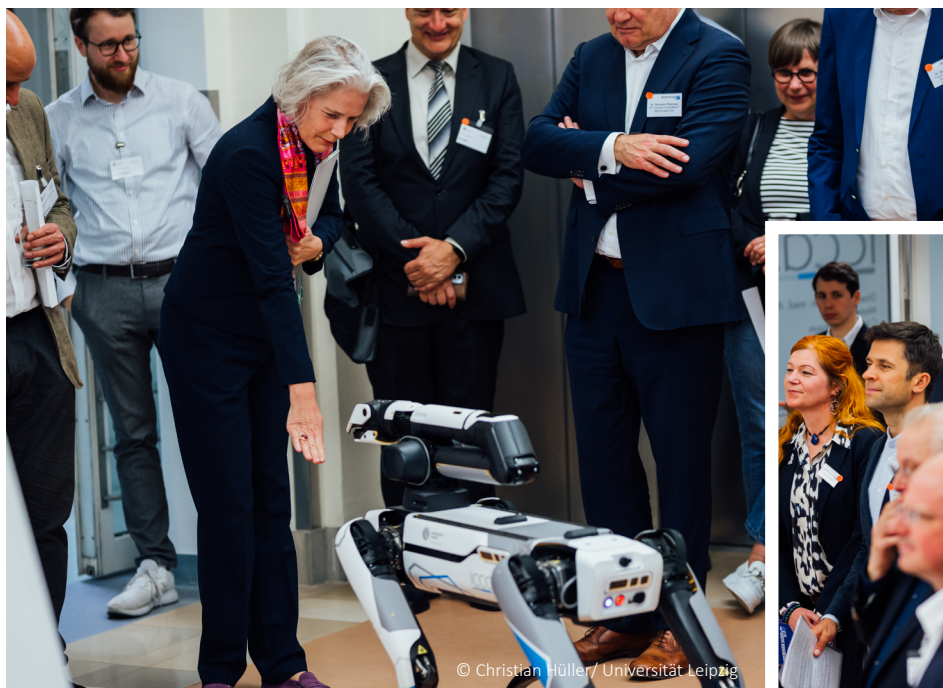
Inés Obergfell, Rector of Leipzig University shakes hands with the robot "Spot" from Boston Dynamics during a visit to the Insutrieverein 1828 e.v. - Medical Technology of the Future.

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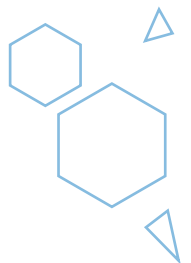
20 YEARS OF ICCAS - Two decades of research for the medicine of the future

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Colleagues, alumni, partners, and supporters gathered to celebrate the 20th anniversary of ICCAS—here listening together to the speeches, including one by Ingo Bechmann, Dean of the Faculty of Medicine.

May 13th, 2025 - Leipzig
20 years of ICCAS

On May 13th, 2025, ICCAS celebrated its 20th birthday - together with colleagues, alumni, partners and supporters. Two decades of research, innovation and technology for better medicine - we didn't just want to celebrate this, we wanted to experience it together.

The focus of the day was not only on looking back at what we have achieved, but above all on looking forward. Our Scientific Advisory Board also met as part of the anniversary celebrations - in an open, constructive exchange about current projects, future strategies and technological perspectives. The committee's feedback is a valuable guide for us for the coming years.

Between the program items, our guests took the opportunity to experience ICCAS up close: During guided tours of laboratories and presentations at several stations, it became clear how much innovative power and practical relevance there is

in our projects - from digital operating scenarios and AI-supported diagnostics to smart medical technology in everyday clinical practice.

The evening ended on a festive note - with greetings, reviews, shared memories and many conversations. We were particularly pleased with the words of our guests from the university, city, clinic and business - including Vice-Rector for Excellence Development - Jens-Karl Eilers, Dean of the Faculty of Medicine - Ingo Bechmann and many other long-time companions.

For us, this day was more than just an anniversary. It was an expression of solidarity, curiosity and the conviction that good research can only succeed if we work together.

Thank you to all those who have helped shape the ICCAS journey so far - and to all those who will continue with us!

📢 **Research Compact**

- In tissue transplants, impaired blood flow can lead to tissue loss. With a hyperspectral camera and AI, areas at risk can now be detected much earlier - which could improve patient safety after operations.

  Maktabi M, Huber B, Pfeiffer T, Schulz T. Detection of flap malperfusion after microsurgical tissue reconstruction using hyperspectral imaging and machine learning. Sci Rep. 5. Mai 2025;15(1):15637.

  ▶ doi: 10.1038/s41598-025-98874-4

- An intelligent system uses routine blood values to predict early disease deterioration in patients with multiple myeloma. The method has been tested on over 1,100 patients and detects risks significantly earlier than conventional methods. This means that treatment can be better adapted and complications avoided.

  Ferle M, Grieb N, Kreuz M, Ader J, Goldschmidt H, Mai EK, u. a. Predicting progression events in multiple myeloma from routine blood work. NPJ Digit Med. 30. April 2025;8(1):231.

  ▶ doi: 10.1038/s41746-025-01636-9

- Artificial intelligence can support doctors, but often loses trust because it does not assess uncertainties well. A new approach (SNGP) reliably recognizes when the data situation is too uncertain and thus helps to make predictions more transparent and reliable. This is an important step towards the responsible use of AI in medicine.

  Lindenmeyer A, Veeranki S, Franke S, Neumuth T, Kramer D, Schneider D. Knowledge Uncertainty Estimation for Reliable Clinical Decision Support: A Delirium Risk Prognosis Case Study. Stud Health Technol Inform. 24. April 2025;324:221–7.

  ▶ doi: 10.3390/jpm15020058

SNGP (Spectral-normalized Neural Gaussian Process) is an AI model that not only makes predictions, but also recognizes how certain or uncertain they are. This enables doctors to better assess when they can trust an AI prediction - and when they cannot.
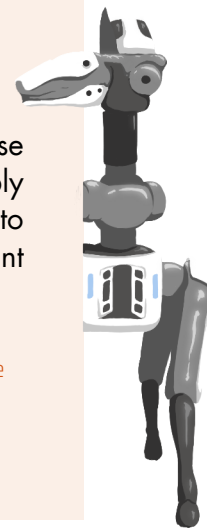
ICCAS ON THE MOVE
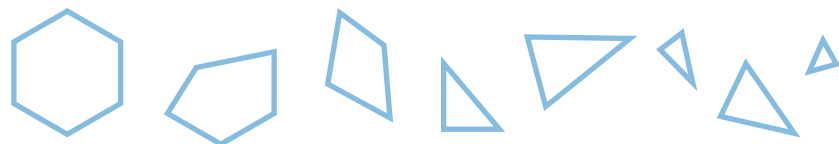
In the second quarter of 2025, we were once again on the road at conferences and trade fairs across Germany and Europe. Here is a brief overview of our topics on site:

- **IEEE RoboSoft 2025, Lausanne (April 23rd–26th, 2025)**
  ICCAS and HTWK Leipzig presented the SoKoRoMed project for the development of soft robotic end effectors for medicine. Albrecht Bloße presented, among other things, the SoRo Pneu-Gripper and poster contributions.

- **dHealth 2025, Vienna (May 06th–07th, 2025)**
  Adrian Lindenmeyer presented an AI-based prediction model for delirium risk assessment - a joint project with Graz University of Technology and KAGes. Focus: Uncertainty assessment for clinical decision support.

Adrian Lindenmeyer during his presentation on the topic: Artificial intelligence for reliable clinical decisions.

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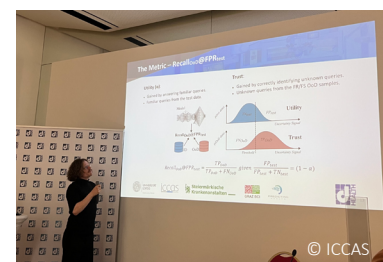
- **_MedConf 2025, Munich (May 06th–08th, 2025)_**
  Together with XITASO, Stefan Franke presented the SDC standard - for cross-manufacturer networking of medical devices. The aim: interoperable, secure system landscapes in the OR.

- **IEEE 6G Summit, Dresden (May 14th–15th, 2025)**
  ICCAS presented the 6G Health project together with Vodafone. Among other things, a networked ambulance with 6G technology and use cases for the emergency sector were shown. Prof. Neumuth discussed in the expert panel '6G for Healthcare'.

All employees of the 6G-Health project present at the IEEE 6G Summit in Dresden.

- **TI-Summit 2025, Leipzig (June 04th–05th, 2025)**
  ICCAS presented the EU project CERTAINTY for the development of digital twins for personalized cancer therapy. The focus: data-based decision support for CAR-T cell therapies.
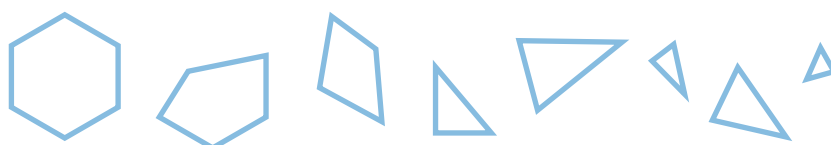
- **EAES-Congress, Belgrad (June 17th–20th, 2025)**
  Andreas Melzer was co-lecturer at the hands-on course "Ultrasound for Surgeons". Focus: practical ultrasound applications for minimally invasive surgery.

Nora Grieb and Stefan Franke presented the EU-funded CERTAINTY project at the TI-Summit in Leipzig.

Cooperation & Projects

April 23th, 2025 - Leipzig
### Project launch KIMed - Network for AI in medicine in Saxony

The KIMed project was launched in Leipzig on April 23th, 2025. The aim is to establish a Saxony-wide network for artificial intelligence in medicine. The partners involved include Leipzig University, TU Dresden, Mittweida University of Applied Sciences as well as clinics, IT companies and healthcare providers. The focus is on developing a secure digital research environment in which medical data can be used for AI applications in compliance with data protection regulations.
In addition, a public directory of partners, tools and data sources is being created. KIMed will receive €3.6 million in funding from the ERDF and the Free State of Saxony until 2027.

May 15th, 2025 - Leipzig
Project start Data-driven decision support for long-term treatment of stroke (DaDriv-StAC)

The DaDriv-StAC project is the launch of a digital platform for the aftercare of stroke patients. The focus is on a virtual patient twin that links health data across sectors - from the hospital to rehab and GP practices.
AI-supported evaluations are intended to enable personalized therapy decisions and improve care processes. The project is being implemented and scientifically evaluated by Leipzig University Medicine.
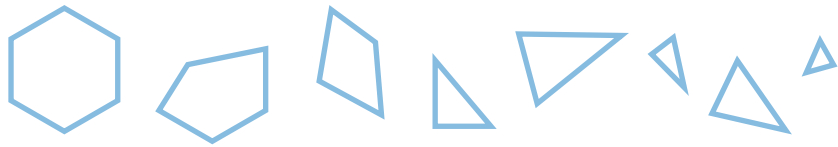
June 05th, 2025 - Leipzig
Leipzig becomes a OneHealth location with a high-tech focus

Leipzig is setting an example for the medicine of the future: ICCAS and Leipzig University's Clinic for Cloven-hoofed Animals are launching a new collaboration under the name "One Health Leipzig" - at the interface of human medicine, veterinary medicine and environmental research. The aim is to use modern technology to better understand and specifically protect the health of humans, animals and the environment.

The centerpiece is a common data space in which information from all three areas is brought together securely and interoperably - in line with the objectives of the European Health Data Space. This allows zoonoses or antibiotic resistance, for example, to be detected at an early stage.

We contribute expertise in sensor technology, networking (5G/6G), AI and AR, while veterinary medicine adds field knowledge and livestock data. Together, we are developing practical applications - from mobile diagnostic systems to AI tools for early warning systems.

Leipzig is thus positioning itself as a pioneer for digital OneHealth initiatives in Europe.

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Left: Alexander Starke, Professor of Ruminant Diseases, specializing in cattle, and right: Thomas Neumuth, Technical Director of ICCAS.

June 20th, 2025 - Leipzig
ICCAS at the "Lange Nacht der Wissenschaften"

ICCAS was also part of the "Lange Nacht der Wissenschaften" in Leipzig in 2025. Andreas Eger presented the BMBF-funded project 3MP-FUS - a novel system for non-invasive neuromodulation with focused ultrasound.

The demonstrator clearly showed how specific areas of the brain can be stimulated in a targeted manner - combined with MRI imaging in real time. Visitors gained exciting insights into a promising procedure for treating neurological diseases such as dystonia and Parkinson's.
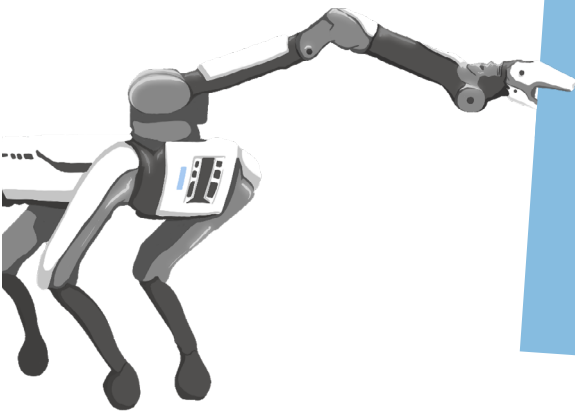
June 25th, 2025 - Leipzig
Company Run 2025 - team spirit on the track

ICCAS once again took part in the Leipzig Company Run 2025 - with a team under the motto "Stability instead of innovation". Together with over 20,000 participants, our colleagues ran the 5 km course through Leipzig's Festwiese. With lots of energy, original shirts and real team spirit, we showed that Research needs stamina - and a strong team, even away from the lab.

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Our employees involved in the run: "Stability instead of Innovation"

- 6G Conference (July 01st - 03rd, 2025 - Berlin)
- IEEE EBMC (July 14th - 17th, 2025 - Copenhagen, Denmark)
- Final meeting Miracle-5 (July 28th, 2025 - Leipzig)

Further events during the quarter can be found on our website or our LinkedIn channel.

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