

HIGHLIGHTS



MINISTER OF STATE PETRA KÖPPING AND MEMBER OF THE STATE PARLIAMENT HOLGER MANN VISIT ICCAS | July 8, 2021

The Saxon Minister of State for Social Affairs and Social Cohesion Petra Köpping and Member of the State Parliament Holger Mann, who is also member of the Steering Board of KAIT, visited ICCAS to learn more about the status of the KAIT project. Uwe Platzbecker, Head of the Department for Hematology, Cell Therapy and Hemostaseology, Fabian Kreimendahl from Janssen Germany (our industrial partner), Thomas Neumuth as well as project coordinator from ICCAS Alexander Oeser and Anne Sophie Kubasch (UKL) presented the initiative. In addition to the KAIT project, our scientists presented the current research focus of ICCAS in the fields of artificial intelligence (AI), augmented reality (AR) and medical robotics in the in-house demo OR and robotics lab.



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CENTER FOR MEDICINE INNOVATION | July 23, 2021

The ideas competition „Wissen schafft Perspektiven für die Region!“ is a joint initiative of the Federal Ministry of Research and Education and the Free State of Saxony. Thomas Neumuth is PD of the Center for Medicine Innovation (CMI) consortium that is one of three finalists of the first competition phase for a large-scale research center in the German Central Mining Coal Field with a budget of up to 1.2 bn €. Under the slogan "With the people, for the people", the center aims to develop and establish integrated, digital value chains for personalized medicine with international significance. Learn more about the [competition](#) and the [CMI](#).



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RESEARCH & PROJECTS



EYE HEAR U: DFG FUNDING FOR AN UPCOMING PROJECT

The Deutsche Forschungsgemeinschaft (DFG) granted a joint research project to Martin Lacher from the University of Leipzig Medical Center, David Black from University of Bremen and Thomas Neumuth from ICCAS. The project dubbed "Eye Hear U" has the objective to develop a novel training approach that enables personalized multimodal acquisition, simulation, visualization, and acoustic support of the learning process for bimanual basic laparoscopic skills. A prominent aspect of this approach should be a laparoscopy simulator with continuous quantitative training monitoring to objectively assess and support trainee physicians' dexterity and coordination behaviors.



ICCAS' INPUT FEEDS INTO THE NATIONAL RESEARCH DATA INFRASTRUCTURE

The Gemeinsame Wissenschaftskonferenz (GWK) made the funding decisions in the second round of calls for consortia funding in the National Research Data Infrastructure (NFDI). ICCAS will be technology partner in the [NFDI4DataScience](#) consortium, which aims to systematically develop, sustainably secure, and make accessible as well as (inter-)nationally interlink data repositories for data science and artificial intelligence.



ICCAS IS INVOLVED IN RESEARCH OF FUTURE 6G TECHNOLOGY

The establishment of four research hubs for the study of the future 6G technology is being funded with up to 250 million euros as part of the research program on communication systems of the Bundesministerium für Bildung und Forschung (BMBF). ICCAS is providing support with its know-how and long-standing expertise in the field of medical communication systems as an associated partner to the "Open6GHub"-initiative under the coordination of the Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI).

EVENTS



KAIT PROJECT AT THE 10TH SAXON HEMATOLOGICUM 2021 | July 9-10, 2021

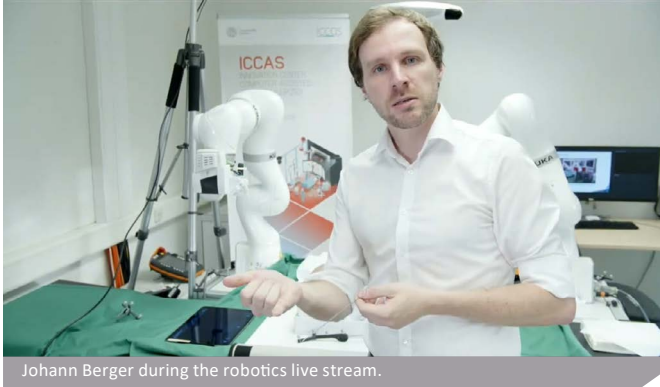
The research team involved in the [KAIT project](#) presented the prototype of an AI-based decision support tool for therapy selection for malignant and rare hematologic diseases during the 10th Saxon Hematologicum 2021, which took place on July 9 and 10 in Greifswald. [In a recently published white paper](#), the researchers around the project explain in detail the distinguishing features of the platform, among them the transparency and traceability of the decision recommendations.



LIVE ROBOTICS DEMONSTRATION AT THE LONG NIGHT OF THE SCIENCES LEIPZIG 2021 |

July 16, 2021

On July 16, ICCAS' robotics research group participated with a live robotics demonstration in the program of the largest annual joint event of Leipzig's scientific institutions: the Long Night of Sciences 2021. In the video, Johann Berger, project coordinator on imaging robotics, gives an insight into the collaborative robotic system for the application in image-guided therapies and minimally invasive surgical procedures. The live stream from the event is available on demand [here](#).



Johann Berger during the robotics live stream.



MY HOLIDAY ADVENTURE LEIPZIG (MEFALE) AT ICCAS |

July 26, 2021

As part of this year's summer vacation program "My Holiday Adventure Leipzig" (MEFALE), children of employees of Leipzig University Medicine visited ICCAS and got acquainted with our main research areas. Under the guidance of our scientists, the children observed the automated insertion of a puncture needle into a patient phantom using a collaborative robot arm. In the demo operating room, the kids were able to try out for themselves a laparoscopic hyperspectral imaging system for measuring skin perfusion and tissue classification. As a highlight, the children had the opportunity to perform a keyhole surgery on a medical dummy and, with the help of the endoscope and camera, "surgically remove" the candy hidden in the abdominal cavity.



MEFALE children experimenting in ICCAS' demo OR.



ICCAS' PRESENCE AT THE IEEE BHI-BSN 2021 |

July 27-30, 2021

The annual International Conference on Biomedical and Health Informatics (BHI) by the Institute of Electrical and Electronics Engineers (IEEE) and Engineering in Medicine and Biology Society (EMBS) in its 2021 edition was held online jointly with the International Conference on Wearable and Implantable Body Sensor

Networks (BSN). ICCAS' representation at the joint conference was multifaceted. Andreas Melzer was part of the regulatory panel that addressed the issues on medical device legislation. Specifically, he outlined the legal aspects to software with artificial intelligence classified as a medical device. In addition, recent technological results from our research field Biomedical Data Analysis were presented during the Special Session "Mobile Digital Solutions in Patient Care – Challenges and Opportunities" organized by Galina Ivanova. The team behind the Post-Stroke Manager project was represented with three further contributions.

[Learn more about the Post-Stroke-Manager](#)



CLUB DER GESUNDHEITSWIRTSCHAFT VISITS ICCAS |

August 19, 2021

On August 19, about 40 decision makers from hospitals, hospital groups and companies involved in the healthcare sector visited ICCAS to learn more about our current research. ICCAS scientists held demonstrations at five stations for the visitors. There were insights into the further development of established project topics such as imaging robotics, medical technology networking and hyperspectral imaging for surgery. In addition, ICCAS presented its work focusing on augmented reality (AR) in combination with real-time 3D modeling to improve the planning and execution of surgical procedures.



Club der Gesundheitswirtschaft at the Augmented Reality Demonstration.



TALK ON MAGNETIC RESONANCE GUIDED FOCUSED ULTRASOUND |

August 31, 2021

Andreas Melzer held an invited talk about the mechanical and thermal effects of image-guided high intensity focused ultrasound in different application settings: for instance, in the treatment of solid tumors, neurological diseases, and in the palliative management of bone metastases. The talk was part of the scientific program of the 12th Annual Symposium "Physics of Cancer".



COMPREHENSIVE CANCER CENTER (CCC): WORKSHOP ON DIGITALLY ASSISTED PRECISION THERAPIES |

August 31, 2021

ICCAS is involved within the framework of the joint initiative of the Comprehensive Cancer Center (CCC). The University of Leipzig Medical Center and the University Hospital Jena are partners in the establishment of the CCC for Central Germany. On August 31, a workshop was held on Digitally Assisted Precision Therapies, at which Andreas Melzer contributed with his expertise on image-guided high intensity focused ultrasound in the non-invasive treatment of various benign and malignant lesions.

CHIRURGISCHE FORSCHUNGSTAGE LEIPZIG | September 3, 2021

The 24th edition of Chirurgische Forschungstage Leipzig took place as an online event from September 2 to 3 under the motto Translational Strategies for Personalized Surgery. As part of the scientific program, Andreas Melzer gave a lecture called "Surgery made easy - computer-assisted surgery" as part of a session on mentoring and career planning. In addition, he co-moderated the session dedicated to computer-based support systems and virtual OR planning.

HYPERSPECTRAL IMAGING AT THE ANNUAL CURAC SUMMIT | September 16-18, 2021

At this year's 20th annual congress of the German Society of Computer and Robot-assisted Surgery (CURAC), Claire Chalopin, leader of the research area Intraoperative Multimodal Imaging, held a presentation on hyperspectral imaging for monitoring the patient's condition and identifying anatomical structures in visceral surgery. She elaborated on the technical improvements to the laparoscopic hyperspectral camera and its clinical evaluation. In addition, she chaired a clinical session dedicated to abdominal surgery. Both she and Thomas Neumuth acted as program committees during this year's event. Furthermore, Thomas Neumuth chaired a technical session dedicated to workflow software solutions for the OR.

"SHAPING THE FUTURE OF HEMATOLOGY" WITH FOCUS ON ARTIFICIAL INTELLIGENCE | October 8, 2021

The hybrid event "Shaping the Future of Hematology" took place on October 8 at the Kunstkraftwerk Leipzig. The event focused on the role of Artificial Intelligence (AI) on the way to precision medicine for hematology. Special attention was given to the challenges in diagnosis and therapy as well as in dealing with Big Data. Contributions from ICCAS' research team around the KAIT project – a joint project with Janssen Germany and the Clinic and Polyclinic for Hematology, Cell Therapy and Hemostaseology (University of Leipzig Medical Center) – presented the prototype of an AI-based decision support tool for therapy selection in hematologic malignancies.



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ICCAS AT THE 2021 BMT CONFERENCE | October 5-7, 2021, Hannover

After co-hosting the Annual Conference of the German Society for Biomedical Engineering (VDE|DGBMT) in 2020, this year ICCAS was

part of the scientific program and attended with an exhibition stand at the BMT 2021 in Hannover. ICCAS' executives Andreas Melzer and Thomas Neumuth chaired sessions in their areas of expertise – Ultrasound Diagnostics and MRI Safety, and Models of Personalized Medicine and Connectivity, respectively. On the ground, ICCAS was further represented by its Robotics research group and its unit on Model-based Automation. Furthermore, ICCAS presented its research efforts in the field of virtual reality for medical application. Specifically, it reported on the Accuracy measurement of HoloLens2 in a medical environment.

PUBLICATIONS

KLEINE ÄNDERUNG – GROSSE WIRKUNG: OPTIMALES OP-LAYOUT IN DER ENDOPROTHETIK | September 2021

In an article for the September issue of "Krankenhaus Technik + Management", one of our scientists Juliane Neumann presents the results of ICCAS research on optimal OR set-ups during endoprosthetic interventions. Reduction of handover times and surgery duration as well as an improvement of intraoperative ergonomics have been reported.

IMAGE-GUIDED HIGH-INTENSITY FOCUSED ULTRASOUND, A NOVEL APPLICATION FOR INTERVENTIONAL NUCLEAR MEDICINE? | September 2021

A research paper, which deals with interventional nuclear image-guided HIFU as an attractive noninvasive option for the future, has been published as an Open Access in the September issue of the Journal of Nuclear Medicine.

[Link to publication](#)

[All publications](#)

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