



Q3/2024 ICCAS NEWSLETTER



Dear Reader,

we are pleased to present you the latest newsletter of ICCAS for Q3 2024.

Various conferences, events and presentations attended are briefly presented, as are new publications and personel achievements. We hope you enjoy reading our update and find interesting information.

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- ICCAS @ THE CIRCUS OF SCIENCE

#TECHNOLOGIE_AND_SCIENCE_PRESENTATIONS

PRESENTATIONS AND CONFERENCES IN Q3

July 2nd-4th, 2024 - Berlin ICCAS @ 6G-Conference

The 6G-Conference 2024, held from July 2nd to 4th at the Berlin Congress Center by the 6G-Platform Germany, was opened by Federal Minister Bettina Stark-Watzinger.

The event provided in-depth insights into 6G research and future developments, focusing on energy efficiency, sustainability, network resilience, security, and the integration of AI and quantum communication. Applications of 6G in healthcare and industry were discussed. ICCAS participated, showcasing its future research vehicle and 6G-Health project, with numerous employees available to engage with guests and participants.



The group around the 6G project in front of the ambulance of the future in Berlin.

September 8th-11th, 2024 - Dresden ICCAS @ GMDS-Jahrestagung

The 69th Annual Meeting of the German Society for Medical Informatics, Biometry and Epidemiology (GMDS) took place in Dresden from September 8th to 11th, 2024, under the motto "Gesundheit – gemeinsam denken, forschen, handeln." For the first time, leading societies in biomedical informatics, biometrics, epidemiology, social medicine, medical sociology, and public health—GMDS, DGSMP, DGEPI, DGMS, and DGPH—gathered at the historic Deutsches Hygiene-Museum Dresden. Thomas Neumuth presented on industry collaboration during the session "Production of medical device software in universities and clinics."

September 10th-12th, 2024 - Antwerp, Belgium ICCAS @ ITEA PO-Days

At the ITEA PO-Days, representatives from research and industry worldwide meet annually to develop project proposals for international software innovation projects. This event offers a platform to present ideas, connect with potential partners, and explore new collaborations. ITEA, a EUREKA cluster, oversees project coordination and funding (<u>https://itea4.org/</u>). This year, over 350 representatives from leading companies and research institutions across 19 countries gathered in Antwerp. ICCAS participated as a potential partner in three projects focused on robotics, spectral imaging, and new network technologies.



Clemens Möllenhoff at the ITEA PO-Days in Antwerp.

September 12th-14th, 2024 - Leipzig ICCAS @ CURAC 2024

CURAC 2024, the annual conference of the German Society for Computer- and Robot-Assisted Surgery, took place from September, 12th to 14th 2024 at the Mediencampus, Villa Ida in Leipzig under the motto "Digitalization and Translation in Surgery". The event is a key event in the field of computer- and robot-assisted surgery and brings together experts from science, medicine and industry.

Our ICCAS employees were represented at CURAC with numerous contributions: Anna Schatz: "The potential of 5G/6G-based communication technology." Alexander Prull/ Ivan Matyash:"Prototype development of a multi-user augmented reality framework for collaborative medical visualization in shared environments."

Reinhard Fuchs:"Landmark registration in CT for lung model approximation in EIT."

Michael Unger/ Dirk Halama:"Development of an AR-based thermographic imaging system for planning in reconstructive surgery."

September 18th-20th, 2024 - Stuttgart ICCAS @ BMT 2024

This year's BMT, the 58th annual conference of the German Society for Biomedical Engineering (DGBMT), took place at the University of Stuttgart from September 18th to 20th, 2024. Key topics included medical robotics, patientcentered medicine, regulatory issues, healthcare sustainability, and digital transformation, with a focus on biomaterials, 3D-printed implants, AI's role, and the impact of the European Medical Device Regulation on German technology. Andreas Melzer from ICCAS chaired the "Ultrasound Therapy" session, participated in expert committee meetings on medical robotics and MRI technology, and attended the DGBMT board and general meetings.

September 24th-25th, 2024 - Leipzig ICCAS @ Shaping the Future of Medicine

"Shaping the Future of Medicine" took place at the Pittlerwerke in Leipzig from September 24th to 25th, 2024, focusing on advancements in digital medicine and AI integration in cancer treatment. Co-founders Uwe Platzbecker, Thomas Neumuth, and Anne Sophie Kubasch guided participants through the program. The first day targeted young medical professionals with sessions on career paths and balancing clinical work with research, while the second day highlighted pioneering research and AI in clinical development. ThomasNeumuth opened the event, welcoming guests and moderating various presentations.



fltr: Uwe Platzbecker, Thomas Neumuth, Vivek Natarajan, Eyal Zimlichman, Anke Diehl, Davidi Bachrach at a panel Discussion at The Shaping the Future of Health in Leipzig.

September 26th-28th, 2024 - Cáceres, Spain ICCAS @ iSMIT 2024

The 35th International Society for Medical Innovation and Technology (iSMIT) was held at the Jesús Usón Minimally Invasive Surgery Center in Cáceres, Spain, from September 26th to 28th, 2024. Core topics included advances in minimally invasive surgery, robotic surgery innovations, biomedical engineering, personalized treatments with biomaterials and regenerative medicine, 3D printing for surgery, and immersive digital technologies in healthcare. Experts from medicine, engineering, and research collaborated on solutions to current challenges. Andreas Melzer chaired the "Image-Guided Surgery" and "AI in MIS and Robotics" sessions, presenting on "Focused Ultrasound Therapy" in the latter.

PROJECTS AND RESULTS IN Q3

June 1ª, 2024 - Leipzig FazioTrain projects gets underway

The FaszioTrain project, which was launched in June 2024, is working with Phacon GmbH to develop a realistic training environment for fasciotomies on the lower leg. Various types of tissue are produced using rapid prototyping and integrated

into a model that replicates the properties, colors and textures of real anatomical structures. The model will realistically represent the real anatomy of the lower leg, including compartments, nerves and vessels, and simulate the swelling of blood stasis and pressure on nerve pathways. Users learn how to open the tissue properly and achieve optimum relief.

May 15⁺⁻16⁺, 2024 - Leipzig Launch of the SurgiTrace Project

Launched on June 1st, 2024, the SurgiTrace project aims to develop an Al-supported system for efficient material planning and quality assurance in surgeries. It addresses the complexity of preparing operating trolleys with essential instruments, implants, and accessories – a task currently done manually and prone to errors. SurgiTrace combines inductive near-field localization and optical image analysis, optimized by Al, to ensure accurate checks of equipment completeness, type, size, and quantity. This system is designed to function independently of staff availability or expertise.

July 15th, 2024 - Leipzig Consortium meeting: Scientists from the MORFEUS project as guests at the ICCAS

On July 15th, 2024, a consortium meeting was held at SIKT with partners Merkle CAE, OHB, Fraunhofer IBMT, Helmholtz Munich, Max Planck Institute CBS, MRI-STaR, UKL, and ICCAS. The consortium aims to advance knowledge transfer between medical technology and aerospace, focusing on "synthetic torpor" (sTor) as a key technology. Discussions highlighted shared needs, such as MRI and RF compatibility, and the use of aerospace clean room techniques for medical hygiene. ICCAS demonstrated technologies, including neuronavigation, the 6G ambulance, OR robotics, and HSI. Research on sTor aims to benefit transplant and coma patients and support long space missions by slowing metabolism and reducing radiation damage for astronauts.



At the consortium meeting of the Morfeus project, the partners took a demo tour of the various research focuses of the ICCAS.

September 03rd, 2024 - Leipzig Kick-off of the project "SoKoRoMed -Soft and Continuum Robotics in Medicine" successful!



Thomas Neumuth, ICCAS employees and partners of the new SoKoRoMed-project met for the successful Kick-off.

The project "SoKoRoMed - Soft and Continuum-Robotics in Medicine" was successfully launched on September 3rd, 2024, aiming to develop soft robotic end effectors for clinical use. This collaboration between ICCAS, led by project leader Thomas Neumuth, and the HTWK Leipzig Faculty of Engineering combines ICCAS's focus on clinical needs, system design, and integration with HTWK's expertise in control engineering, simulation, and materials science for technical implementation.

September 25th, 2024 - Leipzig Tri5G project presents research results - demonstration day at the DHL hub in Leipzig

On September 25th, 2024, the Tri5G project concluded at Leipzig's DHL hub, showcasing future mobility and connectivity innovations. Highlights included an autonomous bus from the L Group with TU Dresden, enhanced vehicle release at BMW's lot, and advancements in ambulance connectivity for real-time ultrasound and ECG analysis. Other innovations featured AI-supported fence monitoring and automated snow clearance at Halle/Leipzig Airport. Presentations on mobile networking and edge computing underscored 5G's impact in northern Leipzig and its potential across industries. The Tri5G project aims to establish Leipzig as a leading 5G technology center.



The research results of the Tri5G-project were presented at the DHL-Hub in Leipzig.

PUBLICATIONS IN Q3

ICCAS develops a real-time data transmission and dashboard visualization system

Schatz A, Osterhoff G, Georgi C, Joeres F, Neumuth T, Rockstroh M. Improving preparation in the emergency trauma room: the development and impact of real-time data transfer and dashboard visualization system. Int J Comput Assist Radiol Surg. 2024 Sep 11;

The paper examines the use of a visualization system to transmit real-time patient data from the ambulance to the emergency room (ETR). The aim of the study was to determine whether this real-time data leads to better and faster medical interventions. To this end, qualitative interviews were conducted with 32 doctors from German and Swiss hospitals. The developed prototype showed clear benefits by improving the workflow in the ETR by displaying important patient data such as vital signs and the ABCDE scheme. Doctors requested customizable and mobile versions to meet the specific needs of their clinics. The result shows that prehospital notification systems can support care in the ETR. Further research on the practical application and further development of the prototype is recommended.

MISCELLANEOUS IN Q3

August 07th, 2024 - Leipzig ICCAS @ at the company run

On August 7th, 2024, Leipzig's city center was once again transformed into a sporting arena when the annual company run took place. The ICCAS team also took part, competing under the name "Runtime Error". Our motivated runners gave their best and impressively demonstrated that they not only excel in research and development, but also on the running track. Congratulations to all participants for this great effort andsporting performance!



ICCAS participants of the company run under the name "Runtime Error".

August 12th, 2024 - Leipzig SDC - Advantages of a new standard in medicine

Meinungsbarometer.Info published an article on the new SDC standard on August 12th, 2024. Find it here: <u>https://www.meinungs-</u> barometer.info/beitrag/ueber-die-Vorteile-eines-neuen-Standards-in-der-Medizin 4882.html The SDC (Service-oriented Device Connectivity) standard, developed by ICCAS and OR.NÉT e.V., is now an international IEEE standard, enhancing interoperability and efficiency in patient care. Successful adoption requires collaboration across the IT industry, politics, hospital administration, and manufacturers to tackle challenges in interoperability, security, and acceptance. Rapid implementation could benefit patients and medical staff by improving care, efficiency, and reducing errors.

September 08th, 2024 - Berlin Thomas Neumuth at the meeting between Biosaxony and the Saudi Arabian delegation

Biosaxony is very grateful for a very successful business round table in Berlin together with the Saudi Arabian delegation headed by His Excellency Khalid bin Abdulaziz Al-Falih, Minister of Investment, accompanied by Her Excellency Sara Al Sayed, Deputy CEO of the Saudi Investment Promotion Authority and Mr. Ammar M. Altaf, Assistant Deputy of Industry Sectors and further delegates from the Ministry of Investments and other public and private entities. With a focus on the excellent Life Science ecosystem spanning from science and research to highly innovative companies and a vivid clinical network all the way to logistics the Saxonian delegation was able to present a broad variety of excellence in life sciences. Seeds for further collaborations have been planted and are planned to lead to a next step in visiting Riyadh this fall.

The Biosaxony network was represented by Babett Gläser, SMWK, Alexander Starke, Thomas Neumuth, Katrin Lässig, Andreas Heinecke, Viola Klein und Andreas Mönch, Falk Zakrewski and Falk Hoffman. André Hofmann and Cornelia Jahnel are looking forward preparing the next fruitful steps into KSA together with Rakan Algaarawi and the MISA team.



Thomas Neumuth at the meeting with Biosaxony and the Saudi Arabian delegation in Berlin.

September 18th, 2024 - Leipzig ICCAS @ The Circus of Science

The 21st edition of the Circus of Science in Leipzig's Kupfersaal appeared last night under the banner "Robots and AI" special. The most important topic for AI programming, which has nothing to do with AI at all, is the collection of training data. In his presentation, Tobias Pabst from the Innovation Center of Computer Assisted Surgery (ICCAS) presented the challenges that the healthcare sector currently has to overcome in order to be able to develop data-driven applications such as AI with confidence. One of the key words here is "interoperable interfaces". After all, only when all devices and systems speak the same language will it be possible to start using the huge data treasures that the healthcare sector produces every day.

In addition to Tobias' presentation, ICCAS was represented by the robot dog Spot from Bosten Dynamics. Robot pilot Alexander Prull greeted visitors in the queue and in the foyer before the presentation with the tricks that the mechanical four-legged friend has to offer.

Before the event and during the break, visitors were able to take a look at the networked ambulance of the future, which was met with great interest and enthusiasm. Anna Schatz and Clemens Möllenhoff explained to the numerous visitors what problems currently exist in emergency medicine and gave a brief insight into possible solution strategies. The current research work of the ICCAS aims to improve networking between the participants in rescue medicine and to develop new concepts for digitalization for ICCAS researchers.



Tobias Pabst gave a humorous presentation on the ICCAS ambulance of the future at the Circus of science.

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