

## HIGHLIGHT

### **IMRI 13TH INTERVENTIONAL MRI SYMPOSIUM** | October 14-15, 2022

The symposium was held on October 14 – 15, 2022 in Leipzig, and was co-organized by Andreas Melzer, who also moderated the session on General Issues - Neuro. He gave two lectures on „Towards MRI-guided cardiovascular interventions and focused ultrasound neuromodulation“ and „Combined 3D printed and silicone moulded vascular phantoms to develop and train catheter-based MRI-guided interventions“.

### **FUS FOUNDATION SYMPOSIUM** | October 23-27, 2022

Andreas Melzer was a panelist at the 8th International Symposium on Focused Ultrasound, held on October 23 – 27, 2022 in Rockwell. He discussed technology gaps and how technology breakthroughs can lead to broader adoption. The enormous progress in this field was presented at the symposium. Prior to the start of the meeting, more than 200 recorded scientific presentations were made available to all participants. The program included four days of panel discussions, keynote speakers and special lectures. The meeting also focused on numerous commercialization issues, as the field is rapidly moving from laboratory research to standard treatment.

### **FINAL PROJECT MEETING MPM** | November 29, 2022

On 29.11. the final event of the project Models for Personalized Medicine (MPM) took place at ICCAS. We thank all project partners for the successful collaboration.

In the project, under the leadership of Thomas Neumuth, the scientific and methodological basis for model-based, personalized treatments was created, which can be used in a variety of clinical situations. Both the applicability and added value of individual assistance systems and their integration along the treatment pathway are being demonstrated in direct collaboration with regional SME partners and clinical users.



Dr. Stefan Franke at a demonstration of the OR 2.0 © ICCAS Matthias Brand

### **„SHAPING THE FUTURE OF HEMATOLOGY“** | November 11, 2022

Thomas Neumuth co-organized the „Shaping the Future of Hematology“ event together with Uwe Platzbecker (University Hospital Leipzig) and Alexander Oeser. Neumuth gave a lecture on „The Impact of AI in Hematology-Curse or Blessing?“.

### **EAES WINTERMEETING 2023, MALTA** | January 26-28, 2023

Andreas Melzer - Course director at Ultrasound course  
The EAES Winter Meeting has become the Symposium on Innovation in Surgery, held for the first time in Malta. The meeting included educational, hands-on laparoscopy courses and the latest innovation work from EAES members. Several new technology projects were presented, ranging from tissue perfusion mapping and leak-free trocars to the introduction of artificial intelligence into surgical education. As part of the meeting, Andreas Melzer provided instruction as Course Director in HandOn 4 - Ultrasound.

### **ICCAS AT THE SPIN 2030 IN LEIPZIG** | February 03, 2023

The Saxon State Ministry of Science, Culture and Tourism presented its agenda for the strategic development in research and education until 2030 at the event SPIN 2030 in the Congress Hall Leipzig. Thomas Neumuth and team members exhibited the research rescue vehicle on site as part of the event. The vehicle is a demonstrator for the mobile use of medical devices. It relies on modern mobile radio standards for networking. In the future, for example, it will be possible to retrieve previously collected patient data directly at the scene of an accident and to transmit information about the patient's condition to the hospital prior to arrival. In critical situations, other physicians can also be connected via video call to support the rescue forces on site. The tools used range from standard tablet computers to technologies such as augmented reality (AR) glasses. These can be used, for example, to superimpose vital signs such as heartbeat or oxygen saturation in real time without the rescue forces losing an overview of the situation on the scene. The knowledge gained should help set new standards in emergency care.



Prof. Dr. Prof. Dr. Eva Inés Obergfell (Rector of the University of Leipzig) and Prof. Dr. Thomas Neumuth (Technical Director ICCAS) in front of our research rescue truck © ICCAS Matthias Brand

## COLLOQUIUM DLR DR. BRAUN | February 27, 2023

The head of the German Bioscientific Space Program in the Space Agency at DLR, Dr. Braun, gave the lecture on "The Bioscientific Space Program - Research in Space for Man on Earth" at the ICCAS Kooloquium on February 27, 23. It is impossible to imagine today's modern world without space travel. Space travel fascinates, drives the development of innovative technologies and offers solutions to challenges of the future. In particular, research under space conditions on the International Space Station, but also on satellites, rocket and parabolic flights, provides insights and solutions that improve life on Earth and help maintain human health and mobility in an increasingly aging society. The hybrid event met with great interest and we thank you once again very much for the lecture.

## REGIONS4PERMED, BRUSSELS | March 22, 2023

One of the main activities of the European Regions4PerMed project is to collect and disseminate Best Practices (BPs) that successfully advance the implementation of personalized medicine at the regional level. The Regions4PerMed Best Practice Award was evaluated through an international peer review process and was formally awarded at the project's final conference in Brussels on March 21-22, 2023. ICCAS participated in this competition with three entries. A total of two first places and one second place were won as a result.

The awardees of the competition are:

KA1: Big Data, electronic health records and health governance.  
Jan Gaebel – "EOS – Emergency Medical Team Operating System",

KA2: Health Technology and Connected and Integrated Care.  
Dr. Stefan Franke – "Models for Personalised Medicine – Digital Medical Twins beyond data aggregation",



Jan Gaebel

Dr. Stefan Franke

The Best Practice Award was awarded to Jan Gaebel and Dr. Stefan Franke at a ceremony during the project's final conference in Brussels on March 21 and 22, 2023.



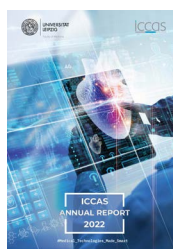
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## MISCELLANEOUS

### ICCAS' STATUS SEMINAR - HYBRID | March 22, 2023

The ICCAS status seminar 2022 took place in hybrid form on 22.03.23. Numerous guests were interested in the results from the ongoing projects and the planned research activities. Andreas Melzer and Thomas Neumuth discussed future challenges in the fields of computer-assisted surgery, image-guided interventions and model-based medicine. Finally, the participating physicians were also given the opportunity to reflect on the work of ICCAS.

### ICCAS ANNUAL REPORT 2022 ONLINE | March 22, 2023



As part of the ICCAS status seminar, the current 2022 Annual Report was also published. The annual report offers insights into the structure and development of ICCAS from the past year. At the same time, the individual research reports and the associated research groups introduce themselves. The annual report is available online at: [Link to annual report](#)

### KICKOFF 6G HEALTH | February 02, 2023

The lighthouse project for the use of 6G mobile technology in medical technology - 6G-Health - has been successfully launched: On 08 February, the ICCAS together with its more than 20 consortium partners presented its project plans to the public during a press conference at Leipzig University Hospital. We are particularly pleased that Mr. Brandenburg, State Secretary of the BMBF, was present via video stream and actively accompanied the project presentation.

Afterwards, all project participants started the active project work with a two-day kickoff meeting. The 6G-Health project will be funded by the BMBF with a total of around 10 million euros over the next three years. In its role as deputy consortium leader, ICCAS supports Vodafone in managing the project. The 6G-Health project will research how the next generation of mobile communications (6G) must be positioned for the medical care of the future. It will address issues relating to collaborative work, telemedicine and intelligent systems in healthcare. The core task will be to bring together the various domains involved, including medicine, medical technology and communications engineering, and to introduce the special challenges of developing medical applications into the standardization and approval process at an early stage.

Website: <https://www.iccas.de/projekte/6g-health/>



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## PEOPLE



### JÜRGEN MEIXENSBERGER EMERITUS | October 10, 2022



Prof. Dr. Jürgen Meixensberger © UKL Leipzig

The founding director of the ICCAS and director of UKL Neurosurgery, Jürgen Meixensberger, MD, retired on September 30th, 2022. The ICCAS is largely due to Meixensberger's vision to create a digital operating room where surgical procedures can be planned, simulated, trained and performed with the help of computers. He served as executive director of ICCAS from 2005 to 2014. We wish Jürgen Meixensberger all the best for his future.



### ANDREAS MELZER VISITING PROFESSORSHIP SEOUL | December 22, 2022

The National Cancer Center Graduate School of Cancer Science and Policy (NCC-GSCP) in Seoul, South Korea has reappointed Andreas Melzer as Visiting Professor. The director of ICCAS has already held a visiting professorship at the NCC-GSCP since 2019, which has now been extended until fall 2025. The NCC-GSCP is the premier national-level institute for training and research in cancer control and policy. It was established



Prof. Dr. Andreas Melzer

by the National Cancer Center (NCC) in South Korea to develop better cancer prevention and early detection strategies and more effective policies at the national and international levels. For this purpose, the Graduate School consistently seeks to recruit distinguished international experts in the field of oncology to share their knowledge and practical experience in the areas of research, therapy, cancer control and policy.



### THOMAS NEUMUTH APPOINTED AS MEMBER OF PHD COMMISSION | November 25, 2022



Prof. Dr. Thomas Neumuth

Thomas Neumuth was appointed to the PhD Commission PK2 of the Medical Faculty for the next three years. The commission is chaired by Alfred Winter and the following disciplines are assigned to the commission: General Medicine, Bioinformatics, History of Medicine, Health Economics, "Medical Informatics, Statistics and Epidemiology", Biomedical Engineering, Environmental Medicine and Environmental Epidemiology.



### CLAIRE CHALOPIN RECEIVES APPOINTMENT IN GÖTTINGEN AT THE HAWK | November 25, 2022



Dr. Claire Chalopin

On March 1, our colleague Claire Chalopin started her new position as professor for data-driven imaging in medicine at the University of Applied Sciences and Arts Hildesheim / Holzminden / Göttingen, Faculty of Engineering and Health. This is the departure of a staff member who has been working on various research topics at ICCAS since 2006. Numerous publications and especially the establishment of the research area - Intraoperative Multimodal Imaging (IMI) - are proof of her scientific achievements. As a guest scientist at ICCAS, she will keep in touch with us despite her new tasks and challenges. We wish our former researcher Claire Chalopin all the best and look forward to further exchange.



### SUCCESSFUL DOCTORATE | December 20, 2022

Michael Unger could successfully defend his dissertation "Developments of Infrared Thermography-based Tools to Assist Surgical Procedures and Workflow" on 20.12.2022. We congratulate our colleague.

The dissertation is available at:

[https://ul.qucosa.de/landing-page/?tx\\_dlf\[id\]=https%3A%2F%2Ful.qucosa.de%2Fapi%2Fqucosa%253A83321%2Fmets](https://ul.qucosa.de/landing-page/?tx_dlf[id]=https%3A%2F%2Ful.qucosa.de%2Fapi%2Fqucosa%253A83321%2Fmets)



Dr. Michael Unger

## PUBLICATIONS

Köhler H, Pfahl A, Moulla Y, Thomaßen MT, Maktabi M, Gockel I, Neumuth T, Melzer A, Chalopin C Comparison of image registration methods for combining laparoscopic video and spectral image data. Sci Rep. 2022;12(1):16459.  
DOI: <https://doi.org/10.1038/s41598-022-20816-1>

Neumann J, Uciteli A, Meschke T, Bieck R, Franke S, Herre H, Neumuth T. Ontology-based surgical workflow recognition and prediction. J Biomed Inform. 2022; 136:104240.  
DOI: [10.1016/j.jbi.2022.104240](https://doi.org/10.1016/j.jbi.2022.104240)

Fuchs R, Van Praet KM, Bieck R, Kempfert J, Holzhey D, Kofler M. u. a. A system for realtime multivariate feature combination of endoscopic mitral valve simulator training data. Int J Comput Assist Radiol Surg. 2022; 17(9): 1619-163.  
DOI: [10.1007/s11548-022-02588-1](https://doi.org/10.1007/s11548-022-02588-1)

Gaebel J, Mehlhorn S, Oeser A, Dietz A, Neumuth T, Stoehr M. Clinical decision support models for oropharyngeal cancer treatment: design and evaluation of a multi-stage knowledge abstraction and formalization process. Int J Comput Assist Radiol Surg. 2022; 17(9): 1643-1650.  
DOI: [10.1007/s11548-022-02675-3](https://doi.org/10.1007/s11548-022-02675-3)

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