BAYHOST MedTech Workshop

27 – 28 June 2024

at OTH Regensburg

Room: OTH Regensburg Campus, Rooms E 105 and E 104

CONCEPT

The BAYHOST MedTech workshop aims at initiating scientific cooperation in medicine, medical technology, artificial intelligence in medicine, and health sciences. The workshop focuses on cooperation of Bavarian universities and universities of applied sciences with partners in Croatia, Poland, Czechia and other countries.

The idea to intensify scientific cooperation in medicine and medical technology between Bavaria and Croatia was born during a delegation visit of the University of Zagreb and the opening of the Croaticum at the University of Regensburg in 2023. The visit was accompanied by the Croatian Minister of Science and Education and the Director General of the Bavarian State Ministry of Science and the Arts. Medicine and medical technology as well as the intersection of artificial intelligence and medicine were identified as promising areas where Bavaria and Croatia had complementary research activities.

In June 2023 BAYHOST organized a delegation visit to Poland with focus on artificial intelligence which also included medical applications. The program had been supported by the newly opened Bavaria-Poland project office for medical technology. The project office is an initiative on behalf of the Bavarian State Chancellery that aims at strengthening Polish-German cooperation in the field of medical technology. It is located at the German-Polish Chamber of Industry and Commerce in Wrocław.

The Bavarian-Czech Academic Agency (BTHA) is affiliated with the Bavarian Academic Center for Central, Eastern and Southeastern Europe (BAYHOST) and acts as the central contact partner for all aspects of bilateral cooperation between Bavaria and the Czech Republic in the field of higher education.

PROGRAM

Thursday, 27 June 2024, Room E 105	
9:00 – 9:45	Registration
9:50	Welcoming
	Prof. Dr. rer. pol. Carina Braun, Vice President, OTH Regensburg

Session 1: Medicine & Artificial Intelligence, Medical Technology

10:00	*Moderator: Nikolas Djukić*
	Proposal for cooperation: Artificial tissue growth, autonomous tissue cultivation and stimulation, regenerative medicine
	Speaker: *PD Dr. habil. Martin Vielreicher, Group Leader Tissue Engineering, Project leader "BioBone – Autonomous bioreactor system with multimodal sensory online monitoring and digital feedback control", Institute of Medical Biotechnology, Department Chemical and Biological Engineering, Friedrich-Alexander-Universität Erlangen-Nürnberg*
	The research group is looking for partners to provide artificial intelligence for automated control of artificial tissue growth ("digital twin").
	Project presentation and discussion on opportunities for cooperation
10:30	Presentation of the Cluster of Excellency of Biomedical Engineering at Poznan University of Technology, high-technologies in medical applications, opportunities and challenges
	Speaker: *dr hab. inż. Michał Rychlik, prof. PP, director of the cluster, and dr Jakub Grabski*
	Presentation of research group 1 of the Cluster of Excellency of Biomedical Engineering at Poznan University of Technology: automatic design of orthopedic equipment and prothetic products, virtual prototyping and quick production of individualized medical products and therapeutical methods
	Speaker: *Magdalena Żukowska, PhD, B. Eng., Biomedical Engineering Excellence Cluster, Poznan University of Technology*
11:00	Proposal for cooperation: Social science research, research on acceptance, and applied ethics with regard to applying technology and artificial intelligence in the health sector
	Speaker: *Prof. Dr. phil. habil. Karsten Weber, Professor for Technology Assessment and AI-based Mobility, Director of the Regensburg Center for Health Sciences and Technology (RCHST), Faculty of Computer Science and Mathematics, OTH Regensburg*
	Presentation and discussion on opportunities for cooperation
11:15	Development and Evaluation of AI Solutions for breast and prostate MRI through Research collaboration
	Speaker: *Andrzej Liebert, PhD, Transformative Oncologic Imaging Lab, Institute of Radiology, University Clinic Erlangen* *PD Dr. med. Sebastian Bickelhaupt, Institute of Radiology, University Clinic Erlangen*
11:30	Coffee break
12:00	*Moderator: Maxim Gatskov*
	Proposal for cooperation: Project on social health of dementia patients in nursing homes
	Speakers: *Dr. Doris Gebhard, Didactic methods in sport and health, Department of Health and Sport Sciences, TUM School of Medicine and Health*

	Presentation and discussion on opportunities for cooperation
12:30	Proposal for cooperation: Long-term care: challenges and opportunities
	Speaker:
	Professor Oleksandra Khudoba, Department of Public Administration and Public Service, Lviv National Polytechnic University
	Proposal for cooperation: Longtime care for people with dementia
	Speaker:
	Diana Zayats, PhD, Department of Public Administration and Public Service, Lviv National Polytechnic University
	Presentation and discussion on opportunities for cooperation
13:00	Proposals for cooperation:
	1) Psychosocial interventions in dementia
	2) whole-body cryotherapy and MCI/dementia
	Speaker:
	Prof. Joanna Rymaszewska, Department of Clinical Neuroscience, Faculty of Medicine, Wrocław University of Science and Technology
	Presentation and discussion on opportunities for cooperation
13:15	Proposal for cooperation: Animal lab
	Speaker:
	Professor Dariusz Jagielski, Department of Cardiology, Faculty of Medicine, Wroclaw University of Science and Technology (WUST)
13:30	Lunch break: Joint walk from OTH Regensburg to the canteen of the University of Regensburg on the neighbouring campus (10 minutes), lunch in the hall in the rear part of the canteen building

Session 2: Good practice examples

15:00	*Moderator: Aleksandra Pilch*
	Presentation of the Bavarian-Polish Cooperation Office Medtech on behalf of the Bavarian State Chancellery
	Speakers:
	Aleksandra Pilch, Head of the Bavarian-Polish Cooperation Office Medtech on behalf of the Bavarian State Chancellery
	Lea Pfäffel, Project Manager, Bavaria-Québec / Alberta / International, Bavarian Research Alliance
	Prof. Dr. Nikolai Klymiuk, Cardiology, TUM School of Medicine and Health
15:15	Research Project: Deep Learning for Multimodal Breast Cancer Detection
	Speakers:
	Andrzej Liebert, PhD, Transformative Oncologic Imaging Lab, Institute of Radiology, University Clinic Erlangen
	dr Lukasz Jelen, Department of Computer Engineering, Faculty of Information and Communication Technology, Wroclaw University of Science and Technology

15:30	Presentation of the Institute for Bioanalysis at HAW Coburg and the Proteomics Unit of Fraunhofer Institute for Cell Therapy and Immunology – IZI Leipzig, and of applications in the field of breast cancer
	Cooperation of Coburg University of Applied Sciences and Arts with the University of Split and the Mediterranean Institute for Life Sciences (Croatia) and with partners in Serbia
	Speaker: *Dr. rer. nat. Johannes Schmidt, Deputy Head of Proteomics Unit, Fraunhofer Institute for Cell Therapy and Immunology – IZI Leipzig*

Session 3: Medical image and data analysis

15:45	*Moderator: Maxim Gatskov*
	Presentation of IDEAS NCBR IDEAS NCBR is a research and development center operating in the field of artificial intelligence, established by the National Centre for Research and Development in Poland. Our mission is to support the development of this technology in Poland by creating a platform connecting the academic and business communities.
	Topic: AI in medical data analysis, radiology, digital pathology, cancer detection, cancer classification
	Speaker: *dr hab. inż. Żaneta Świderska-Chadaj, IDEAS NCBR*
16:00	Proposal for cooperation: digital pathology, Augmented Reality for general practitioners and wound monitoring
	Speaker: *Prof. Dr.-Ing. Thomas Spittler and Anna Schmaus-Klughammer, LLB(hons), European Campus Rottal-Inn, Deggendorf Institute of Technology*
16:15	Proposal for cooperation: Machine learning in data processing
	Speaker: *Jan Hejda Ing.; Ph.D., Department of Health Care and Population Protection, Faculty of Biomedical Engineering, Czech Technical University in Prague*
16:30	Coffee break
16:45	Proposal for cooperation: Using Knowledge graphs to enhance the discovery of medical data
	Speaker: *Prof. Dr. Alsayed Algergawy, Chair of Data and Knowledge Engineering, Faculty of Computer Science and Mathematics, University of Passau*
17:00	Proposal for cooperation: assistive technology, wearable technology, telemedicine, analysis of physiological and movement data, AI
	Speaker: *Assoc. Prof. Patrik Kutilek, Department of Health Care and Population Protection, Faculty of Biomedical Engineering, Czech Technical University in Prague*
17:15	Analysis of high frequency ultrasound images in dermatology by use of AI algorithms
	Speaker: *Joanna Czajkowska DSc, Department of Medical Informatics and Artificial Intelligence, Faculty of Biomedical Engineering, Silesian University of Technology*

17:30	Break
18:30	Guided city tour: Meeting point in front of the Western entrance (main entrance) of the Regensburg Cathedral (St. Peter's Cathedral, in German: Dom St. Peter), Domplatz 1
20:00	**COMMON DINNER** Weltenburger am Dom, Domplatz 3, 93047 Regensburg https://www.weltenburger-am-dom.de/

Friday, 28 June 2024, Rooms E 104 and E 105

	Room E 104:	Room E 105:
9:30	**Session 4: Infectious diseases and other topics** *Moderator: Nikolas Djukić* Proposal for cooperation: Research on the prevention of respiratory infection diseases with focus on vaccinations Speaker: *PD Dr. Manuel Krone, Deputy director, Infection Control and Antimicrobial Stewardship Unit, University Hospital Würzburg* Presentation and discussion on opportunities for cooperation	**Session 5: Medicine & Artificial Intelligence** *Moderator: Dr. Kozeta Ligeja* Proposal for cooperation: Application of artificial intelligence in (forensic) dentistry Speakers: *Professor Marin Vodanović, Department of Dental Anthropology, School of Dental Medicine, University of Zagreb* *Prof. dr. sc. Marko Subašić, Department of Electronic Systems and Information Processing, Faculty of Electrical Engineering and Computing, University of Zagreb*
9:45		Proposal for cooperation: Automation, AI, Life science Speaker: *Prof. Dr. Jan Hansmann, Institute of Medical Engineering Schweinfurt, Technical University of Applied Sciences Würzburg-Schweinfurt, and Fraunhofer ISC*
10:00	Proposal for cooperation: Infectiousness of COVID-19 patients investigations by isolating and culturing SARS-CoV-2 from clinical samples Speaker: *Prof. Oleksandr Nadraga, Pediatric Infection Diseases department, Medical Faculty №2, Lviv National Medical University*	
10:15	Discovering interactions of biomolecules for rapid medical diagnostics with vibrational spectroscopy Speaker: *Marlena Gąsior-Głogowska, Assistant Professor, Chair of Biomedical Engineering, Faculty of Fundamental Problems of Science and*	Proposals for cooperation: 1) 3D Reconstruction Algorithm for MRI Images to Aid in the Visualization and Planning of Tumor Surgeries 2) Can we use the AI Capabilities for Interpreting Medical Images? Speaker: *dr. ing. Iulian Teodor Vlad, Department of*

	Technology, Wroclaw University of Science and Technology	*Computers, Automatics and Electronics, Faculty of Mechanical and Electrical Engineering, University "Petroleum and Gas" of Ploiesti - Romania*
10:30	Proposal for cooperation: Medical metrology, Treatment of malignant lung tumors Speaker: *Prof. Nataliya Hots, Department of Information and Measurement Technology, Medical Engineering, Institute of Computer technology, Automation and Metrology, Lviv Polytechnic National University*	Proposal for cooperation: experimental research on biomaterials and tissues, including analysis of strength parameters and structural properties. Research on circulatory system implants and spine fixators, including GGS implants. Speaker: *Prof. Celina Pezowicz, Department of Mechanics, Materials and Biomedical Engineering, Faculty of Mechanical Engineering, Wroclaw University of Science and Technology*
10:45		
11:00	Coffee break	
11:30	*Moderator: Dr. Kozeta Ligeja* Proposal for cooperation: Influence of micro- and nanoplastics on humans Speaker: *Prof. Dr. med. Dr. h.c. Friedrich Paulsen, HonFAS, Head Institute of Functional and Clinical Anatomy, Friedrich Alexander University Erlangen-Nürnberg* Presentation and discussion on opportunities for cooperation	*Moderator: Aleksandra Pilch* Enhancing Security in Robotic Surgery: The Intersection of AI and Cybersecurity Speaker: *Santhosh Kumar Nataraj, Scientific Assistant, Institute ProtectIT - Protection for Industrial Technologies, Faculty of Applied Computer Science, Technology Campus Vilshofen - Technische Hochschule Deggendorf*
11:45		From molecular modeling to Artificial Intelligence in healthcare process Speaker: *Sebastian Kraszewski, Associate Professor, Chair of Biomedical Engineering, Faculty of Fundamental Problems of Science and Technology, Wroclaw University of Science and Technology*
12:00	Proposal for cooperation: 5G corridor Munich-Prague activities and support in the field of eHealth Speaker: *Jana Lachmann, 5G Corridor Munich-Prague*	Cooperation potential of European HealthTech Innovation Center Speaker: *prof. Marcin Kaczmarek, Faculty of Biomedical Engineering, Silesian University of Technology*
12:15		Proposals for cooperation: 1.Analysis of kidney biopsy slides using AI. 2.Data management and predictions based on a database of geriatric patients using AI

		Speaker:
		Madalina Cojocariu, PhD, Center of Technology Transfer – MAVIS, "Grigore T. Popa" University of Medicine and Pharmacy Iași
12:30	12:30 – 13:00 and 13:00 – 13:30 (2 groups): Lab tour: Regensburg Center of Biomedical Engineering RCBE and Regensburg Center of Health Sciences and Technology RCHST Laboratory for Biofluid Mechanics (Prof. Dr. Lars Krenkel) Laboratory for Biomechanics (Prof. Dr. Sebastian Dendorfer) Laboratory for Medical Devices (Prof. Dr. Thomas Schratzenstaller)	
13:30	Lunch break: Joint walk from OTH Regensburg to the canteen of the University of Regensburg on the neighbouring campus (10 minutes), lunch in the hall in the rear part of the canteen building	
15:00	Bilateral talks upon arrangement	Counseling on EU funding opportunities by the Bavarian Research Alliance (BayFOR), counseling on cooperation and funding by the Bavarian-Polish Cooperation Office Medtech (upon arrangement)
16:30	End of the workshop	

CONFERENCE LANGUAGE

The conference language is English.

COSTS

The participation is free of charge. Free accommodation can be provided for a certain number of participants (to be indicated in the application form).

DIRECTIONS

Address of OTH Regensburg: Seybothstraße 2, 93053 Regensburg

https://www.oth-regensburg.de/en/the-oth/standorte-und-lageplaene

WI-FI ACCESS FOR GUESTS

Establishment of the connection with BayernWLAN Hotspot

1. Turn on Wi-Fi on your device and select in the Wi-Fi settings the WLAN network (SSID) @BayernWLAN
2. Open a web page in your browser, if it does not automatically open (depending on the operating system and device).
3. Accept the terms of use on the home page of the hotspot. Click on "Connect" | "Verbinden"

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