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PROGRAMME

<p>name of the unit:</p> <p style="text-align: center;">HUMAN-COMPUTER INTERACTION - UbiComp.pl</p> <p style="text-align: center;">Instytut Informatyki Stosowanej Politechniki Łódzkiej</p>		<p>symbol:</p> <p style="text-align: center;">I-24</p> <p style="text-align: center;">http://www.iis.p.lodz.pl</p>
<p>head of unit:</p> <p style="text-align: center;">dr hab. inż. Andrzej Romanowski, univ. prof.</p>	<p>potencjal promoters:</p> <p style="text-align: center;">dr hab. inż. Andrzej Romanowski, univ. prof. dr hab. inż. Krzysztof Grudzień, univ. prof.</p>	<p>contact person:</p> <p style="text-align: center;">dr. inż. Magdalena Wróbel- Lachowska tel: 42- 631-27-50 magdalena.wrobel-lachowska@p.lodz.pl</p>
<p>scope of activities:</p> <p>We operate in the interdisciplinary area of human-computer interaction; at the intersection of technical sciences (computer science, robotics, electronics, and artificial intelligence) with human and social sciences. We design, implement, and evaluate applications, systems and digital devices dedicated to cooperation with users within workplace, medical, office, industrial and everyday life environments. Our goal is to create and adapt emerging interactive technologies through a deep understanding of how modern technologies can support the needs of people and organizations. We conduct research and development in order to utilize the full potential of artificial intelligence for humans. We want to make the creation and use of digital technologies more useful, ergonomic, counteracting exclusion and consistent with the global goals of sustainable development. We use mixed methods in our research work; quantitative and qualitative, and we conduct our activities locally in the research initiative group of the Lodz University of Technology entitled ubiComp.pl, in cooperation with sigchi.pl, as well as within a wide international network of partners (LMU Munich, Chalmers Gothenburg, NUS Singapore, Harvard Boston and others).</p>		<p>graphics</p>  
<p>present activities:</p> <p>Currently, a large part of our research work concerns supporting and enhancing the human senses & abilities as well as increasing the possibilities of developing the physical and mental potential of the digital systems users. We investigate ways of reducing the negative impact of human use of AI systems on the performance and development of users' cognitive skills (cooperation with Harvard, NUS and industrial partners). We create and develop an intelligent platform for remote support and telecare for lonely, dependent and people with special needs with the use of personal and wearable devices and machine learning methods (cooperation with HRP). We create devices and computer methods supporting athletes and amateurs (Chalmers, LMU), we create information processing and visualisation systems for industries of various industries using augmented and virtual reality (AR / VR) technology (Netrix, Oldenburg), IoT, and dedicated for Industry 4.0.</p>		
<p>future activities :</p> <p>Research and development of environmental awareness systems in home, family, work, health care scenarios to support their own development, physical health and well-being. Design of interaction with AI systems, brain-computer interfaces (BCI) utilizing data gathered from crowdsourcing, oculographic and eye-tracking systems.</p>		



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[publications/patents/awards/grants:](#)

- To Trust or to Think: Cognitive Forcing Functions Can Reduce Overreliance on AI in AI-assisted Decision-making. PACMHCI 5, 2021, doi.org/10.1145/3449287
- Subtleee: Augmenting Posture Awareness for Beginner Golfers, in PACMHCI, ACM ISS, 2020. doi.org/10.1145/3427332
- Interactive Timeline Approach for Contextual Spatio-Temporal ECT Data Investigation Sensors ,20 (17), 4793, <https://doi.org/10.3390/s20174793>
- Considering Wake Gestures for Smart Assistant Use, 2020 CHI ACM, doi.org/10.1145/3334480.3383089
- Big Data-Driven Contextual Processing Methods for Electrical Capacitance Tomography, IEEE Transactions on Industrial Informatics, vol. 15, no. 3, pp. 1609-1618, 2019, doi: 10.1109/TII.2018.2855200.
- Using Crowdsourcing for Scientific Analysis of Industrial Tomographic Images. ACM Trans. Intell. Syst. Technol. 7, 4, Article 52 (2016), 25 p. DOI:<https://doi.org/10.1145/2897370>
- Curently we conduct several R&D projects and grants financed by national agencies and EU.

[keywords:](#)

human-computer interaction, HCI, ubicomp, wearable computing, telecare systems

[list of internship proposal in this research team:](#)

Development of sensory systems, data collection, data processing methods, the use of machine learning, building data analysis and visualization platforms for a related network of users and stakeholders of intelligent interactive systems