Panel title: **Brain-Computer Interface (BCI)-Security and Privacy Challenges and Solutions**

1. Panel organizers (Names, main contact, and a short Bio):

1. **Farnaz Mohammadi,**
   E-mail: fm@sec.uni-passau.de

   Short Bio: Farnaz Mohammadi studied Computer Engineering- Software and received her master's degree in Computer Science- Intelligent Systems from the Amirkabir University of Technology (Tehran Polytechnic). She has over ten years of experience in Security and Access Control systems development, maintenance, and deployment while she worked as a technical team member and project manager. She was a Junior Researcher at System Security Laboratory (SSL), Department of Digital Systems, University of Piraeus, Greece, from 2017 to 2020. She is currently a Ph.D Student /Research Assistant at the Passau Institute of Digital Security (PIDS), at the University of Passau under the supervision of Prof. J. Posegga. Her research interests include system and network security, and she focuses on Brain-Computer-Interface security and privacy.

2. **Prof. Joachim Posegga**
   E-mail: jp@sec.uni-passau.de

   Short Bio: Joachim Posegga holds the chair of IT security since 2008. Before coming to Passau, he was appointed Professor at the University of Hamburg in 2003 and founded the Security in Distributed Systems (SVS) Group at the University of Hamburg. Prior to academia, he was leading the Security Research Program at SAP Corporate Research, from 1995-2000 he worked on security at Deutsche Telekom Research in Darmstadt. His research addresses Web Security, Security protocols, and architectures, the current application focus is the Internet of Things. He is the author of four books in the area of computer science, and numerous scientific papers in journals and conference proceedings.

3. **Dr. Mona Ghassemian**
Email: mona.ghassemian@huawei.com

Short Bio: Mona Ghassemian has over 20 years of experience in the wireless and telecom research in industry and academia. She currently works at Huawei Advanced wireless Technology Lab as 6G principal expert on industry vertical, working on strategic R&D roadmap of key technologies (particularly in vertical industries) relevant for next generation mobile communication system design. Prior to her current role, in her senior manager role at InterDigital Inc, she led a research team on the next generation networking. She worked as a principal research scientist at British Telecom (BT) Research and Technology with a focus on future networks and security. Prior to her industry roles, she worked as a lecturer and senior lecturer at KCL, Greenwich and SBU supervising over a 100 postdocs, PhD and MSc researchers. She has published over 70 papers, 13 patents, 2 book chapters and several contributions to 3GPP, IEEE and IETF standard organisations. She is a member of IEEE SA 1918.1 (Tactile Internet) since 2016, and is currently the IEEE UK & Ireland section past-chair, the IEEE Region 8 Diversity, Equity, and Inclusion and the MGA nomination committees' member.

1. Invited Speakers: (Names, main contact, and a short Bio):

1. **Prof. Dr. Paul Lukowicz**
   Wearable Technology and AI
   Email: Paul.Lukowicz@dfki.de

   Short Bio: Prof. Dr. Paul Lukowicz is both Scientific Director at DFKI, where he heads the Embedded Intelligence department and Full Professor of AI at the Technical University of Kaiserslautern since 2012. His research focuses on context aware ubiquitous and wearable systems including sensing, pattern recognition, system architectures, models of large-scale self-organized systems, and applications. Paul Lukowicz coordinates the HumanE AI project, acts as editor for various scientific publications, and has served on the TPCs (including TPC Chair) of all the main conferences in his research area.

2. **Prof. Ricardo Chavarriaga**
   Responsible Innovation in Neurotechnology and AI
   Email: r_chavarriaga@ieee.org

   Short Bio: Passionate of responsible development and social implications of technology, he has more than 12 years of experience in brain-machine interaction, computational neuroscience, and artificial intelligence. His work is focused on the conception of neurotechnologies that allow symbiotic interaction between human and intelligent machines. This is based on better understanding of neural correlates of cognition, development of artificial intelligent devices capable to adapt to their user's goals, preferences and capabilities, and a user-centered design approach. He is highly interested on the translation of emerging technologies onto applications at service of society. He is the head of the Switzerland Office of the CLAIRE Initiative for excellence in AI. He is also chair the IEEE group on standards for brain-machine interfacing and executive-in-residence at the Geneva Cente for Security Policy. He is chair of the publications committee of the IEEE Brain Initiative and member of the MIT Technology Review Global Panel. He also has a degree on Electronics Engineering from the Pontificia Universidad Javeriana in Cali, Colombia and a PhD in Computational Neuroscience from the Ecole Polytechnique Fédérale de Lausanne (EPFL) In Switzerland.

3. **Prof. Dr. med. Surjo R. Soekadar**
   Neuroscience
   Email: surjo.soekadar@charite.de

   Short Bio: Surjo R. Soekadar, MD, studied medicine in Mainz, Heidelberg and Baltimore. After a Research Fellowship at the Human Cortical Physiology and Stroke Neurorehabilitation Section (HCPS) at the National Institute of Neurological Disorders and Stroke (NINDS, NIH, USA), he continued his work at the University Hospital of Tübingen, Germany, where he became head of the Applied Neurotechnology Laboratory. In 2018, he transitioned his group to the Charité - Universitätsmedizin Berlin, where is became Germany's first Professor of Clinical Neurotechnology. He is currently head of the Center for Translational Neuromodulation and leads the research division for „Translation and Neurotechnology". His scientific interests include cortical plasticity in the context of brain-machine interface (BMI) applications, non-invasive brain stimulation and neural mechanisms of learning and memory, particularly in the context of neurorehabilitation. Dr. Soekadar received various prizes such as the NIH-DFG Research Career Transition Award, the NIH Fellows' Award for Research Excellence, the International BCI Research Award as well as the BIOMAG and NARSAD Young Investigator Awards.

4. **Dr. Max Smith-Creasey**
   Security and Biometrics
   Email: max.smith-creasey@bt.com

   Short Bio: Max Smith-Creasey is an award-winning cyber security research scientist at BT plc. His primary research interests involve future authentication technologies and biometrics. The research he has led has resulted in publications in international conferences, articles in leading journals, and patent filings. This research has received numerous awards and recognition. Before entering research, he worked as a software engineer. Currently, he is also an Expert Fellow at SPRITE+ and the Vice-Chair of the IEEE UK & Ireland Cyber Security Group. He has studied at King's College, University of London, and City, University of London. He resides in Suffolk in the UK. More information can be found at *www.maxsmithcreasey.com*.

2. Brief description of the panel's scope and intended outcome:

Providing customized services using users' biometric data (including emotions, experiences, memories, and attitudes), security and privacy issues involved in the BCIs need more attention. Moreover, reviewing the possible privacy and security threats involved in BCIs with possible security measures to mitigate the privacy threats, and therefore focusing on developing security mechanisms to protect and secure the BCI can open many opportunities in research in BCI security and privacy concepts. Therefore, we have planned to set up a panel for more discussion regarding the mentioned issues.

1. **Does using BCI threaten user privacy in the fields in which BCI is involved?**
2. **Can BCI contribute to enhance security?**
3. **What are the standard activities in the area of biometrics in relation with BCI?**
4. **What will be predominant use of BCI in 10 years?**

Finding an answer(s) to these questions opens many opportunities for research in BCI security and privacy concepts. Moreover, BCI security risk management requires a more in-depth analysis of the security risk caused by BCI. In particular, this would be assisted by stronger estimates of the baseline likelihood of risk. Due to the vitality awareness of security involved in BCI, various prominent experts from Germany, and UK will discuss the BCI security and privacy issues and solution in our panel discussion on July 15-17, 2022.

The 15th International Conference on Brain Informatics (BI 2022)			
15 July 2022, Panel I: Hybrid- Padova, Italy			
Brain-Computer Interface Security and Privacy Challenges and Solutions			
11:00	11:05	**Opening**	Joachim Posegga & Mona Ghassemian
11:05	11:15	**Wearable Technology and AI**	Paul Lukowicz
11:15	11:25	**Neurotechnology and AI**	Ricardo Chavarriaga
11:25	11:35	**Neuroscience**	Surjo Soekadar
11:35	11:45	**Security and Biometrics**	Max Smith-Creasey
11:45	12:15	**Q&A**	
12:15	12:30	**Closing**	Joachim Posegga & Mona Ghassemian
Moderator: Farnaz Mohammadi			

- The main conference will be held in Padova, beautiful historical city located in North-eastern Italy (30 km from Venice).
  - Department of Biomedical Sciences - Via Marzolo, n.3 - 35131, Padova, Italy
    Interdepartmental Complex A. Vallisneri - Via Ugo Bassi, 58b - 35121 Padova, Italy

- https://wi-consortium.org/conferences/bi2022/index.html
  - https://bi2022.org/register/
- https://wi-consortium.org/conferences/bi2022/panel.html

- If anyone is joining in person in Padova, please register using the conference registration link, https://bi2022.org/register/

- Farnaz Mohammadi is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting
https://uni-passau.zoom.us/j/61664092533?pwd=Ym5UMXlpZzVBcnBjdHo3cG9TcFY1UT09

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