

Workload Assessment from 2D to 3D Simulators and from Offline to Realtime Analysis

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ABSTRACT

The next generation human-computer interaction requires, a close-to-real, virtual reality environment and a more sensitive real-time brain states monitoring to account for instantaneous human thoughts and feelings. Within this goal area, workload evaluation of human subject is extraordinary critical to both safety and security of risk-sensitive domains, including flight operations and mission success. In this paper, we present a non-intrusive workload assessment framework by real-time processing of continuous EEG signals measured from "pilots" during flight operations. Our team has been experimented on a 2D screen-based flight simulation platform (MATB-II, Revised Multi-Attribute Task Battery) and a virtual reality-based realistic flight simulator. This novel framework has the potential of reducing task overloads and improving performance in risk-sensitive domains.

BIOGRAPHY

Anastasios (Tassos) Bezerianos is the Head of Cognitive Engineering (COGEN) Laboratory at the Singapore Institute for Neurotechnology (SINAPSE) and Research Professor at the Department of Electrical and Computer Engineering (ECE) in National University of Singapore (NUS) and Professor in NUS Graduate School for Integrative Sciences and Engineering and a Visiting Professor in the Computer Science Department of NSWU-Canberra, AUS. He has been the Professor of Medical Physics at the Medical School of Patras University, Patras, Greece since 2004. He studied Physics at Patras University and Telecommunications at Athens University, and he received his Ph.D. on Bioengineering from the University of Patras. His research entails diverse areas spanning from Artificial Intelligence and Robotics to Biomedical Signal Processing and Brain Imaging as well as Mathematical Biology and Systems Medicine and Bioinformatics. His work is summarized in 127 journals, 1 book, 206 conference proceedings publication and 2 patents. He has research collaborations with research institutes and universities in Japan, China, and Europe, and he is Associate Editor of IEEE TNSRE, the Annals of Biomedical Engineering and PLOS ONE Neuroscience journals and a reviewer for several international scientific journals. He is a registered expert of the Horizon 2020 program of the European Union and a reviewer of research grant proposals in Greece, Italy, Cyprus and Canada. He is a Senior Member of IEEE and the Founder and Chairman of the biannual International Summer School on Emerging Technologies in Biomedicine.

All are welcome!



In case of questions, please contact Prof TAN, Kay Chen at Tel: 3442 8504, E-mail: kaytan@cityu.edu.hk, or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/news/seminars/seminars.html>.

