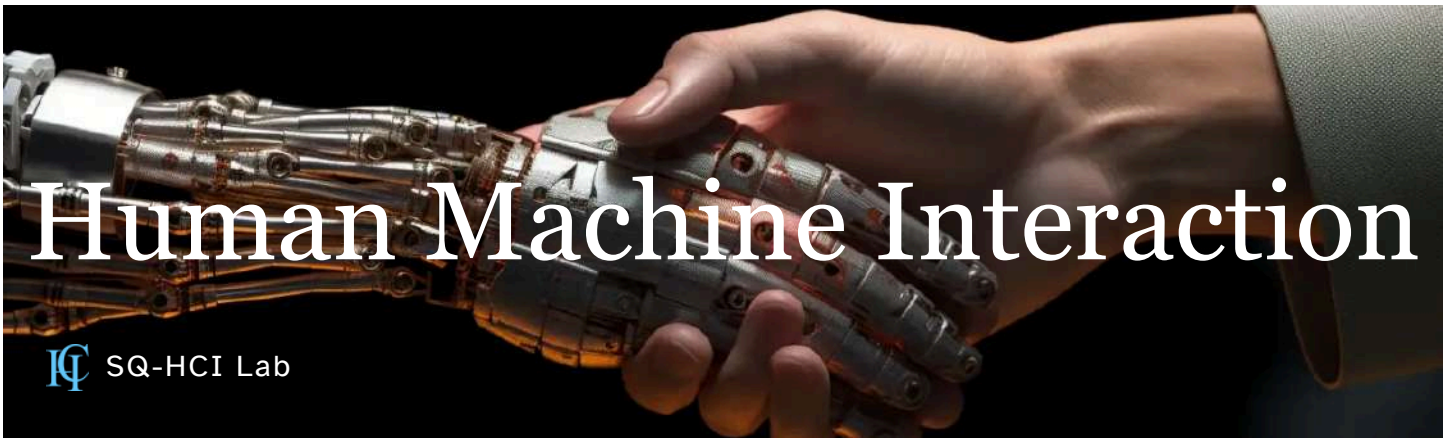


About Us

The Software Quality and Human-Computer Interaction Laboratory is a laboratory of the Computer Engineering and Informatics Department of the University of Patras. The focus of the laboratory is research on software quality and on human-computer interaction. The laboratory is actively participating in EU funded research projects.

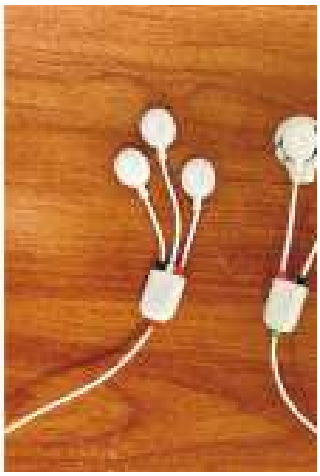
Adaptive Interfaces

Our lab specializes in pioneering adaptive interface technologies, leveraging real-time eye-tracking to optimize information presentation in high-stakes environments. Our dynamic cockpit display system intelligently hides non-essential symbols once they have been registered by the pilot, ensuring that only the most pertinent data remains visible. By reducing visual clutter and cognitive load, this approach enhances situational awareness and decision-making efficiency. We are dedicated to advancing the field of adaptive aviation systems through rigorous research, integrating performance analytics, eye-tracking data, and user feedback to refine interface responsiveness. Our work not only improves task efficiency in simulated air defense scenarios but also sets a new standard for intelligent, context-aware cockpit design.

Drones

We develop intuitive drone user interfaces (UIs) for industries such as agriculture and monitoring, making drone operation more accessible and efficient. Our designs focus on usability, and we refine them using advanced eye-tracking techniques to ensure a seamless user experience. To help businesses integrate our solutions, we offer flexible pricing, including bundled packages and discounted subscriptions. Explore our cutting-edge UIs through our promotional photos and videos to see how our technology enhances drone interaction.

Physiological Data



Our lab utilizes advanced physiological sensors to measure users' stress levels during interactions, providing valuable insights into how different conditions affect the human body. Using tools like OpenSignals, we collect and analyze data from sensors such as EDA (electrodermal activity), ECG (electrocardiography), and BVP (blood-volume pulse). These sensors help us understand physiological responses and assess the impact of various stimuli on users' stress levels, paving the way for more personalized and effective user experiences in human-computer interactions.

Publications

Below you can find our relevant publications on Human - Machine Interaction.

- Michalis Xenos, Andreas Mallas, Dimosthenis Minas, “Using Eye-Tracking for Adaptive Human-Machine Interfaces for Pilots: A Literature Review and Sample Cases”, Journal of Physics: Conference Series, Volume 2716, 13th EASN International Conference on: Innovation in Aviation & Space for opening New Horizons 05/09/2023 – 08/09/2023 Salerno, Italy. https://doi.org/10.1088/1742-6596/2716/1/012072

- Semira Maria Evangelou, Eleftheria Lito Michanetzi, Michalis Xenos, “Exploring the impact of negative online feedback on well-being: A comprehensive analysis incorporating Big-Five personality traits and physiological responses”, Computers in Human Behavior Reports, Volume 15, August 2024. https://doi.org/10.1016/j.chbr.2024.100457

Contact Info

Email: sqlab.upatras@gmail.com

Website: sqlab.ceid.upatras.gr

Contact Number: +30 2610996943