Ph.D. Program in Electronics, Computer Science and Electrical Engineering

COURSE

Gaze-Enhanced Intelligent Human-Computer Interaction

Prof. Marco Porta

OBJECTIVES: Simple and effective communication with the computer is an increasingly relevant requirement, and recent developments in the fields of Artificial Intelligence and machine perception can contribute significantly to this aim. In the context of Intelligent User Interfaces (IUIs), Eye Tracking plays an important role, providing the computer with the sensory capabilities necessary for the perception of the user's gaze. This short course offers an overview of the characteristics and applications of Human-Computer Interaction (HCI) enhanced by eye input. Through the analysis of existing solutions and current trends, the course will highlight the potential of user interfaces that implement gaze-based implicit and explicit communication.

PROGRAM
- Human-Computer Interaction and Intelligent User Interfaces
- Perceptive User Interfaces
- Eye Tracking basics (principles, methodologies, technologies)
- Eye Tracking for Human-Computer Interaction
- Gaze-based implicit and explicit communication
- User-centered design of interfaces exploiting eye tracking
- Applications of gaze-enhanced user interfaces
- Towards pervasive eye tracking for Human-Computer Interaction
- Practical use of remote and wearable eye trackers (workshop)

EVALUATION: Short test (multiple-choice questions) and presentation of a paper on the topic (chosen from a provided set of recent articles)

ATTENDANCE: The course will take place in the BLUE Seminar Room

LECTURES: 6 hours; WORKSHOP: 2 hours; CREDITS: 2.4 CFU

LECTURE DATES: March 5, 6, and 12, 2025 (11:00 am – 1:00 pm)

WORKSHOP DATE: March 13, 2025 (9:00 - 11:00 am)

Ph.D. Coordinator

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Course in English
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