Cognitive User Authentication and Behavioral Biometrics

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Timetable: 10 hrs. First lecture on June 3, 2015, 11:00 (dates already fixed, see the calendar), Torre Archimede, Room 2BC/30.

Examination and grading: Seminar and paper on a subject assigned by the Instructor.
ECTS: students attending the all course and passing the final exam will earn 1 ETCS.

SSD: INF/01 Computer Science

Expected Participants: The course will be open to all interested students, particularly PhD students from University of Padua for the PhD course in Brain, Mind and Computer Science. We believe the course will be of interest also for students from PhD School in Mathematics and Engineering, as well as for MSc students in Computer Science, Psychology, Mathematics, and Computer Engineering.

Aim: The objective of this course is to introduce interdisciplinary research perspective to human identification and authentication. The course will familiarise graduate students with technologies and methodologies used to capture, monitor, and analyse human behaviour in securityrelated applications.

Course contents:

1. Introduction to Human Biosignals and Security Challenges
2. Techniques for Capturing and Monitoring Human Biosignals
3. Basics of Signal Processing for User Authentication
4. Methods for Behavioural Pattern Recognition and Classification
5. Threat Modelling and Security Analysis of Biometric Methods
6. The Importance of Ethical Hacking: Humans and Experiments

Lab Practicals:

1. Using smartphone sensors and APIs to recognise human behaviours
2. Cognitive Authentication: Experimental Design and Data Analysis
3. Continuous Biometrics: Experimental Design and Data Analysis