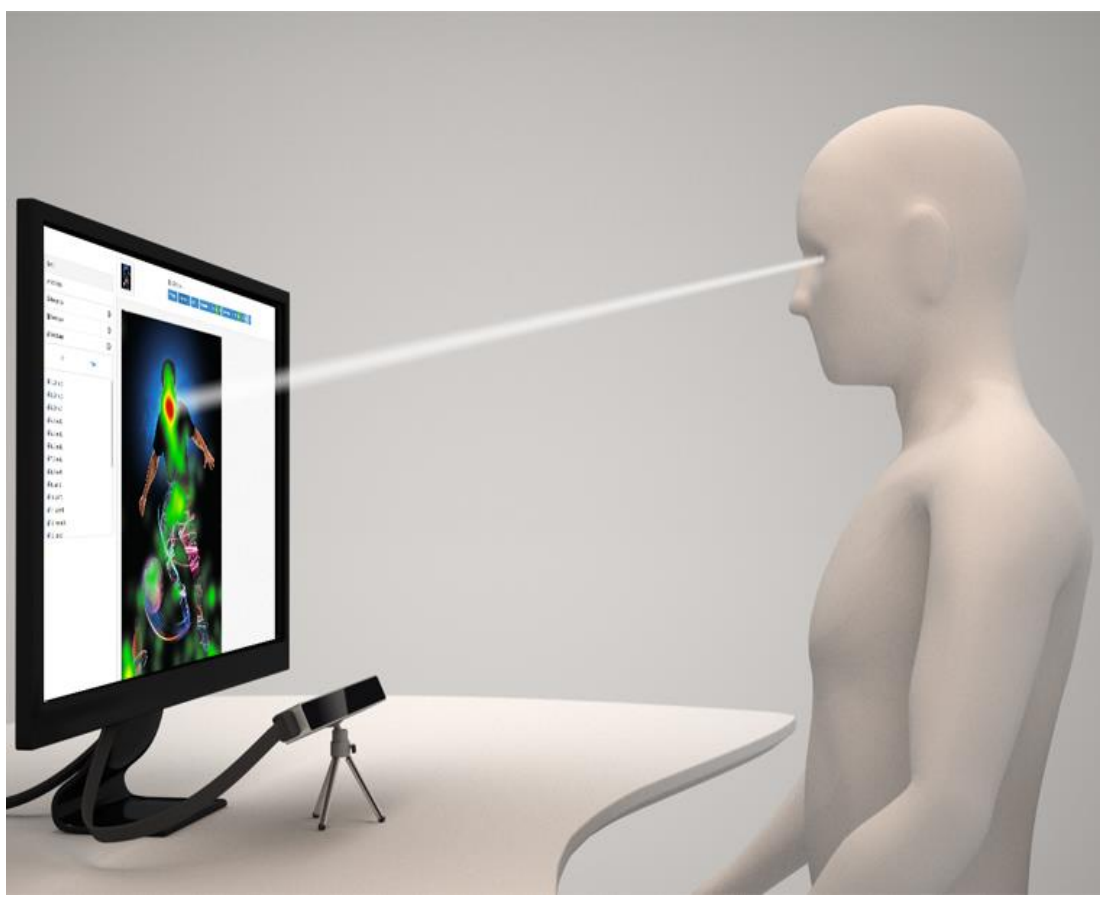


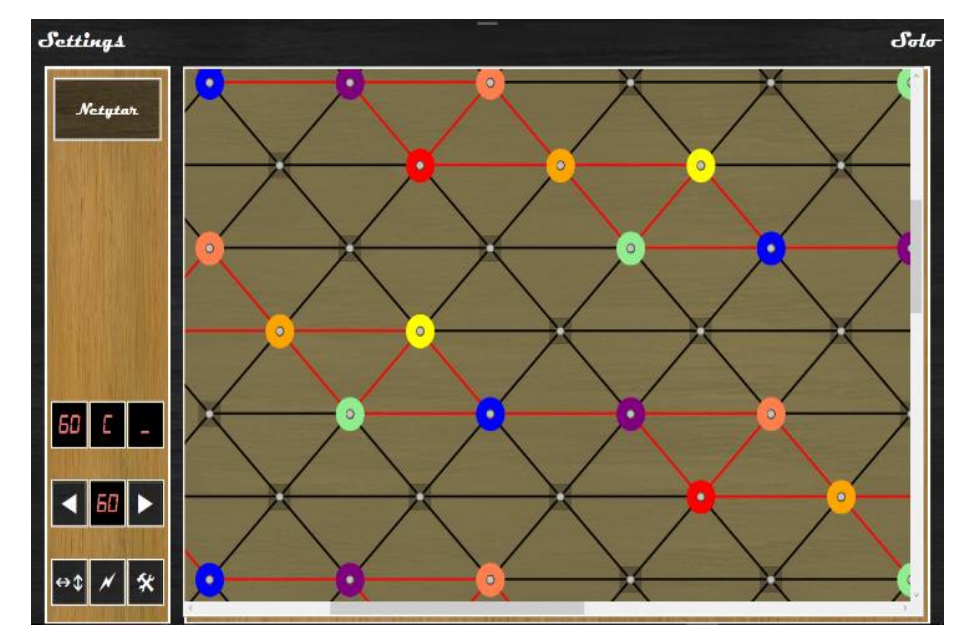
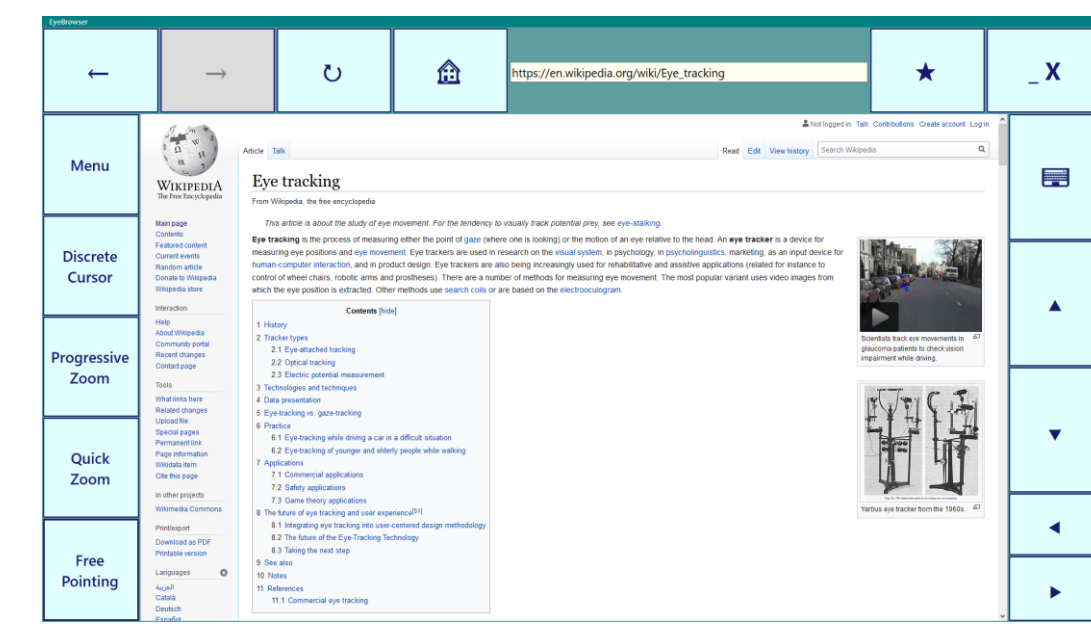
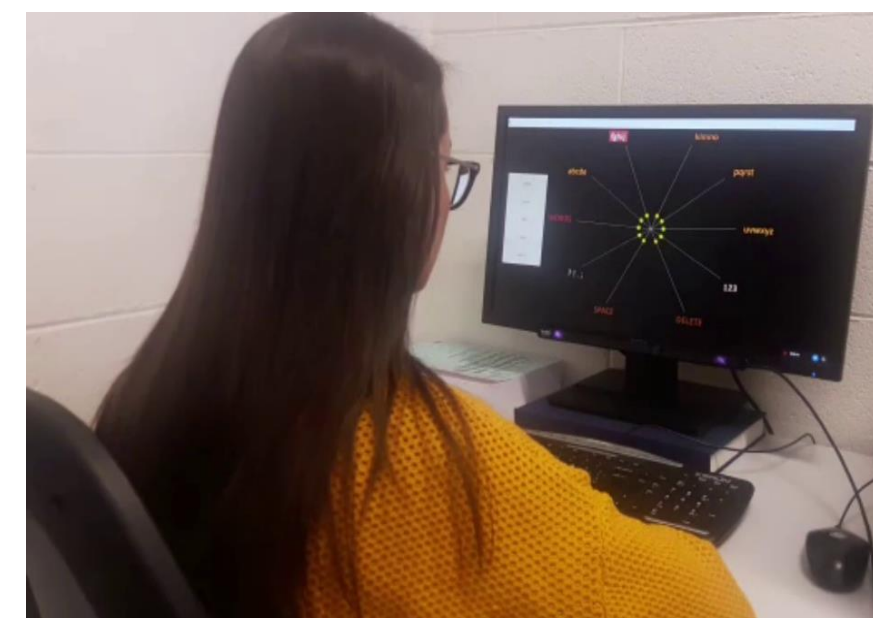
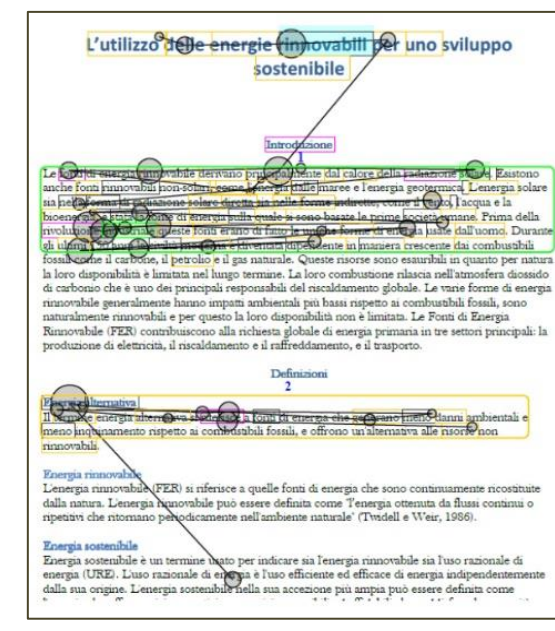
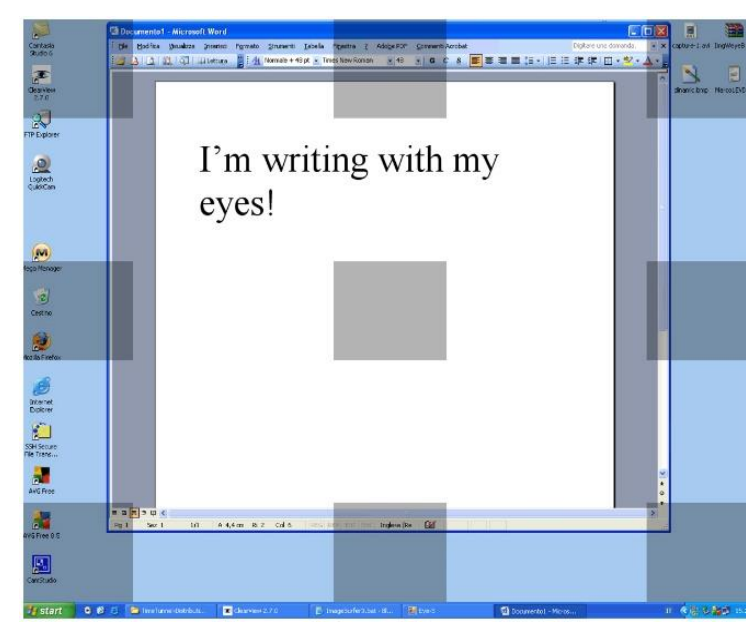
Eye Tracking

Explicit and Implicit Gaze-Based Communication



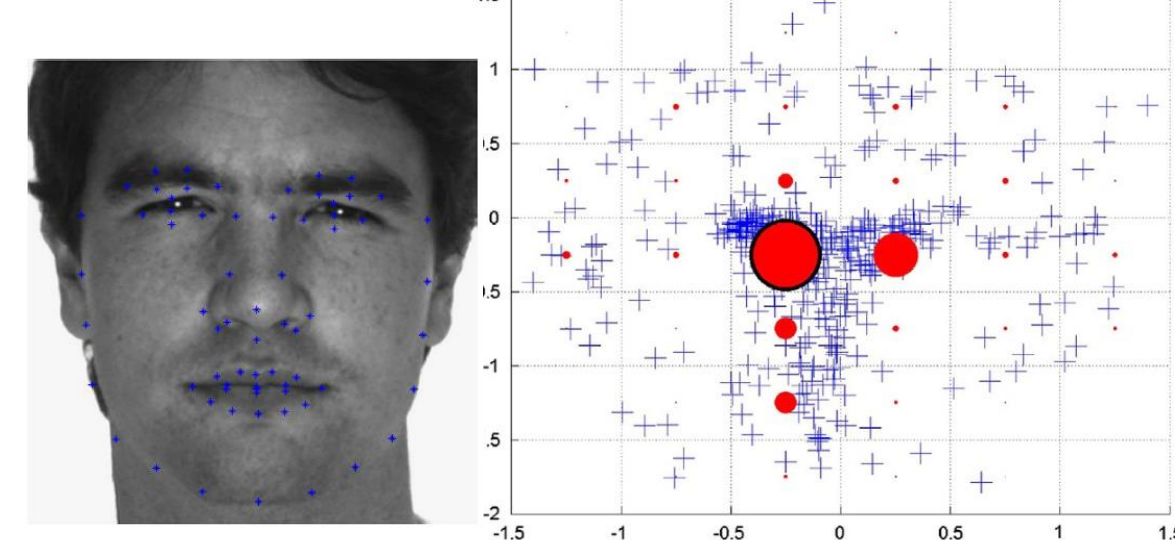
Gaze Input

Using eye tracking as an assistive technology or as an additional input channel (besides keyboard, mouse, etc.) to write, browse the Web, play music, etc.



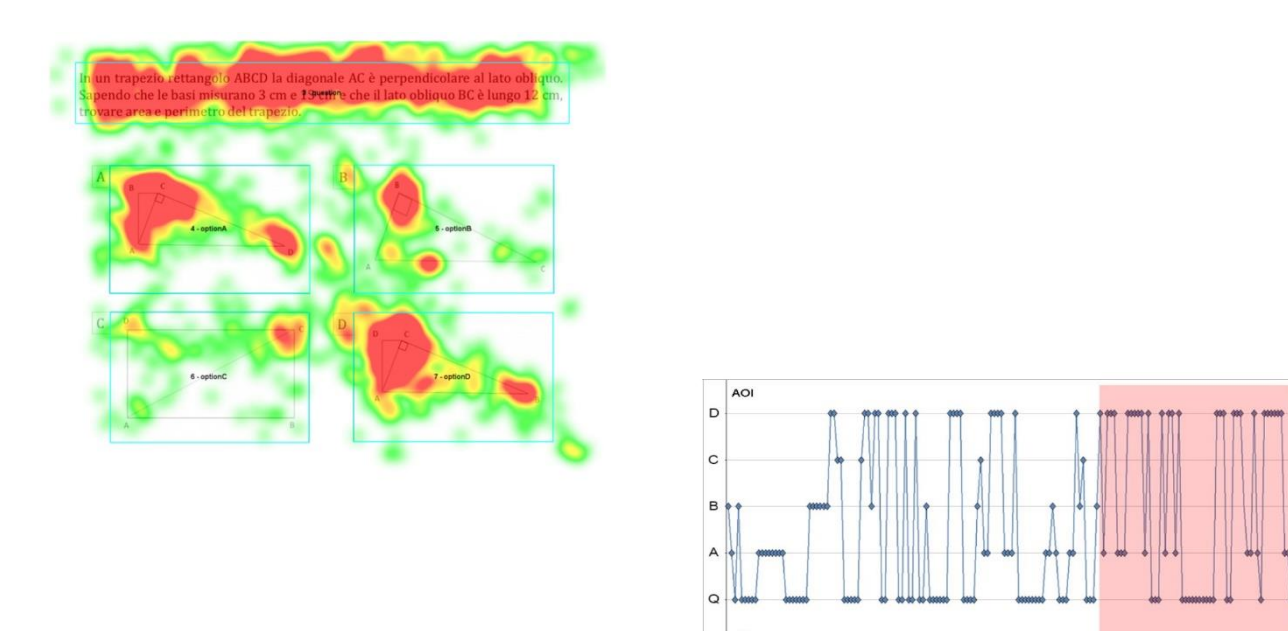
Soft Biometrics

Identifying or verifying the identity of people from the way they look at specific stimuli (e.g., faces)



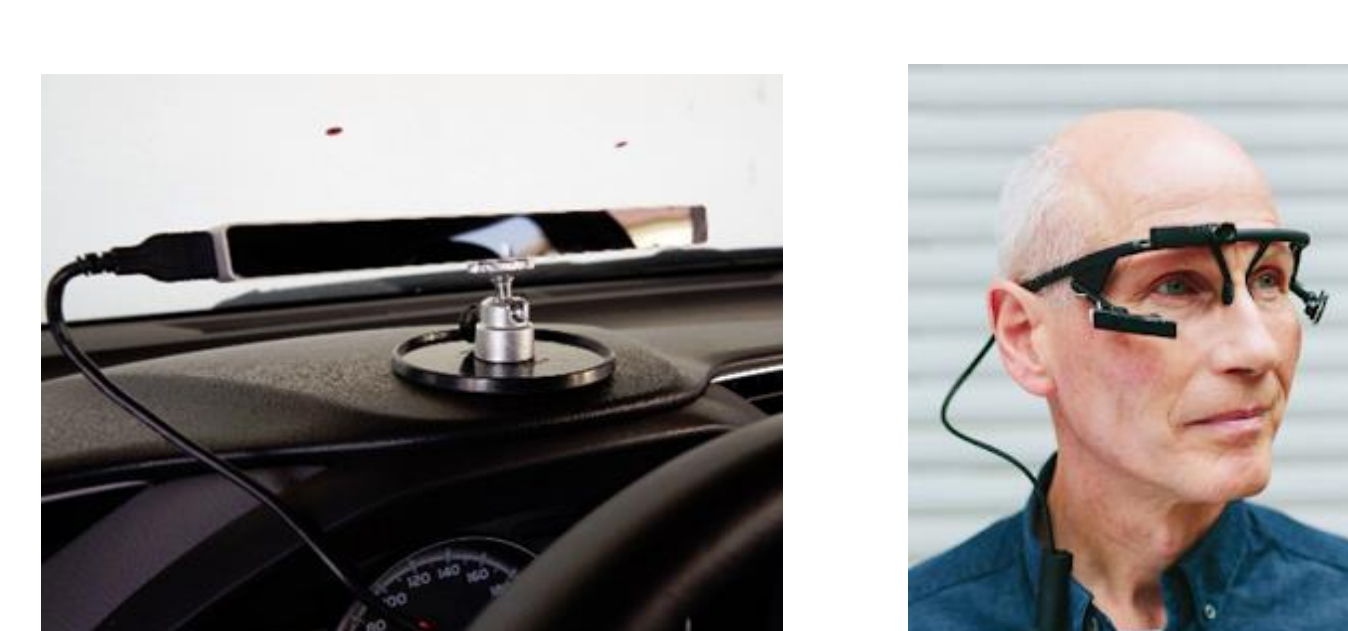
E-Learning

Understanding learners' behavior and detecting possible comprehension problems



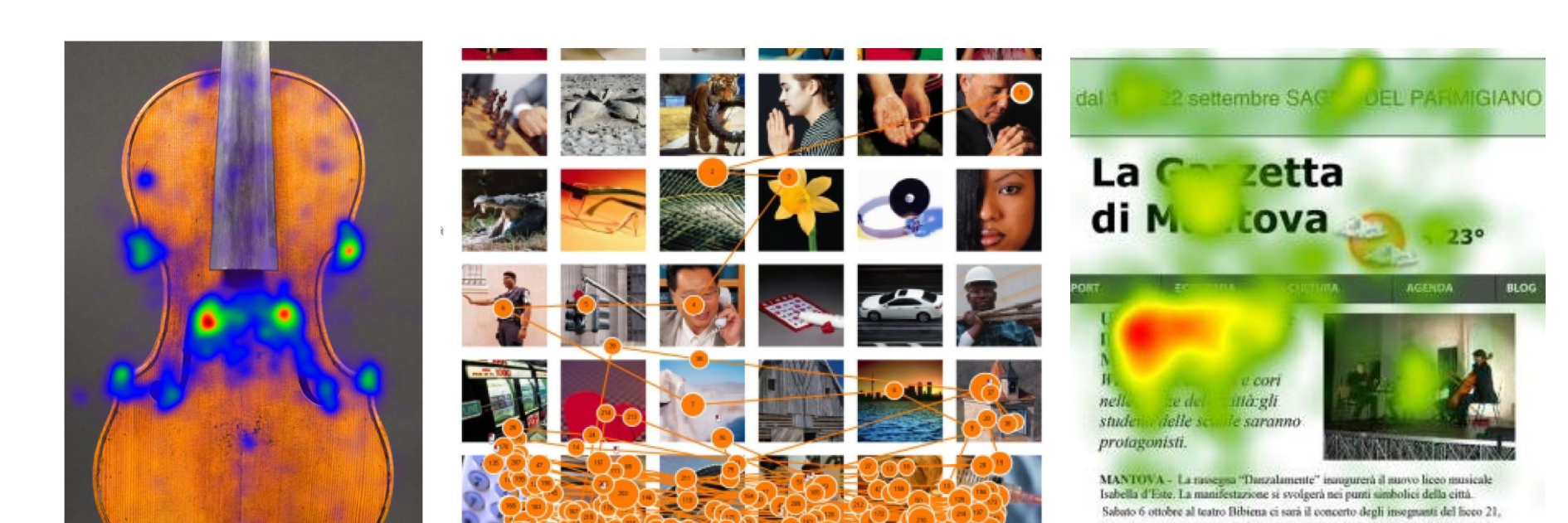
Automotive

Studying the driver's performance using remote and wearable devices



Study of Gaze Behavior

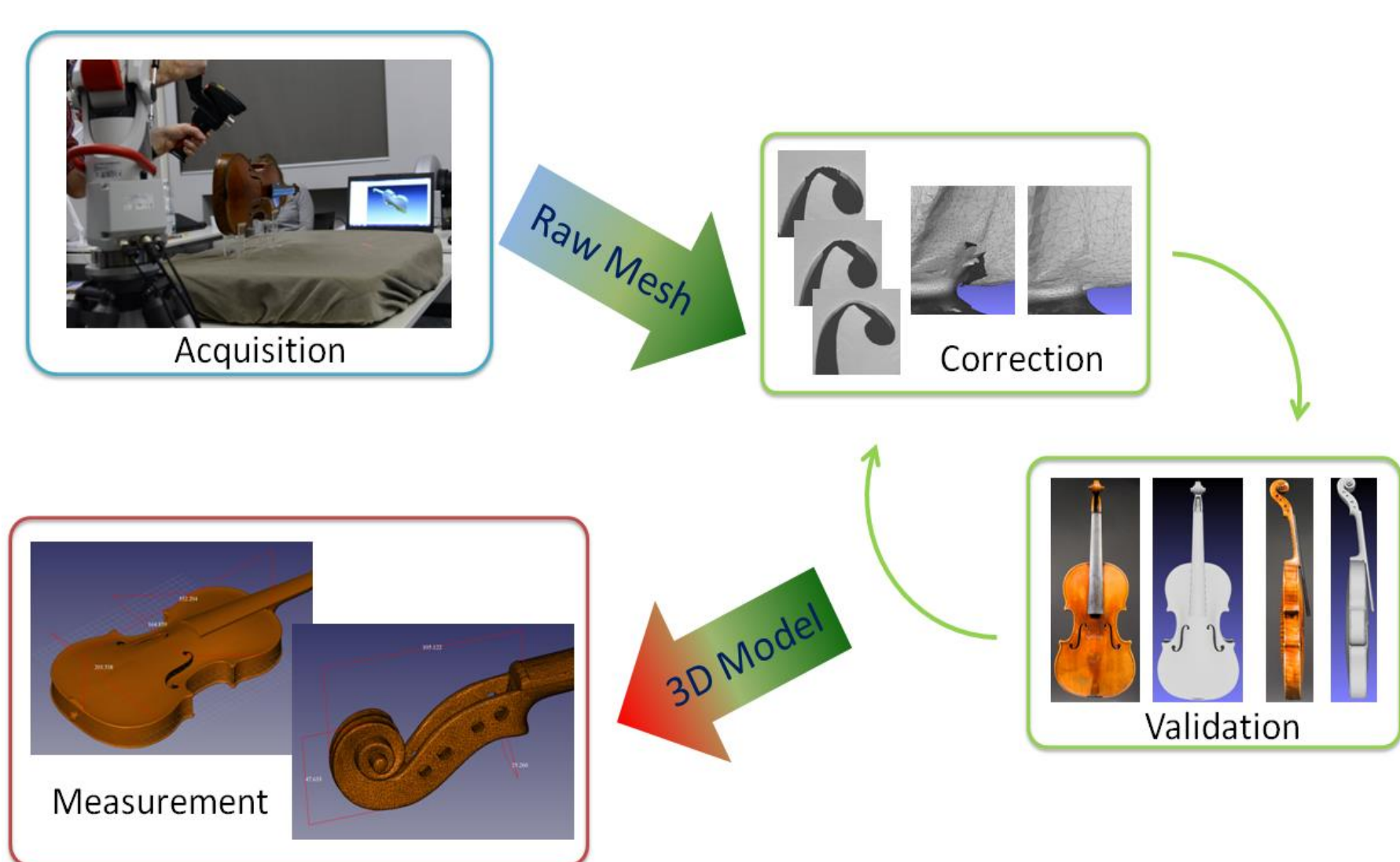
Analyzing the user's gaze behavior while inspecting different kinds of visual stimuli



Digital Humanities

3D scan and modeling

Historical violins



The ark of St. Augustine



The city of Pavia in the Renaissance



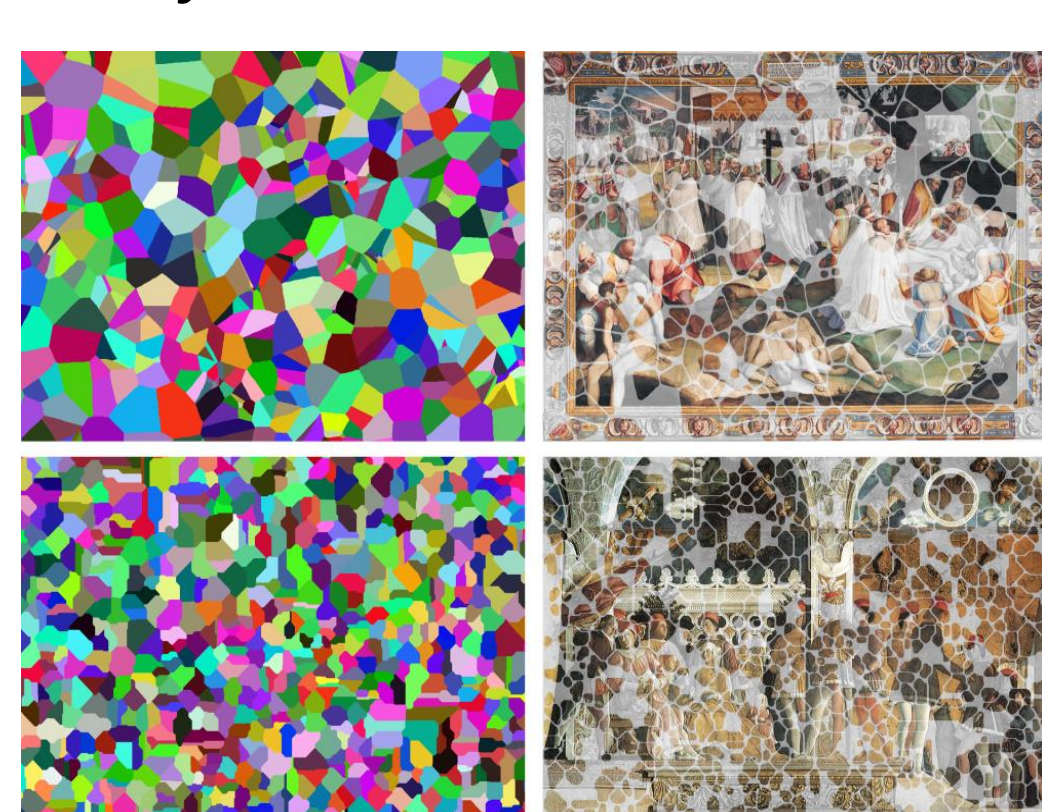
3D printed tactile images

Make artworks accessible for visual impaired and blind people

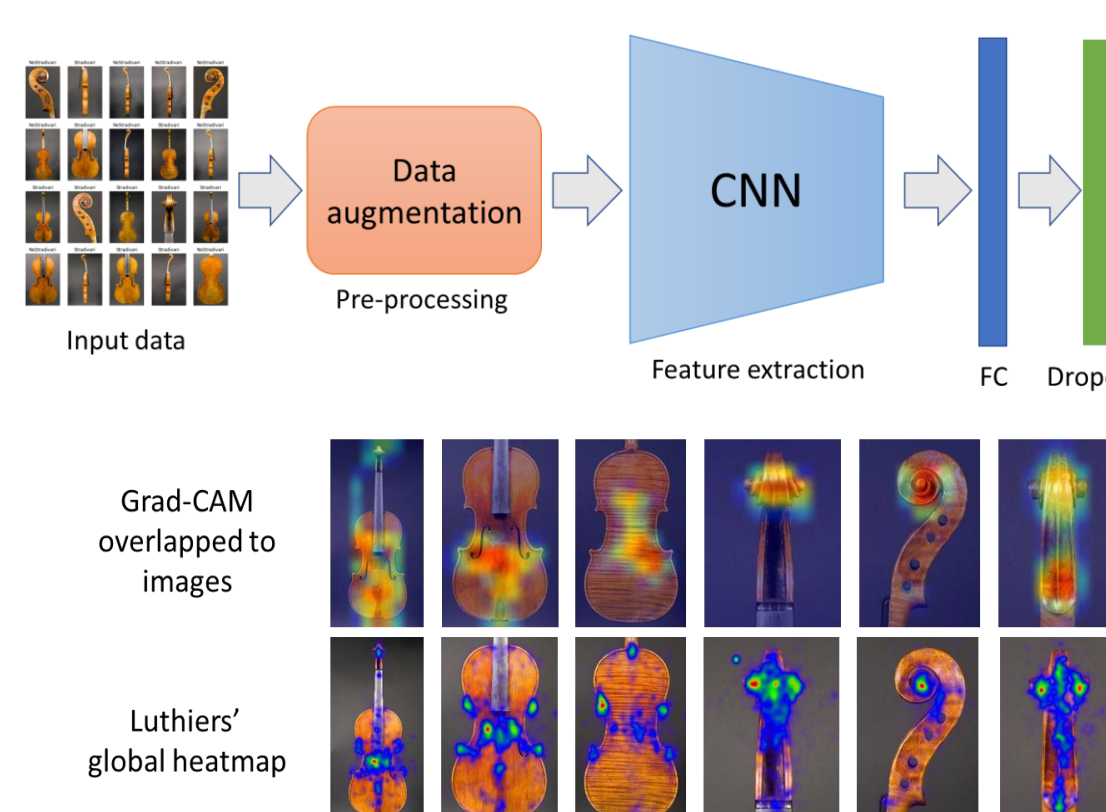


Image processing

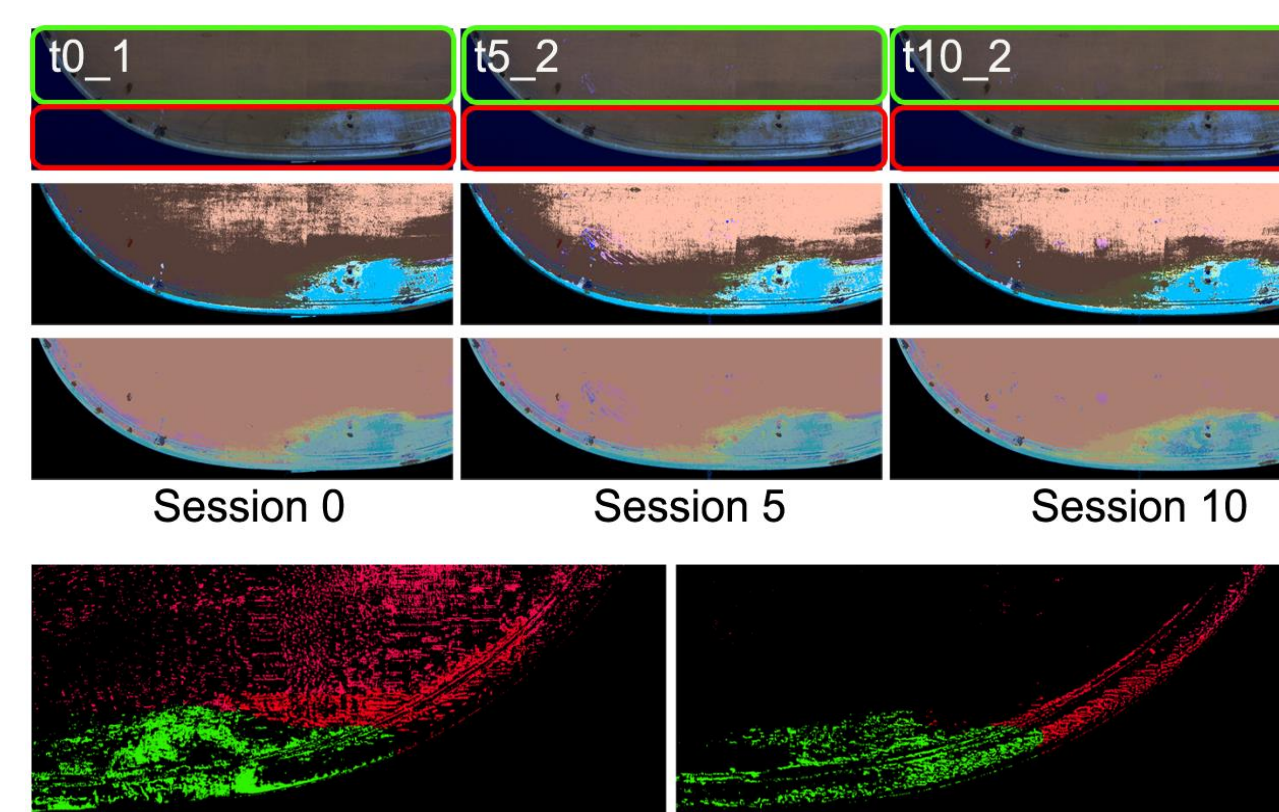
Digital anastylosis for frescoes reconstruction



Stylistic analysis and comparison with human behavior



Monitoring of the state of conservation of artworks

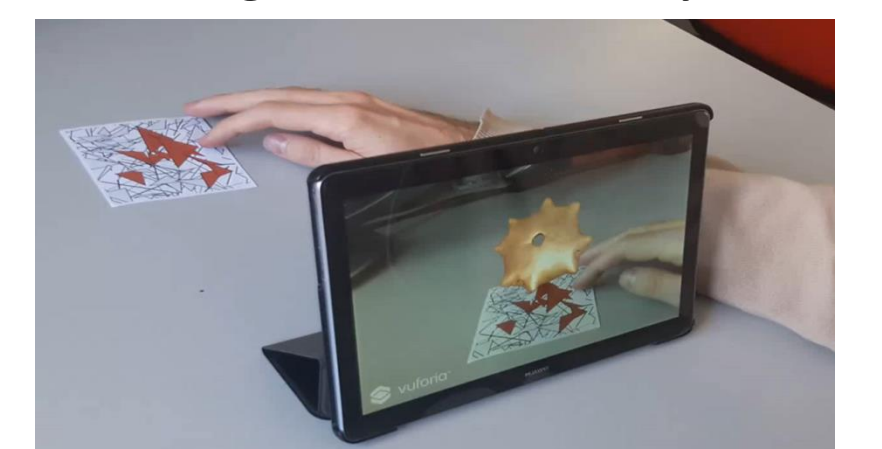


Interactive applications for museums

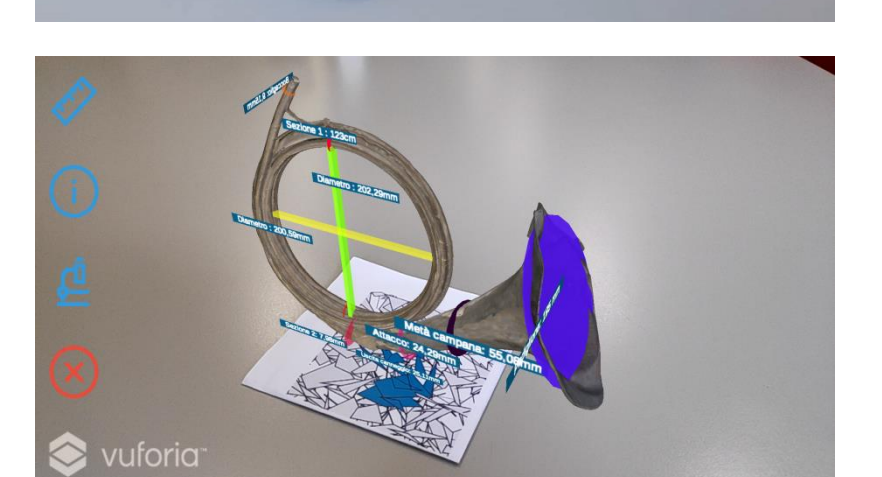
Gestural interaction



Augmented reality



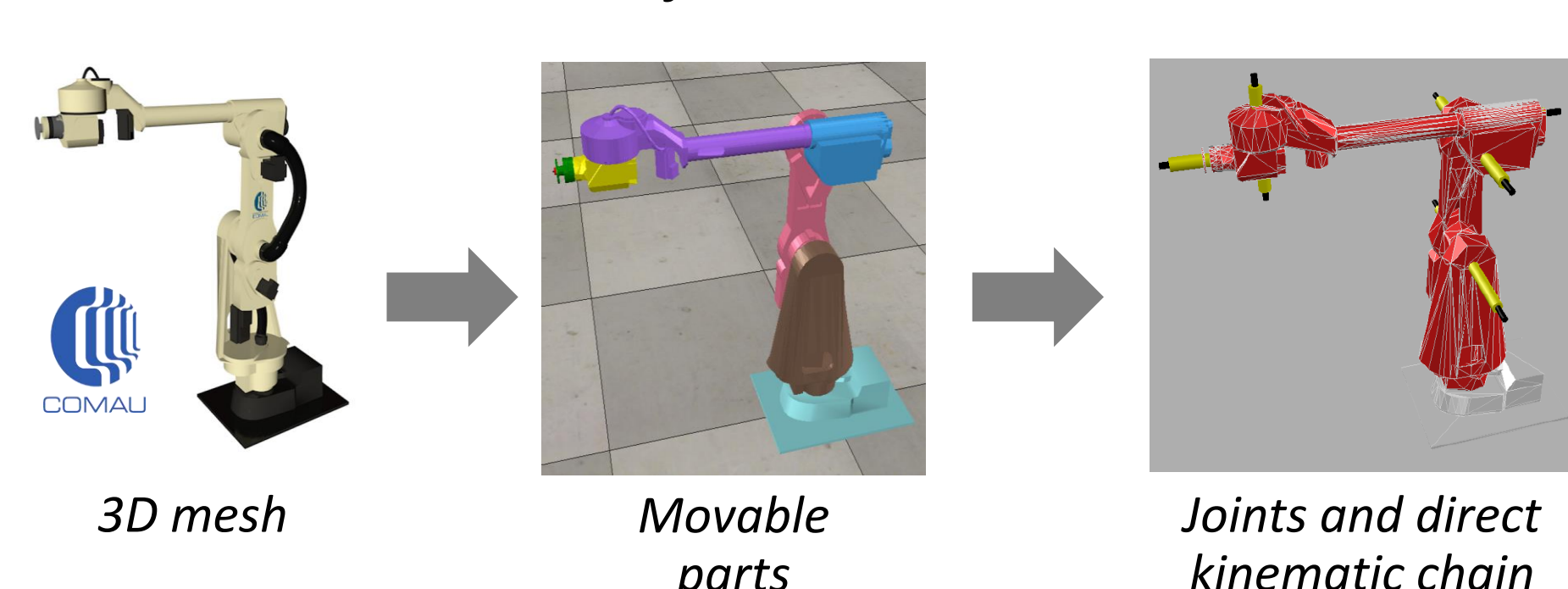
Gaze-based interaction



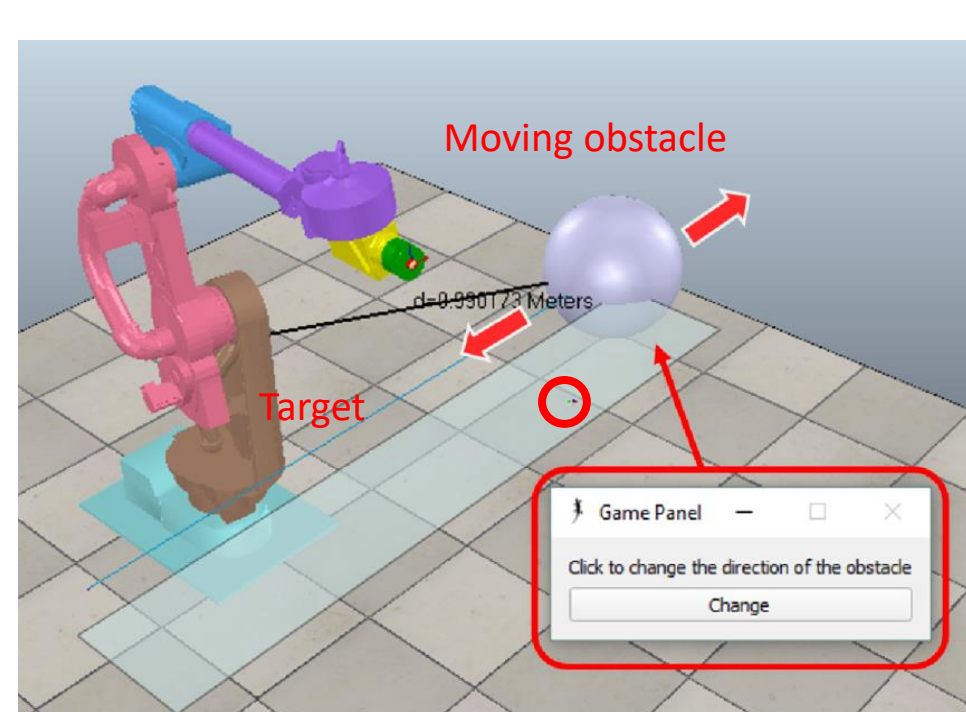
Deep Learning

Deep reinforcement learning for collaborative robotics

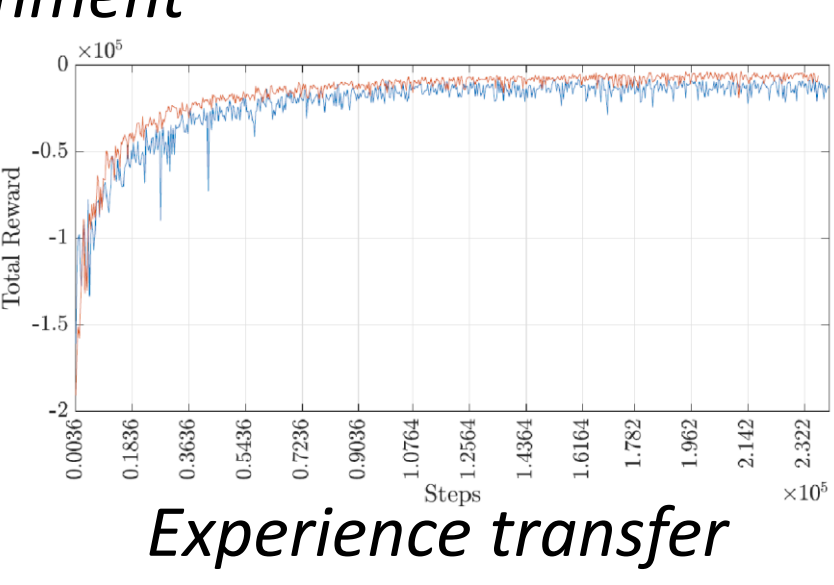
Virtualization of a real-world robot



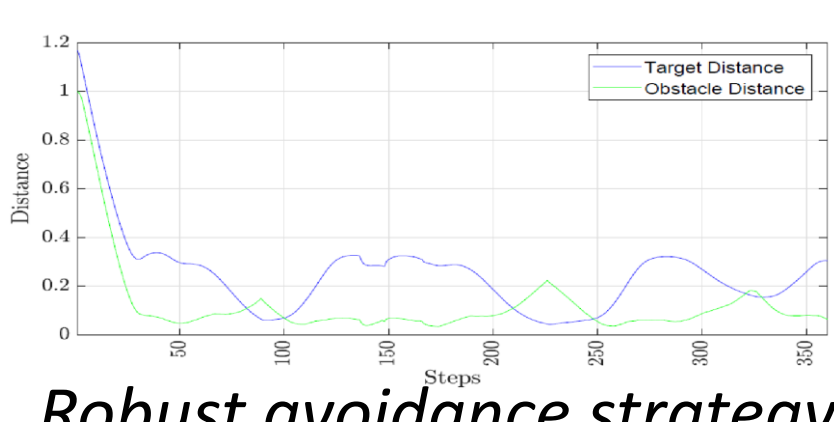
Learning to reach a target while avoiding obstacles in a simulation environment



Incremental autonomous learning



Experience transfer



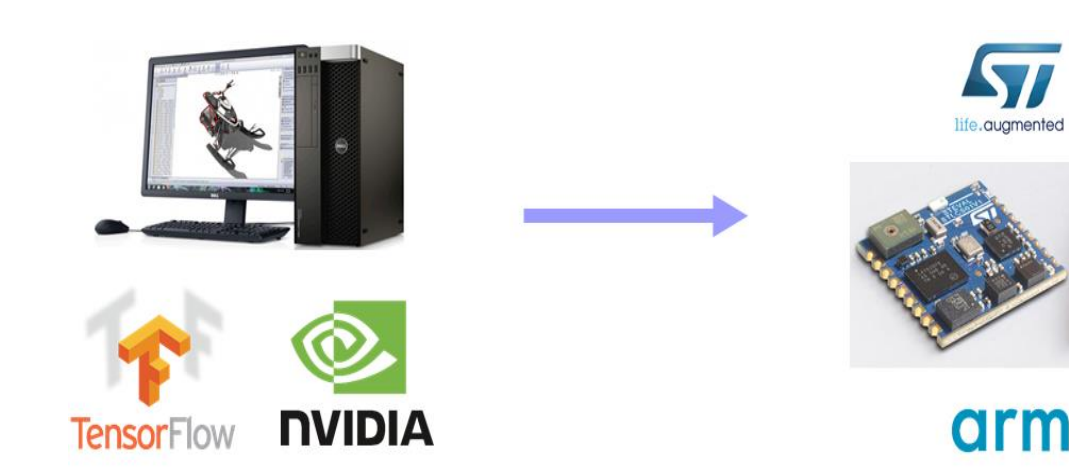
Robust avoidance strategy

Fall detection with recurrent neural networks

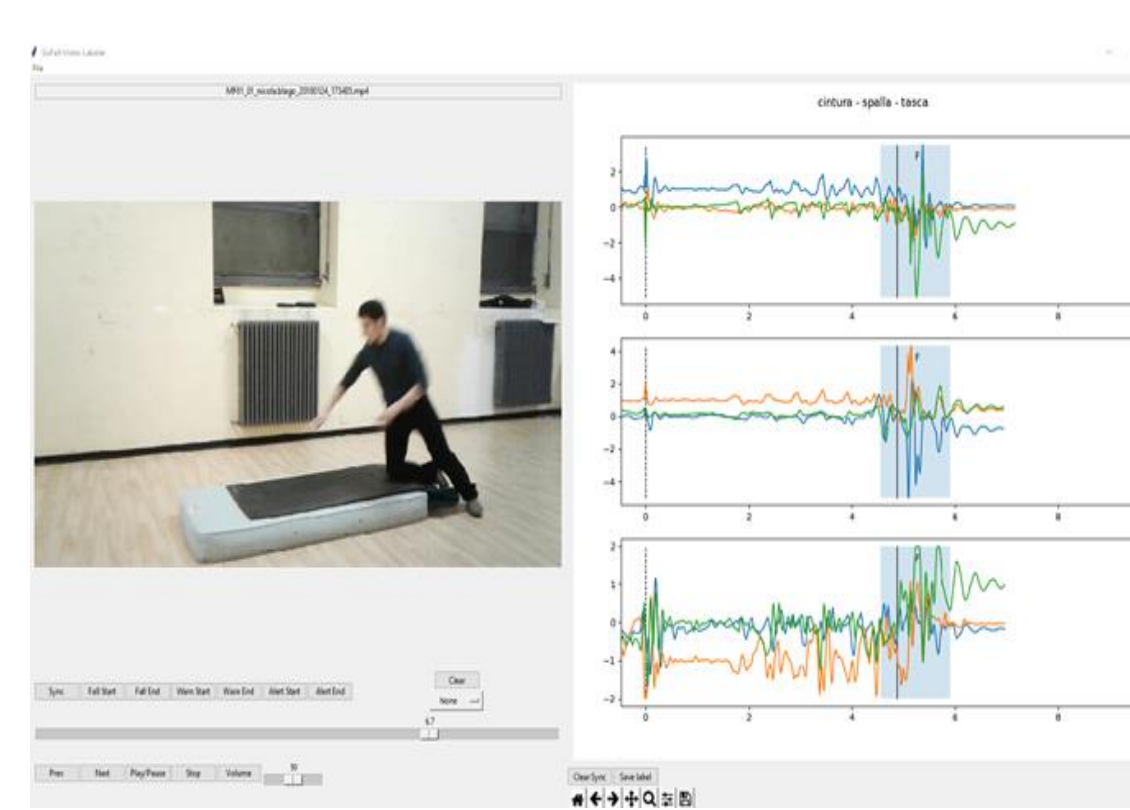
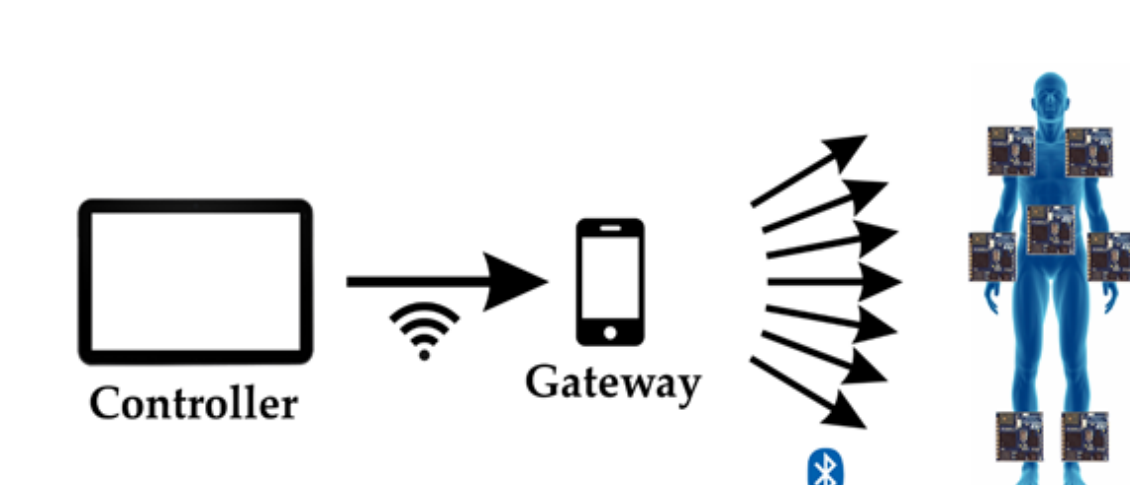
Accidental falls: an enormous human cost, especially for elderly people. Need for automatic fall detection techniques for timely warnings. Use of "smart" wearable devices.



Innovative technique: deep learning on embedded. Implementation challenge: limited computing and memory resources; battery life for continuous use 24x7.



Collection of datasets with simulated falls by volunteers: Seven carry positions, 17 different activities, 40 volunteers, over 5000 tracks. Manual annotations on videos, basic for training.

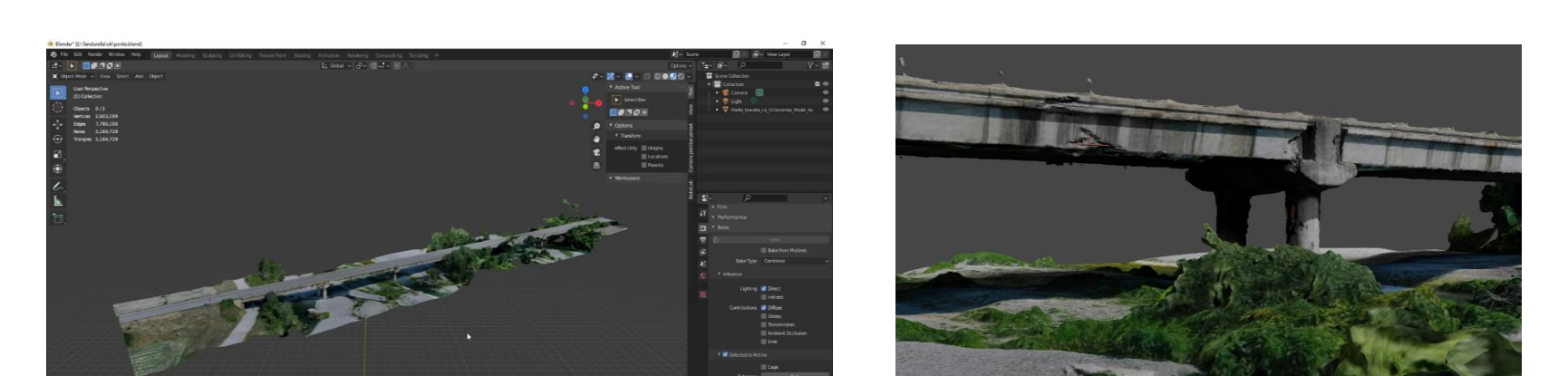


Automatic inspection of buildings and civil structures with CNNs

Photos Acquired by drones



3D model creation and elaboration



Creation of an artificial dataset of simulated damages to train the neural networks



Automatic detection of damaged areas

