BRAIN-COMPUTER INTERFACE PORTABLE AND INTERACTIVE APPLICATIONS

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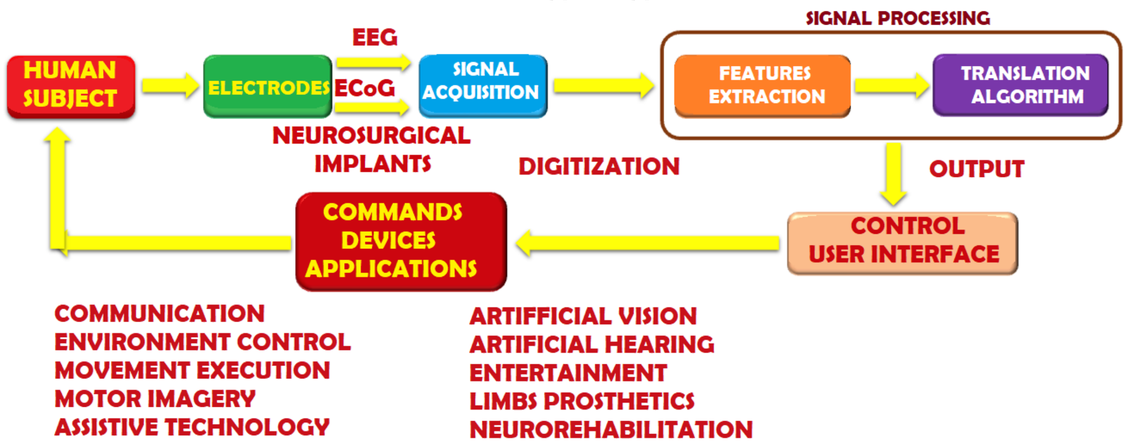
Introduction

A brain-computer interface (BCI) system, inspired from science-fiction movies, analyzes the neuronal biopotentials and translate them into control signals for computers, mechatronic devices such as a bionic hand, a wheelchair, a humanoid robot, or neuroprostheses. The BCI helps people with neuromotor disabilities to control robotic devices using cognitive commands.



Objectives

Main objective:

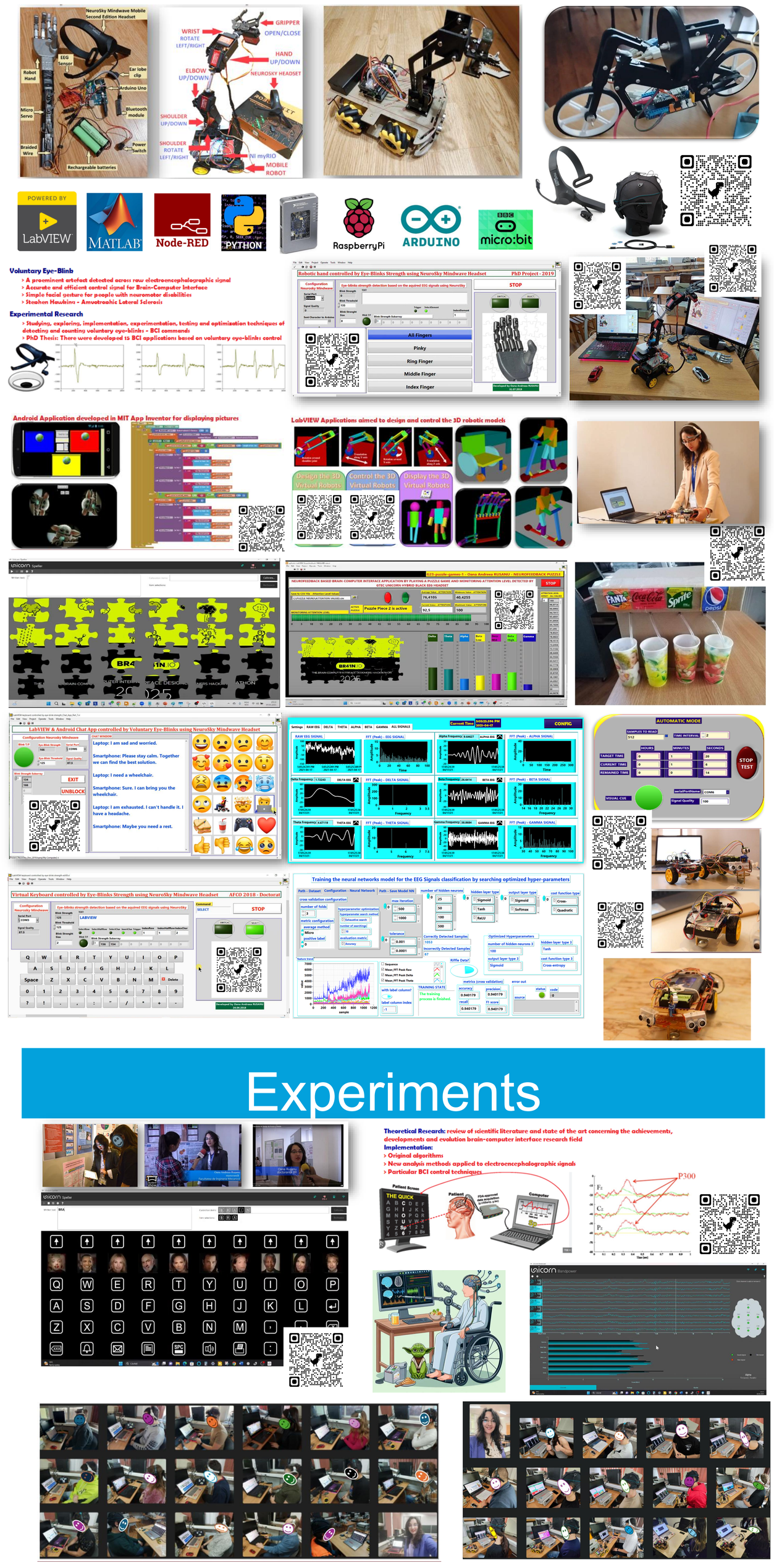
- Developing a portable brain-computer interface system

Specific objectives:

1. Efficient solutions to integrate: EEG – SW – HW
2. Software tools for the acquisition, processing, and classification of EEG signals using AI techniques
3. Software tools for communication tasks and transfer of written messages
4. Efficient solutions to control robotic devices
5. Software tools to control 3D virtual simulations

Original contributions

I developed portable and interactive BCI applications in different programming languages (Python) and environments to integrate the headsets for EEG signals acquisition and hardware platforms (Raspberry Pi) aimed at controlling robotic devices and 3D simulations.



Experiments

References

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