Seminar 2 – Neurotechnology, ELA411

The seminars are designed for students to discuss topics within the course. Most questionsare created without any right or wrong. Instead, you should focus on informed reflection and motivation of why you think a certain way. You might disagree with you student colleagues and that's fine, just be polite and respect the other students' opinions.

Preparations: Lectures 1-3. Individually submit (in Canvas) a proposed time plan for your own component. Include specific milestones and your proposed deadline for them. Consider both your own component and demands from other components. The purpose for this assignment is for you to have be prepared and ready to discuss different solutions with other students. 0.5-2 pages in English (font Calibri or similar, size12).

During the seminar: During the first part, you will be randomly divided into smaller groups. Within your group, select one of you that will lead the seminar. The leader should make sure that everybody gets the chance to speak and that you have time to cover all questions.During the last 30 minutes, each group should present one unified procedure/protocol.

Seminar task:

Imagine yourself being the project leader for the project described in this course, and that you have a customer (a research group at a hospital). The hospital has ordered a BMI system to be used in clinical trials with stroke patients, and will handle ethical applications and patient recruitment. However, they need to understand the system and wish to be part of the development cycle. The purpose of the system is to improve motor recovery in patients with severe hand movement disabilities by training with a Brain-Robot Interface (BRI). The requirements of the system are:

- The target movements for the rehabilitation is hand opening and closing of theaffected hand (i.e. to enable grasping of objects).
- The rehabilitation should consist of patients training to perform motor imagery ofhand opening and closing.
- Non-invasive Electroencephalogram (EEG) recordings should be used as brain signalsto develop the BRI-based rehabilitation.
- The patient should receive feedback via a robotic hand exoskeleton.

The hospital wants continual meetings to oversee the development of the system. You have been tasked to draft a procedure for developing this system and to specify clear milestones for the functionality of the BMI. You need to specify what functionality and features will be implemented and ready to be demonstrated at each meeting. How you demonstrate and how often you have these meetings are up to you. You should consider

1) Start from your assignment notes and discuss with each other. How did you plan the work for the project (not taking a customer into account)? Write down what you agree and disagree on.
2) Each meeting should represent some milestone where you demonstrate a significant step forward in the development of the system. Do they coincide with your time plan or can you think of adjustments to the time plan when taking a customer into account?

When you are done, write down the groups agreements and disagreements. You may for example agree on a specific function as milestone, but disagree on the time required for it. Write it down to present during the last 30 minutes of the seminar.