Generalizability of eye-tracking and EEG features

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Place: LCI Lab: https://lci.idi.ntnu.no/
Suitable for: One or Two students

Introduction
The focus of the thesis is to develop and test different sets of features from eye-tracking and EEG data that can be transferred to other contexts.

Thesis Description
In a first step, the student needs to briefly review the literature and familiarize from eye-tracking and EEG research. Then, the candidate will collect data available online and define features from both EEG and eye-tracking, based on the best practices found and adapted from the literature. Afterwards, the candidate will conduct a study to empirically test the generalisability of the proposed features. Finally, the candidate will analyse the results and write up his/her thesis.

Requirements
The ideal candidate will have a background in data science. Basic machine learning skills (using R or python) and an interest in advanced machine learning and time series analysis is also a requirement. Programming skills: Python or R.

Expected Project Work Packages
1. **WP**: Short Literature study on eye-tracking and EEG methods.
2. **WP**: Setting up the working environment and getting familiar with the generalization pipeline.
3. **WP**: Implement feature sets to be tested.
4. **WP**: Conduct machine learning experiments, collect results and analyze them.
5. **WP**: Write-up the thesis.

Thesis grading scheme

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description of the evaluation criteria</th>
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<tr>
<td><strong>A</strong></td>
<td>The candidate demonstrates excellent judgement and a high degree of independent thinking. <strong>Significantly exceeded expectations</strong> with original contribution.</td>
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<tr>
<td><strong>B</strong></td>
<td>The candidate demonstrates sound judgement and a very good degree of independent thinking. A very good performance, <strong>the candidate has exceeded expectations</strong>.</td>
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A good performance in most areas. The candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas, **the expectations are met but not surpassed.**

A satisfactory performance, but with significant shortcomings. The candidate demonstrates a limited degree of judgement and independent thinking.

A performance that meets the minimum criteria, but no more. The candidate demonstrates a very limited degree of judgement and independent thinking.

A performance that does not meet the minimum academic criteria. The candidate demonstrates an absence of both judgement and independent thinking.