

## Design of a smart gaze-aware feedback system for programming.

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**Place:** Trondheim

### Introduction

The focus of the thesis is to develop an intelligent feedback system that helps the students while they are programming. This help should be provided in real-time using the eye-tracking data from the student and the log data from the IDE that the student is using. The challenge is to develop a system that is both effective and efficient in helping the students when they are facing difficulties in programming medium-size software.

### Thesis Description

In a first step, the student(s) will design and implement the gaze-aware feedback tool. Afterwards, they will conduct a small user study in order to test the usability of the system with a small number of students. Once the usability of the system is established (with the last changes in the system), the student(s) will conduct a larger user study to evaluate the effectiveness of the system. Finally, the candidate(s) will analyse the collected data and write up his/her thesis.



### Requirements

The ideal candidate will have a background in basic machine learning and system design. Solid programming skills and an interest in hands-on development and experimentation is also a requirement.

Programming skills: Python.

### Expected Project Work Packages

1. **WP:** Small literature review on use of gaze-aware systems in educational settings.
2. **WP:** Iteratively develop and test the system.
3. **WP:** Conduct a usability study of the system and finalize the development.
4. **WP:** Conduct a user study to test the effectiveness of the system.
5. **WP:** Write-up the thesis.

### Thesis grading scheme

Grade	Description of the evaluation criteria
A	The candidate demonstrates excellent judgement and a high degree of independent thinking. <b>Significantly exceeded expectations</b> with original contribution.

<b>B</b>	The candidate demonstrates sound judgement and a very good degree of independent thinking. A very good performance, <b>the candidate has exceeded expectations.</b>
<b>C</b>	A good performance in most areas. The candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas, <b>the expectations are met but not surpassed.</b>
<b>D</b>	A satisfactory performance, but with significant shortcomings. The candidate demonstrates a limited degree of judgement and independent thinking.
<b>E</b>	A performance that meets the minimum criteria, but no more. The candidate demonstrates a very limited degree of judgement and independent thinking.
<b>F</b>	A performance that does not meet the minimum academic criteria. The candidate demonstrates an absence of both judgement and independent thinking.