



## Assignment clarification: Theory/ practice transfer paper

Matriculation number:

Since you are developing a research question or a solution for your company, a comprehensive clarification of the assignment is mandatory and has three essential objectives:

- ✓ You will have a clear picture from the very beginning of the requirements and expectations of your company for your theory/practice transfer paper.
- ✓ The supervisors of your company know what output and thus which benefits they can expect from the transfer paper.
- ✓ NORDAKADEMIE can check whether your chosen topic appears consistent in itself, is realistic in its scope, and whether you can work on it successfully with the chosen means.

Please, answer the questions jointly with your company supervisor. As a guideline, the answers should comprise around two thousand characters.

**What is your topic (the operational question/ research problem)?**

Topic: Effective video recording of browser based UI-Tests in software development

Questions:

1. Which video codecs have a positive impact on resource usage during screen capture?
2. How can screen recordings be efficiently delivered to the tester?

**What is the reason for the research question or problem?**

**How did the problem come to your attention and what has already been done?**

A recent project at work relates to the topic. Screen recordings of UI-Tests need to be captured in a highly resource constrained environment and served at a later point in time. This process requires a knowledge of the efficiency of different codecs and streaming formats to make an educated choice.

Many research papers can be found on the topic of compression efficiency of codecs but the situation regarding CPU usage especially in relation to screen recordings is relatively scarce.



How does the research question or problem arise concretely in the workplace?

*What does it mean that the question or problem has not yet been answered or solved?*

Currently two browser test grids are in operation at work. The official selenium grid and a third party add-on called Zalenium. The latter supports screen recordings but support has been withdrawn by the authors. A custom solution for screen recordings and delivery has to be implemented while preserving resources.

If the research question can be answered the most efficient of the analysed codecs can be employed ultimately yielding lower resource usage and cost.

Which objectives do you pursue with this theory/practice transfer paper?

First and foremost finding a relation between different codecs regarding their CPU usage and the resulting bitrates to choose the best trade-off. Additionally the comparison of different delivery methods can yield more insight into the most efficient and low-overhead ways of delivering video content that has been recorded.

How is the procedure for answering the posed research question/problem?

*Which methods/materials will I use to find out/prove/test this?*

*What do I mainly want to do in my transfer paper: to argue? To analyse? To compare?*

*To interpret? To test?*

The different codecs will be compared based on an empirical analysis that includes an example UI-Test. Delivery methods will be analysed based on their specifications/RFCs and an argumentation will be used to compare them.

Materials used will include various specification documents, surveys and tools for encoding. The test will be performed using python script automation.



☐ I hereby approve the topic and supervise the student during the development of the transfer paper:

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Signature, company supervisor

Afterwards, please upload the assignment clarification in CIS. You will receive information on whether your research question has been accepted within one week (calculated on working days). If the topic has been accepted by NORDAKADEMIE, the 4-week processing period starts. If your topic has been rejected, you will receive information about the reason for rejection and can upload the research question again, eg with a different focus or another planned procedure. This process can be repeated several times until the question has been accepted.