



## Consent Form: “Examining Code Comprehension in Today's IDEs”

### Principal Investigator

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### Purpose

This study aims to investigate how developers interact with state-of-the-art integrated development environments (IDE) and understand the impact on their productivity. Using eye-tracking technology, we aim to capture how developers interact with the IDE while working on software development tasks.

### Study Procedure and Collected Data

Participation in this study will take approximately 1h and involves the following steps:

- **Setup** (~10min): Participants will visit the lab and fill out a form regarding personal details (such as programming experience). The setup includes calibration of the eye-tracking device to ensure accurate data recording. If calibration cannot be achieved, participation may not be possible.
- **Active Study** (~45min): During the study, participants will complete two to three coding tasks using Visual Studio Code. Eye-tracking will record participants' fixations while they are coding in the IDE.
- **Post-Task Questionnaire** (~5min): After completing the tasks, participants will answer questions about their coding experience, such as perceived helpfulness and decision-making processes when using IDE features.

During the study, we will collect the following data:

- **Eye-Tracking Data:** Gaze fixation positions and durations, pupil dilation.
- **Screen Data:** To correlate eye-tracking fixation points to the elements the participant looked at on the screen, we record the participant's screen activity while solving the task.
- **Task Completion Data:** Code and task related meta information like task duration.
- **Post-Task Questionnaire:** Answers and Likert-scale ratings obtained from the post-task questionnaire.

All collected data will be anonymized, and participants may opt out of data collection at any time.

### Benefits

As a token of our appreciation, you will receive a compensation of 25CHF. By participating in this study,



you are contributing to an ongoing research effort to improve the understanding of cognitive processes during software development.

### **Risks**

There are no significant risks associated with this study. The eye-tracking device is non-invasive and does not cause discomfort.

### **Data Storage, Confidentiality & Retention**

The collected data will be used exclusively for research purposes. This data will be stored and analyzed anonymously. Your name will not be published in any way in reports or scientific publications resulting from this study. Confidentiality will be strictly maintained throughout the study. All persons who are in charge of you in the context of this study are subject to a duty of confidentiality and are obliged to maintain data secrecy. Subject to strict confidentiality, the data may be viewed by experts from the ethics committee for testing and monitoring purposes. You can request that your data shall be destroyed at any time. No justification is necessary.

### **Uses of Study Data**

Results from this study will be used for academic purposes, such as research publications, conference presentations, and possibly online educational materials. Only anonymized data will be shared outside the research group.

### **Contact for Information About the Study**

If you have any questions or would like more information about the study, please contact Tarek Alakmeh ([tarek.alakmeh@uzh.ch](mailto:tarek.alakmeh@uzh.ch)) or Prof. Dr. Thomas Fritz ([fritz@ifi.uzh.ch](mailto:fritz@ifi.uzh.ch)).

### **Consent for Study Participation**

Your participation in this study is entirely voluntary. You are free to withdraw your participation at any point during the study, without giving any reason and without any negative consequence. Any information you contribute up to your withdrawal will be retained and used in this study unless you request otherwise.

[please sign on next page]



With your signature on this form you confirm the following statements:

- I understand the goal and procedures of the study and the applicable conditions.
- I had the opportunity to ask questions. I understood the answers and accept them.
- I am at least 18 years old.
- I had enough time to make the decision to participate and I agree to the participation.

In no way does this waive your legal rights or release the investigators or involved institutions from their legal or professional responsibilities.

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Participant's name

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Location, Date

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Participant's signature