Consent to Participate in Programming Transfer Training Research Study:   
fNIRS Component - to be signed anew before each scan

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**Invitation to Participate in a Research Study**

We invite you to be part of a research study about software engineering. You must be 18 or over to participate in this study. You must also be currently enrolled in EECS 183, and you must have no prior programming experience before this semester. You must also be concurrently participating in the Training Component of this study.

**This consent document contains a description of the specific research activities you are asked to participate in.**

**Description of Your Involvement**

If you agree to be part of the research study, we will ask you to complete the following:

1. Complete a questionnaire about your basic information, programming experience and your GPA. (2 minutes)

2. View sample spatial reasoning, reading comprehension, and programming questions so that you know how to approach the problems during the study. (10 minutes)

3. Wear a fNIRS cap and answer binary questions. You will be asked to complete programming, spatial reasoning, and reading comprehension tasks while being scanned. You will have 30 seconds to answer each question, with time for breaks between questions and between question sequences. (60 minutes)

4. Have a conversation-based post-questionnaire with the study staff, talking about how you got to your decisions for some of the tasks. (5 minutes)

**Benefits of Participation**

Although you may not directly benefit from being in this portion of the study, others may benefit because neural representations of transfer between cognitive training and computer science performance are unexplored. As some cognitive tasks, such as spatial reasoning, are correlated with success in computer science, this research has the potential to broaden access to computer science. The purpose of this study is to learn more about the cognitive processes involved in learning how to program.

You are being asked to participate in this study because it requires participants who have never programmed before so we can look for any neurological changes as the participant learns.  
  
There may be some risk of temporary discomfort or boredom while being scanned by the fNIRS machine. These risks are minimal and you are able to stop participating in the study at any time for any reason without consequence.

fNIRS stands for functional near-infrared spectroscopy. It works by shining light on your scalp and measuring how the light scatters within your skin to measure brain activity near the surface of your head. This technique does not expose you to electric or magnetic fields nor any sort of ionizing radiation. fNRIS has previously been safely used in multiple studies with no reported problems or damage occurring to participants.

In addition, data breaches may result in the disclosure of personal data. To mitigate this, all data will be stored on a secure university server. Furthermore, after the completion of the full training study, research data collected from you will be de-identified and stored on an encrypted volume.

As with any research study, there may be additional risks that are unknown or unexpected.

**Compensation for Participation**

For your complete participation in this fNIRS scan, you will receive $20. If you withdraw from the study before it is finished, you will receive $10 instead. You are responsible for traveling to and from the testing facility and any associated parking. This money will be given to you as cash after the experiment.

If the participant misses the written pre-test, they will not be able to continue in the study. If the participant was selected for the fNIRS sub-group and they miss the fNIRS pre-test, they will not be allowed to participate during the fNIRS post-test. If the participant misses more than 1/9 training sessions, they will not be able to continue in the study.

**Confidentiality**

We plan to publish the results of this study. We will not include any information that would identify you. Your privacy will be protected and your research records will be confidential.

It is possible that other people may need to see the information you give us as part of the study, such as organizations responsible for making sure the research is done safely and properly like the University of Michigan or government offices.

**Storage and Future Use of Data**

We will store your data/specimens for future research studies. Your name and other identifying information will be secured and stored separately from your research data at the University of Michigan.

*Consent to Use Data/Specimens in Future Research*:

I agree that my data/specimens may be used in future research:   
   
 YES\_\_\_\_\_\_\_\_\_

NO\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Participation in Followup Studies**

Please indicate if you would like to be contacted for potential followup studies. Such studies would involve retaking the spatial reasoning tests, reading comprehension tests, and programming tests while in the fNIRS machine at a later time (up to 1-2 years in the future). Should you consent to being contacted for future follow on studies, you will only be contacted by email. We will also hold onto your names past the end of the study duration in order to contact you.

*Consent to be contacted for followup studies*:

I would like to be contacted in the case:   
   
 YES\_\_\_\_\_\_\_\_\_

NO\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Voluntary Nature of the Study**

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You do not have to answer a question you do not want to answer. Just tell us and we will go to the next question. If you decide to withdraw before this study is completed, your data will be destroyed.

The researchers may remove you from the study even if you want to continue your participation if the researchers believe it is not in your best interest to continue, if your condition changes and requires treatment, or if you do not follow the instructions from the researchers.

**Contact Information for the Study Team**

If you have questions about this research, you may contact Madeline Endres ([endremad@umich.edu](mailto:endremad@umich.edu)), or Madison Fansher ([mfansher@umich.edu](mailto:mfansher@umich.edu)).

**Contact Information for Questions about Your Rights as a Research Participant**

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the:

University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board

2800 Plymouth Road

Building 520, Room 1169

Ann Arbor, MI 48109-2800

Phone: (734) 936-0933 or toll free, (866) 936-0933

Email: [irbhsbs@umich.edu](mailto:irbhsbs@umich.edu)

**Consent**

By signing this document, you are agreeing to be in the study. Be sure that we have answered any questions you have about the study and that you understand what you are being asked to do. You may contact the researcher if you think of a question later.

We agree to participate in the study.

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Printed Name

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Signature Date