

CONSENT FOR RESEARCH
The Pennsylvania State University

Title of Project: The analysis of atoms of confusion in computer programming languages

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We are asking you to be in a research study. This form gives you information about the research.

Whether or not you take part is up to you. You can choose not to take part. You can agree to take part and later change your mind. Your decision will not be held against you.

Please ask questions about anything that is unclear to you and take your time to make your choice.

1. Why is this research study being done?

Instructions: Include the following information when applicable:

- Briefly summarize the purpose, e.g., “this research study is being done to ...”
- Provide the reason for asking these individuals to take part.
- Indicate the approximate overall enrollment unless these numbers are not important to a decision to take part in the research.

We are asking you to be in this research because you have experience in the programming language we are investigating.

This research is being done to find out what the confusing features are in a programming language and why they are confusing. Approximately 50 people will take part in this research study at Penn State.

2. What will happen in this research study?

You will receive a link through email. After reading the consent form, you can click “I agree” in the screen. Then you will be directed to a short questionnaire about your programming experience and then a series of programming questions. You are free to skip any questions related to your programming experience. The programming questions are randomized by computer. You will only see one question at a time. We estimate the total completion time will be 40-60 minutes. This study has only one session and has no follow up visits.

3. What are the risks and possible discomforts from being in this research study?

We expect the physical risks and psychological risks are no more than those in normal daily activities.

There is a risk of loss of confidentiality if your information or your identity is obtained by someone other than the investigators, but precautions will be taken to prevent this from happening. The confidentiality of your electronic data created by you or by the researchers will be maintained to the degree permitted by the technology used. Absolute confidentiality cannot be guaranteed.

4. What are the possible benefits from being in this research study?

4.b What are the possible benefits to others?

The possible benefits to others and to society include: more secure programs, programs that are easier to maintain, and better learning materials for programming education.

5. What other options are available instead of being in this research study?

You may decide not to participate in this research.

6. How long will you take part in this research study?

It will take about 40-60 minutes to complete this research study. There is totally one study visit only.

7. How will your privacy and confidentiality be protected if you decide to take part in this research study?

Efforts will be made to limit the use and sharing of your personal research information to people who have a need to review this information.

- A list that matches your name with your code number will be kept in a password protected file in the PI's office computer, which is password protected and located in a locked office.

In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

We will do our best to keep your participation in this research study confidential to the extent permitted by law. However, it is possible that other people may find out about your participation in this research study. For example, the following people/groups may check and copy records about this research.

- The Office for Human Research Protections in the U. S. Department of Health and Human Services
- The research study sponsor, National Science Foundation.
- The Institutional Review Board (a committee that reviews and approves research studies) and
- The Office for Research Protections.

Some of these records could contain information that personally identifies you. Reasonable efforts will be made to keep the personal information in your research record private. However, absolute confidentiality cannot be guaranteed.

8. What are the costs of taking part in this research study?

None.

9. Will you be paid or receive credit to take part in this research study?

A 10-dollar amazon gift card will send to you through email for your participation.

10. Who is paying for this research study?

The sponsor of this research study, National Science Foundation, will pay for this research study.

The researchers have no financial interests related to the sponsor (NSF.)

11. What are your rights if you take part in this research study?

Taking part in this research study is voluntary.

- You do not have to be in this research.
- If you choose to be in this research, you have the right to stop at any time.
- If you decide not to be in this research or if you decide to stop at a later date, there will be no penalty or loss of benefits to which you are entitled.
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12. If you have questions or concerns about this research study, whom should you call?

Instructions: Include the following information in this section:

- Clarify the subject's right to have questions answered.
- Indicate the person to contact in case of further questions about the research or to report a research-related injury.
- Indicate the person to contact for questions about subject rights and privacy issues.

Please call the head of the research study (principal investigator), **Dr. Martin Yeh** at **610-892-1351** if you:

- Have questions, complaints or concerns about the research.
- Believe you may have been harmed by being in the research study.

You may also contact the Office for Research Protections at (814) 865-1775, ORProtections@psu.edu if you:

- Have questions regarding your rights as a person in a research study.
- Have concerns or general questions about the research.
- You may also call this number if you cannot reach the research team or wish to offer input or to talk to someone else about any concerns related to the research.

INFORMED CONSENT TO TAKE PART IN RESEARCH

Your participation implies your voluntary consent to participate in the research. Please keep or print a copy of this form for your records.