

UNIVERSITY OF MICHIGAN CONSENT TO BE PART OF A RESEARCH STUDY

1. KEY INFORMATION ABOUT THE RESEARCHERS AND THIS STUDY

Study title: Observational Study of Cannabis-Using Programmers

Principal Investigator: Madeline Endres, PhD candidate, University of Michigan

Co-Investigator(s): Wenxin He, MS student, University of Michigan

Faculty Advisor: Westley Weimer, Professor, University of Michigan

You are invited to take part in a research study. This form contains information that will help you decide whether to join the study.

1.1 Key Information

Things you should know:

- The purpose of the study is to observe the effects of cannabis intoxication on software-related programming activities.
- You are eligible to participate if you are at least 21, know how to program and have used cannabis in the last year, have vaped or smoked cannabis, and have a personal computer you can use to join the study session zoom calls remotely. If you only use cannabis edibles, you are not eligible to participate.
- If you choose to participate, you will first be asked to complete a pre-survey and training video (~15 minutes). After that, you will be asked to attend two remote sessions via Zoom, one while you are intoxicated using cannabis and the other while you are not using cannabis. In each session, you will be asked to complete a set of small programming tasks, three open-ended interview-styled coding questions, and a small number of standardized psychological tests. Each session will take approximately 1.5 hours. You will also be asked to complete a survey about your intoxication level and your experience in the study in each session.
- The main discomfort from this research is feeling the acute effects of cannabis. The main risk of this study is a breach of confidentiality regarding cannabis use.

Taking part in this research project is voluntary. You do not have to participate and you can stop at any time. Please take time to read this entire form and ask questions before deciding whether to take part in this research project.

2. PURPOSE OF THIS STUDY

The main goal of this study is to observe the effects of cannabis use during programming. By doing so, we hope to:

- 1) Understand the impacts of cannabis on programming beyond anecdotal accounts.
- 2) Help programmers make more informed decisions on when to use cannabis while programming
- 3) Provide implications for software companies' drug policies.

4) Inspire further studies at the intersection of programming and psychoactive substances.

3. WHO CAN PARTICIPATE IN THE STUDY

3.1 Who can take part in this study?

Programmers who are over the age of 21, have used cannabis in the last year, have smoked or vaped cannabis, have access to a personally-owned computer, have programming experience of at least the level of a senior undergraduate, and have familiarity with the programming language Python. You must also have a location to participate in a remote programming session while intoxicated where you do not have to travel afterwards. You must also agree to audio and video recording to participate. While we will not collect location-specific information to protect participant privacy, if recreational cannabis use is not legal in the state in which you are participating, you should not participate.

3.2 How many people are expected to take part in this study?

About 100 participants will take part.

4. INFORMATION ABOUT STUDY PARTICIPATION

4.1 What will happen to me in this study?

Before the sessions, you will be asked to complete a pre-survey about your cannabis using history and other demographic questions. You will also be shown a training video on how to use our experimental platform. We will also use this pre-survey to double confirm your study eligibility. These questions include asking for your name and address.

Via the pre-survey and follow-on emails, you will schedule two remote programming sessions with us. The sessions will be conducted via Zoom meeting and each will last 1.5 hours. You will attend one session when you are intoxicated by cannabis (via smoking or vaping cannabis 5-10 minutes before the start of the session), and another session when you are sober. You can choose your own time for these two sessions. The only constraints other than research team availability will be which session we ask you to do first (intoxicated or sober) and that for the intoxicated session, we ask that you take the study at home or other location where you do not need to travel afterwards. For the intoxicated session, we will not give you specific instructions on the amount of cannabis to consume or the specific cannabis product (other than it be smoked or vaped, rather than an edible as edibles can have very different effects); we ask you to use cannabis at a level that you typically or previously used it as the goal is to observe the effect of cannabis on programming in as close to real world conditions as possible. We will, however, ask you how much you consume and to send us a picture of the product.

We will confirm your intoxication status and study location at the beginning of the session. We will do this by asking for you to upload a picture of the product consumed (or its wrapper) to the study platform (Michigan's HIPAA compliant Qualtrics), and also by giving written confirmation of the time of using the product and the amount used. If you are not intoxicated for the intoxicated session, sober for the sober session, or in a place where you do not have to travel later for the intoxicated session, we will reschedule your session.

You will be asked to share your screen in each programming session. We will also ask that you turn on your video and audio during the sessions. The video will be pinned to record your screen rather than your face. Each session will start with some short survey questions about your current cannabis intoxication level and cannabis usage. After this survey, you will be asked to complete:

- 1) A set of small programming tasks (e.g., change this program code to remove a bug, complete a partial program to obtain required functionalities, etc.)
- 2) Three open-ended interview-styled coding questions in Python
- 3) A small number of standardized psychological tests (e.g., n-back recall task, a spatial reasoning task, etc.)

For 1) and 3), you will answer the questions on UMich Qualtrics, a survey platform. For 2), you will write the code on Codespaces, an online code editor similar to VSCode, and you will be asked to activate some extensions that help to record your data under our instructions. The programming questions require programming knowledge of at least a senior undergraduate. We do our best to gauge your programming level in the prescreening and pre-survey, however, should it become apparent during the first 20 minutes of a programming session that you do not have the required programming knowledge to participate in the study, a research team member may stop the session.

At the end of each session, you will be asked to complete a survey about your current intoxication level and your experience or reflection in this session.

From each session, we will record your survey responses, the programs you write, your typing speed, your screen, and the session audio. We note that at any point during the session, the research team. After the second session, you will have the option to receive \$80 in compensation (see section 7.1).

4.2 How much of my time will be needed to take part in this study?

Participants will be asked to attend two remote programming sessions within a time period of 1 month. Each session is expected to take about 1.5 hours. Participants will also take a 15-minute pre-survey. Thus, the full time is three hours and 15 minutes.

5. INFORMATION ABOUT STUDY RISKS AND BENEFITS

5.1 What risks will I face by taking part in the study? What will the researchers do to protect me against these risks?

As you will be asked to complete several surveys about your cannabis usage history, programming experience and other questions that ask about your reflection on your performance in the session, you do not have to answer any questions you do not want to answer.

Potential Psychosocial/Health/Physical Harm: You will experience temporary acute effects of cannabis intoxication. These impairments include potential temporary decreases in fine motor control, memory, attention, and emotion processing. You should not operate heavy machinery, including driving a car, for 2-3 hours after using cannabis. We ask that you only smoke/vape cannabis for this research. If you don't smoke/vape cannabis, please do not participate. If you have or have had a current or past issue with cannabis substance abuse, please do not participate in this study if it would cause a relapse.

Because this study collects information about you including sensitive information, the primary risk of this research is a loss of confidentiality. See Section 8 of this document for more information on how the study team will protect your confidentiality and privacy. Additionally, you can protect your own confidentiality by not sharing sensitive/private information beyond that which is asked for. We note that while cannabis may be legal on the state level, it remains illegal federally and you should use your own judgment on whether to participate in this study.

5.2 How could I benefit if I take part in this study? How could others benefit?

You may not receive any personal benefits from being in this study. However, others may benefit from the knowledge gained from this study.

6. ENDING THE STUDY

6.1 If I want to stop participating in the study, what should I do?

You are free to leave the study at any time. If you leave the study before it is finished, there will be no penalty to you. If you decide to leave the study before it is finished, please tell one of the persons listed in Section 9. "Contact Information". If you choose to tell the researchers why you are leaving the study, your reasons may be kept as part of the study record. The researchers will retain all data collected up to the time of your withdrawal.

7. FINANCIAL INFORMATION

7.1 Will I be paid or given anything for taking part in this study?

You will receive a compensation of \$80 in the form of your choice of electronic VISA gift card or electronic Amazon gift card. You will be asked which payment type you would like in the first session, however if you change your mind, you can also let us know in the second session. If you withdraw after completing one session, you will be compensated 25% of the full study compensation rate (\$20). If you do not complete at least one zoom session, you will not be compensated. The payment will be processed

within two weeks of the end of the second session (or after you indicate that you do not want to continue in the study if you have only completed one session). You should expect to receive payment within one to two weeks of payment being processed depending on incentive type.

8. PROTECTING AND SHARING RESEARCH INFORMATION

8.1 How will the researchers protect my information?

We will replace your name and other direct identifiers with a unique code on the data. We will destroy the identifiers other than the audio and video once the incentive has been distributed. The audio and video recording will be destroyed in about 2 months after the end of data collection with all participants when the analysis is complete. Your data will be stored on University of Michigan password-protected accounts and servers that are approved for Human Subjects Research. Access to this data will require authentication and permission. Data access permission will be managed by PI Endres.

We additionally note that your name and email are needed to process payment. Should you not wish to share this information, you can still participate in the study but we will not be able to pay you at the end.

8.2 Who will have access to my research records?

There are reasons why information about you may be used or seen by the researchers or others during or after this study:

- University, government officials, study sponsors or funders, auditors, and/or the Institutional Review Board (IRB) may need the information to make sure that the study is done in a safe and proper manner.

8.3 What will happen to the information collected in this study?

Unless you opt out of it, we will keep the information we collect about you during the research for future research projects. We will not keep your name or other information that can identify you directly for future research, including the audio and video recordings.

The results of this study could be published in an article or presentation, but will not include any information that would let others know who you are.

8.4 Will my information be used for future research or shared with others?

We may use or share your research information for future research studies. If we share your information with other researchers it will be de-identified, which means that it will not contain your name or other information that can directly identify you. We will not share the audio and video recordings. This research may be similar to this study or completely different. We will not ask for your additional informed consent for these studies.

9. CONTACT INFORMATION

Who can I contact about this study?

Please contact the researchers listed below to:

- Obtain more information about the study
- Ask a question about the study procedures
- Report an illness, injury, or other problem (you may also need to tell your regular doctors)
- Leave the study before it is finished
- Express a concern about the study

Principal Investigator: Madeline Endres

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Faculty Advisor: Westley Weimer

Email: weimerw@umich.edu

Phone: (734) 615-9916

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 following:

University of Michigan
Health Sciences and Behavioral Sciences Institutional Review Board (IRB-
HSBS)
2800 Plymouth Road
Building 520, Room 1169 Ann Arbor, MI 48109-2800
Telephone: 734-936-0933 or toll free (866) 936-0933
Fax: 734-936-1852
E-mail: irbhsbs@umich.edu

You can also contact the University of Michigan Compliance Hotline at 1-866-990-0111.

10. YOUR CONSENT

Consent to Participate in the Research Study

By checking this checkbox, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. We will give you a copy of this document for your records and we will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information in Section 9 provided above.

I understand what the study is about and my questions so far have been answered. I agree to take part in this study.



I Consent to participate in this research study, including audio and video recording

Date of check (mm/dd/yy): _____

Consent to be Contacted for Participation in Future Research

Researchers may wish to keep your contact information to invite you to be in future research projects that may be similar to or completely different from this research project.

_____ Yes, I agree for the researchers to contact me for future research projects.

_____ No, I do not agree for the researchers to contact me for future research projects.