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University of Southern California
Information Sciences Institute
4676 Admiralty Way #1001, Marina del Rey, CA 90292

INFORMED CONSENT FOR RESEARCH

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Study Title: Analyzing Users' Browser History for Anti-Phishing

Principal Investigator: John Heidemann, PhD

Department: Information Sciences Institute

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INTRODUCTION

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We invite you to take part in a research study. Please take as much time as you need to read the consent form. You may want to discuss it with your family, friends, or your personal doctor. If you find any of the language difficult to understand, please ask questions. If you decide to participate, you will be asked to sign this form. A copy of the signed form will be provided to you for your records.

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KEY INFORMATION

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The following is a short summary of this study to help you decide whether or not you should participate. More detailed information is listed later on in this form.

1. Being in this research study is voluntary – it is your choice.

2. You are being asked to take part in this study because you are an adult aged 18 or older, and use the Internet with a web browser on a desktop or laptop computer. The purpose of this study is to understand how the websites a user browses over time can be used in data sharing as part of an anti-phishing strategy. Your participation in this study will last for one (1) week. Procedures will include installing and running a web browser extension that will record and code (scramble) your browser history, and submitting (by email or online) your coded history to the study staff.

3. There are risks from participating in this study. The most common risk is breach of confidentiality. More detailed information about the risks of this study can be found under the "Risks and Discomforts" section.

4. You may not receive any direct benefit from taking part in this study. However, your participation in this study may help us learn that data sharing can help with anti-phishing efforts.

5. If you decide not to participate in this research, your other choices may include not participating.

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DETAILED INFORMATION

<u>PURPOSE</u>

The purpose of this study is to understand how the websites a user browses over time can be used in data sharing as part of an anti-phishing strategy. We hope to learn how much commonality there is in web browsing across many users to see if sharing information about phishing targets will be effective. You are invited as a possible participant because you are an adult aged 18 or older, and use the Internet with a web browser on a desktop or laptop computer. About 20 participants will take part in the study. This research is being funded by Defense Advanced Research Projects Agency (DARPA).

<u>PROCEDURES</u>

If you decide to take part, this is what will happen: you will be asked to install and run software on your computer for one (1) week, and then at the end of the week you will be asked to submit the output of the installed software (online or by email).

Software: The software you will be asked to install is a browser extension (located online at https://cardi.github.io/browser-history-research/) that will record and encode the websites you visited and a timestamp of when you visited the website.

Every webpage is specified by an URL like http://www.example.com/index.html.

For every webpage visited, we will only record the domain (www.example.com), and encode it: for each domain, we only keep the "generic" part of the domain (the right-most component), and cryptographically hash the other domain name components: `www.example.com` becomes `xxxx.yyyy.com` (xxxx and yyyy is a unique, fixed-length, non-reversible string as generated by a cryptographic hash function).

We have the following exceptions where we keep the two right-most components:
- we keep `usc.edu` and `isi.edu`. For example, `a.b.usc.edu` will become `xxxx.yyyy.usc.edu`.
- we keep some generic first-level and second-level domains. For example, .ac.uk` is used for universities in the United Kingdom, and says nothing about a specific university.

Online Submission: At the end of the study period, you will be asked to manually submit the output of the software to the study staff via email or a website.

Uninstalling the software: To uninstall the browser extension software,
1. Open the Chrome web browser.
2. Select More () > More tools > Extensions.
3. Next to the "Browser History Research Extension", select **Remove**.
4. To confirm, select **Remove**.

The extension has now been uninstalled and removed from your browser and computer.

RISKS AND DISCOMFORTS

Possible risks and discomforts you could experience during this study include breach of confidentiality. We pledge to keep this information confidential in this study, and one (1) year after publication of this work, we will destroy all collected data.

Breach of Confidentiality: There is a small risk that people who are not connected with this study will learn your identity or your personal information.

BENEFITS

There are no direct benefits to you from taking part in this study. However, your participation in this study may help us learn that data sharing can help with anti-phishing efforts.

PRIVACY/CONFIDENTIALITY

We will keep your records for this study confidential as far as permitted by law. However, if we are required to do so by law, we will disclose confidential information about you. Efforts will be made to limit the use and disclosure of your personal information, including research study and medical records, to people who are required to review this information. We may publish the information from this study in journals or present it at meetings. If we do, we will not use your name.

The University of Southern California's Institutional Review Board (IRB) may review your records.

Your data or specimens will cryptographically encoded and stored on a local server for the duration of the study, and accessible only by the study staff. One year after the work is published, your data will be deleted.

ALTERNATIVES

An alternative would be to not participate in this study.

PAYMENTS

You will not be compensated for your participation in this research.

COST

There is no cost to you for taking part in this study.

VOLUNTARY PARTICIPATION

It is your choice whether or not to participate. If you choose to participate, you may change your mind and leave the study at any time. Refusal to participate or stopping your participation will involve no penalty or loss of benefits to which you are otherwise entitled. If withdrawal must be gradual for safety reasons, the study investigator will tell you.

If you stop being in the research, already collected data may not be removed from the study database. You will be asked whether the investigator can continue to collect data from your records. If you agree, this data will be handled the same as the research data. No new information will be collected about you or from you by the study team without your permission.

The study site may still, after your withdrawal, need to report any safety event that you may have experienced due to your participation to all entities involved in the study. Your personal information, including any identifiable information, that has already been collected up to the time of your withdrawal will be kept and used to guarantee the integrity of the study, to determine the safety effects, and to satisfy any legal or regulatory requirements.

CONTACT INFORMATION

If you have questions, concerns, complaints, or think the research has hurt you, talk to the study investigator, John Heidemann at (310) 448-8708 or by email at johnh@isi.edu.

This research has been reviewed by the USC Institutional Review Board (IRB). The IRB is a research review board that reviews and monitors research studies to protect the rights and welfare of research participants. Contact the IRB if you have questions about your rights as a research participant or you have complaints about the research. You may contact the IRB at (323) 442-0114 or by email at irb@usc.edu.

STATEMENT OF CONSENT

Do you understand the goals of the research study?
☐ Yes
☐ No

Do you have any concerns about participating?
☐ Yes
☐ No

Please remember that you can withdraw at any time with no penalty.

I have read (or someone has read to me) the information provided above. I have been given a chance to ask questions. All my questions have been answered. By signing this

form, I am agreeing to take part in this study.

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Name of Research Participant   Signature   Date Signed
                                                                   (and Time*)