



## OFFICE OF THE VICE CHANCELLOR FOR RESEARCH

Office for the Protection of Research Subjects  
805 W. Pennsylvania Ave., MC-095  
Urbana, IL 61801-4822

### Notice of Approval: New Submission

April 10, 2019

|                               |   |
|-------------------------------|---|
| <b>Principal Investigator</b> | Michael Bailey  |
| <b>CC</b>                     | Joshua Reynolds; Joshua Mason; Zane Ma; Emily Stark; Martin Shelton; Meishan Wu; Deepak Kumar; Paul Murley; Rohan Subramaniam |
| <b>Protocol Title</b>         | <i>Measuring Users' Ability to Parse URLs</i>   |
| <b>Protocol Number</b>        | 19679   |
| <b>Funding Source</b>         | University of Illinois Department of Electrical and Computer Engineering  |
| <b>Review Type</b>            | Exempt 2  |
| <b>Status</b>                 | Active  |
| <b>Risk Determination</b>     | no more than minimal risk   |
| <b>Approval Date</b>          | April 10, 2019  |
| <b>Closure Date</b>           | April 9, 2024   |

This letter authorizes the use of human subjects in the above protocol. The University of Illinois at Urbana-Champaign Institutional Review Board (IRB) has reviewed and approved the research study as described.

The Principal Investigator of this study is responsible for:

- Conducting research in a manner consistent with the requirements of the University and federal regulations found at 45 CFR 46.
- Using the approved consent documents, with the footer, from this approved package.
- Requesting approval from the IRB prior to implementing modifications.
- Notifying OPRS of any problems involving human subjects, including unanticipated events, participant complaints, or protocol deviations.
- Notifying OPRS of the completion of the study.

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**IRB Number: 19679**

## Human Subjects Research – Protocol Form

### Guidelines for completing this research protocol:

- Please submit typed applications via email. Handwritten forms and hard copy forms will not be accepted.
- For items and questions that do not apply to the research, indicate as “not applicable.”
- Provide information for all other items clearly and avoid using discipline specific jargon.
- Please only include text in the provided boxes. The text boxes will expand as they are typed in to accommodate large amounts of text.

### Before submitting this application, ensure that the following have been completed.

- Protocol Form is complete.
- Relevant CITI modules have been completed for all members of the research team at [www.citiprogram.org](http://www.citiprogram.org).
- Informed consent/assent/parental permission document(s) are provided.
- Relevant waivers and appendices are provided.
- Recruitment materials are provided.
- Research materials (e.g. surveys, interview guides, etc.) are provided.
- Any relevant letters of support are provided.

Instructions on the non-exempt review process and guidance to submitting applications, can be found on the OPRS [website](#). You may also contact OPRS by email at [irb@illinois.edu](mailto:irb@illinois.edu) or phone at 217-333-2670.

**Submit completed applications via email to: [irb@illinois.edu](mailto:irb@illinois.edu).**

|  |                |  |  |
|--|----------------|--|--|
| OFFICE FOR THE PROTECTION OF RESEARCH SUBJECTS         |                | UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN             |  |
| 805 West Pennsylvania Avenue, MC-095, Urbana, IL 61801 | T 217-333-2670 | <a href="mailto:irb@illinois.edu">irb@illinois.edu</a> | <a href="http://www.irb.illinois.edu">www.irb.illinois.edu</a> |
|  |                |  | Revised: 12/3/18   |



Office for the Protection  
of Research Subjects

# Protocol Form

## Section 1: PRINCIPAL INVESTIGATOR (PI)

|  |                               |                |                 |
|--|-------------------------------|----------------|-----------------|
| <b>The Illinois <a href="#">Campus Administrative Manual</a> allows assistant, associate, and full professors to act as PI. Other individuals may serve as PI after obtaining approval from the necessary party.</b>         |                               |                |                 |
| Last Name: Bailey  | First Name: Michael           | Degree(s): PhD |                 |
| Dept. or Unit: ECE   | Office Address: 444 CSL       |                |                 |
| Street Address: 1308 W Main St.  | City: Urbana                  | State: IL      | Zip Code: 61801 |
| Phone: 217-244-8830  | E-mail: mdbailey@illinois.edu |                |                 |
| Urbana-Champaign Campus Status:<br>Non-visiting member of (Mark One) <input checked="" type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff<br>( <i>Student Investigators cannot serve as PI</i> ) |                               |                |                 |
| Training<br><input checked="" type="checkbox"/> Required CITI Training, Date of Completion (valid within the last 3 years), 2/16/2018<br><input type="checkbox"/> Additional training, Date of Completion,                   |                               |                |                 |

## Section 2. RESEARCH TEAM

|   |
|---|
| <b>2A. Are there other investigators engaged in the research?</b><br><input checked="" type="checkbox"/> Yes (include a <a href="#">Research Team Form</a> )<br><input type="checkbox"/> No |
| <b>2B. If yes, are any of the researchers not affiliated with Illinois?</b><br><input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No                                       |

## Section 3. PROTOCOL TITLE

|  |
|--|
| Measuring Users' Ability to Parse URLs |
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## Section 4. FUNDING INFORMATION

|  |
|--|
| <b>4A. Is the research funded?</b><br><input type="checkbox"/> Research is <b>not funded</b> and is <b>not pending</b> a funding decision (Proceed to Part 5).<br><input checked="" type="checkbox"/> Research is <b>funded</b> (funding decision has been made).<br><input type="checkbox"/> Funding decision is <b>pending</b> . Funding proposal submission date: |
| <b>4B. Indicate the source of the funding.</b><br><input type="checkbox"/> University of Illinois Department, College or Campus, <i>please specify</i> :<br><input type="checkbox"/> Federal, <i>please specify</i> :<br><input type="checkbox"/> Commercial Sponsorship & Industry <sup>12</sup> , <i>please specify</i> :  |

<sup>1</sup> Clarify whether or not sponsor requires specific language in the contractual agreement that impacts human subjects research

<sup>2</sup> Clarify whether or not the sponsor requires the protocol adhere to ICH GCP (E6) standards



Office for the Protection  
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# Protocol Form

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| <input type="checkbox"/> State of Illinois Department or Agency, <i>please specify</i> :<br><input checked="" type="checkbox"/> Other, <i>please specify</i> : Dr. Michael Bailey ICR (ECE Dept) |
| <b>4C. Sponsor-assigned grant number, if known:</b> n/a  |
| <b>4D. A complete copy of the funding proposal or contract is attached.</b><br><input type="checkbox"/> Attached, <i>please specify title</i> : n/a  |
| <b>4E. Funding Agency Official To Be Notified of IRB Approval (if Applicable)</b><br><b>Name:</b> n/a<br><b>Agency:</b> n/a<br><b>E-mail:</b> n/a<br><b>Phone:</b> n/a                           |

## Section 5. CONFLICTS OF INTEREST

|  |
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| <p><b>Please indicate below whether any investigators or members of their immediate families have any of the following.</b> If the answer to any of the following items is yes, please submit the University of Illinois approved conflict management plan. If you have any questions about conflicts of interest, contact <a href="mailto:coi@illinois.edu">coi@illinois.edu</a>.</p> |
| <b>5A. Financial interest or fiduciary relationship with the research sponsor (e.g. investigator is a consultant for the research sponsor).</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |
| <b>5B. Financial interest or fiduciary relationship that is related to the research (e.g. investigator owns a startup company, and the intellectual property developed in this protocol may be useful to the company).</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |
| <b>5C. Two or more members of the same family are acting as research team members on this protocol.</b><br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |

## Section 6. RESEARCH SUMMARY

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| <p><b>6A. In lay language, summarize the objective and significance of the research.</b></p> <p>Trust decisions based on incomplete or false identity assumptions allow attackers to successfully impersonate valuable websites. The most well-known example of this threat is phishing, where attackers use a falsified identity to con victims into giving away their secrets and money. Phishing attacks are plentiful, simple to create, and the most common social engineering tactic in costly cybercrimes. In 2018, the U.S. Federal Trade Commission caught sales lead generation companies using “army.com” and “navyenlist.com” to impersonate U.S. military recruitment sites to collect personal information [1]. Europol reports phishing continues to be the dominant form of social engineering and a key entry point for larger cybercrimes [2]. Symantec Corporation reports that the going rate for customized phishing page creation services is a mere 3 to 12 USD [3].</p> <p>Current phishing defenses consist of spam filters [4]–[7], blacklists [8]–[10], and security indicators [11]–[15]. Despite the success of each of those defenses, users are frequently expected to evaluate potentially</p> |
|--|

complex URLs both with and without the aid of security indicators across browser address bars, web links, messaging applications, email clients, etc. Ideally, users would check that the URL uses the HTTPS protocol, parse out the fully qualified domain name (FQDN), and use this identity information to make a trust decision. Unfortunately, prior work has shown that even security-primed people continue to use a website's look and feel rather than only the URL to determine identity [16]–[20]. Further complicating the task, URLs crowd protocol information, global addressing information, local addressing information, and application data into a single string of text. URLs should be providing the identity information users need to make identity determinations as informed by connection security state indicators. But even if a security indicator were able to convince users to pay proper attention to URLs, we hypothesize that the fundamental expectation placed on users to learn website identity from URLs is too high.

Guided by three key questions, we propose to identify the practical weak points of URL usability for identity:

1. How successful are users at reading URLs to learn website identity?
2. What mistakes do users make?
3. Why do these mistakes occur?

We design an experiment wherein users are presented with URLs and asked to make identity decisions. The two natural explanations for why users make mistakes are the complexity of URLs, and erroneous user strategies for reading URLs. We will measure the statistical effects of URL complexity features including length, typo-squatting, URL-encoded characters, international character sets, delimiting characters, new TLDs, and more. We will also measure the effects of users' expertise, misconceptions, and demographics. We hope our research will aid browser developers' ongoing efforts to better convey website identity on the Internet [21], [22].

## References:

- [1] "FTC takes action against the operators of copycat military websites," <https://www.ftc.gov/news-events/press-releases/2018/09/ftctakes-action-against-operators-copycat-military-websites>, 2018.
- [2] "Internet organized crime threat assessment," <https://www.europol.europa.eu/activities-services/main-reports/internet-organised-crimethreat-assessment>, 2018.
- [3] "Internet security threat report volume 24," <https://www.symantec.com/security-center/threat-report>, Symantec Corporation, Feb 2019.
- [4] M. Celik, "System and method for detecting phishing e-mails," 2019, uS Patent App. 15/699,565.
- [5] F. Xue, B. B. Zhu, and W. Chu, "Malicious uniform resource locator detection," 2015, uS Patent 9,178,901.
- [6] K. Thomas, C. Grier, J. Ma, V. Paxson, and D. Song, "Design and evaluation of a real-time url spam filtering service," in 32nd IEEE Symposium on Security and Privacy, 2011.
- [7] G. Ho, A. Sharma, M. Javed, V. Paxson, and D. Wagner, "Detecting credential spearphishing in enterprise settings," in 26th USENIX Security Symposium, 2017.
- [8] A. Higbee, R. Belani, and S. Greaux, "Collaborative phishing attack detection," 2016, uS Patent 9,253,207.
- [9] "Google safe browsing api," <https://safebrowsing.google.com/>, Google.
- [10] "Windows defender smartscreen," <https://docs.microsoft.com/enus/windows/security/threat-protection/windows-defender-smartscreen/windows-defender-smartscreen-overview>, Microsoft.

[11] R. Biddle, P. C. Van Oorschot, A. S. Patrick, J. Sobey, and T. Whalen, "Browser interfaces and extended validation ssl certificates: an empirical study," in ACM workshop on Cloud computing security, 2009.

[12] A. P. Felt, R. W. Reeder, A. Ainslie, H. Harris, M. Walker, C. Thompson, M. E. Acer, E. Morant, and S. Consolvo, "Rethinking connection security indicators," in Twelfth Symposium On Usable Privacy and Security, 2016.

[13] S. E. Schechter, R. Dhamija, A. Ozment, and I. Fischer, "The emperor's new security indicators," in 28th IEEE Symposium on Security and Privacy, 2007.

[14] S. Egelman, L. F. Cranor, and J. Hong, "You've been warned: an empirical study of the effectiveness of web browser phishing warnings," in 26th ACM Conference on Human Factors in Computing Systems, 2008.

[15] D. Akhawe and A. P. Felt, "Alice in warningland: A large-scale field study of browser security warning effectiveness," in 22nd USENIX Security Symposium, 2013.

[16] J. S. Downs, M. B. Holbrook, and L. F. Cranor, "Decision strategies and susceptibility to phishing," in Second Symposium on Usable Privacy and Security, 2006.

[17] R. Dhamija, J. D. Tygar, and M. Hearst, "Why phishing works," in 24th ACM Conference on Human Factors in Computing Systems, 2006.

[18] M. Wu, R. C. Miller, and S. L. Garfinkel, "Do security toolbars actually prevent phishing attacks?" in ACM SIGCHI conference on Human Factors in computing systems, 2006.

[19] T. Whalen and K. M. Inkpen, "Gathering evidence: use of visual security cues in web browsers," in Proceedings of Graphics Interface 2005, 2005.

[20] M. Alsharnouby, F. Alaca, and S. Chiasson, "Why phishing still works: User strategies for combating phishing attacks," International Journal of Human-Computer Studies, vol. 82, 2015.

[21] L. Newman, "Google takes its first steps toward killing the url," <https://www.wired.com/story/google-chrome-kill-url-first-steps/>.

[22] L. Newman, "Google wants to kill the url," <https://www.wired.com/story/google-wants-to-kill-the-url/>.

**6B. Indicate if your research includes any of the following:**

- Secondary data (use of data collected for purposes other than the current research project)
- Data collected internationally (include [International Research Form](#))
- Translated documents (include [Certificate of Translation Form](#) and translated documents)
- Research activities will take place at Carle

**6C. Letters of support from outside institutions or entities that are allowing recruitment, research, or record access at their site(s) are attached.**  Yes  Not Applicable

**Section 7. PERFORMANCE SITE**

**7A. List all research sites for the protocol. For non-University of Illinois at Urbana-Champaign sites, describe their status of approval and provide contact information for the site. If the site has an IRB, note whether the IRB has approved the research or plans to defer review to the University of Illinois at Urbana-Champaign.**

**Performances Sites**

#1 Amazon Mechanical Turk

#2

#3

If there are additional performance sites, include them on an attachment and check here:

**7B. Is this a multi-center study in which the Illinois investigator is the lead investigator, or the University of Illinois at Urbana-Champaign is the lead site?**  Yes  No  
**If yes, answer 7C and 7D. If no, move to Section 8.**

**7C. Who is the prime recipient of funding, if funded?** n/a

**7D. What is the management and communication plan for information that might be relevant to the protection of research subjects (e.g. unanticipated problems involving risks to subjects, interim results, and protocol modifications)?** If they occur, we will report unanticipated harms and adverse events to the IRB using the Adverse Event Reporting Form. If we find participants have entered identifying information in their free-response survey questions, we will delete the identifying information from our database.

## Section 8. PARTICIPANTS

**8A. For each performance site, indicate the estimated total number of participants.**

| Performance Site          | # Male | # Female | Total |
|---------------------------|--------|----------|-------|
| #1 Amazon Mechanical Turk | 250    | 250      | 500   |
| #2                        |        |          |       |
| #3                        |        |          |       |
| <b>TOTALS</b>             | 250    | 250      | 500   |

If additional performance sites are included on an attachment, check here:

**8B. Select all participant populations that will be recruited.**

**Age:**

- Adults (18+ years old)
- Minors (≤17 years old)
- Specific age range, *please specify:*

**Gender:**

- No targeted gender (both men and women will be recruited/included)
- Targeted gender, *please indicate:*  Men/boys  Women/girls  Other, *please specify:*

**Race/Ethnicity:**

- No targeted race or ethnicity (all races and ethnicities will be recruited/included)
- Targeted race or ethnicity, *please specify:*

**College Students:**

- No targeted college population
- UIUC general student body
- Targeted UIUC student population, *provide the instructor or course information, name of the departmental subject pool, or other specific characteristics:*
- Students at institution(s) other than UIUC, *please specify:*

Any research with students on UIUC's campus needs to be registered with the [Office of the Dean of Students](#).

**Other:**

- Inpatients
- Outpatients
- People who are illiterate or educationally disadvantaged

|   |
|---|
| <input type="checkbox"/> People who are low-income or economically disadvantaged<br><input type="checkbox"/> People with mental or cognitive disabilities or otherwise impaired decision-making capacities<br><input type="checkbox"/> Adults with legal guardians<br><input type="checkbox"/> People who are non-English speaking<br><input type="checkbox"/> People with physical disabilities<br><input type="checkbox"/> Pregnant or lactating women, human fetuses, and/or neonates<br><input type="checkbox"/> Prisoners or people with otherwise limited civil freedoms<br><input type="checkbox"/> Other, <i>please specify</i> : |
| <b>8C. Describe additional safeguards included in the protocol to protect the rights and welfare of the populations selected above.</b><br>We will not collect identifying information, and participants may choose to stop participating at any time.  |

**Section 9. RECRUITMENT**

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| <b>9A. Select all recruitment procedures that will be used.</b><br><input type="checkbox"/> Student subject pool, <i>please specify</i> :<br><input type="checkbox"/> Email distribution<br><input checked="" type="checkbox"/> MTurk, Qualtrics Panel, or similar online population, <i>please specify</i> :<br><input type="checkbox"/> US Mail<br><input type="checkbox"/> Flyers/brochures<br><input type="checkbox"/> Website ad, online announcement (e.g. eWeek), or other online recruitment, <i>please specify</i> : Online scheduling/sign-up<br><input type="checkbox"/> Newspaper ad<br><input type="checkbox"/> Verbal announcement<br><input type="checkbox"/> Other, <i>please specify</i> :<br><input type="checkbox"/> Not applicable (secondary data only) |
| <b>9B. Drafts or final copies of all recruitment materials (including verbal scripts) are attached.</b><br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not Applicable   |
| <b>9C. For each group of participants, describe the details of the recruitment process.</b><br>Mechanical Turk workers will be recruited via a Human Intelligence Task on that platform using language proved in the attachments titled "HIT Description". Amazon Mechanical Turk will only offer the study to participants they consider to match our selection criteria.   |

**Section 10. WITHHELD INFORMATION**

|   |
|---|
| <b>10A. Do you propose to withhold information from subjects prior to or during their participation?</b><br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If yes, complete the rest of Section 10 and also submit the <a href="#">Alteration of Informed Consent Form</a> . If no, move to Section 11. |
|---|



# Protocol Form

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| <b>10B. What information will be withheld?</b>  |
| <b>10C. Why does this information need to be withheld for the purposes of the research?</b>   |
| <b>10D. How will participants be debriefed?</b>   |
| <b>10E. A draft or final copy of a written debriefing that will be provided to participants is attached.</b><br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not Applicable |

## Section 11. SCHOOL-BASED RESEARCH

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| <p>If subjects will be recruited from Illinois public or private elementary or secondary schools, additional deadlines and procedures may apply. Criminal background clearances might be required. Special consideration must be given to the exclusion of protected populations. Please contact the <a href="mailto:researchplacements@education.illinois.edu">School University Research Relations (researchplacements@education.illinois.edu)</a> for more information.</p> <p>Select one: <input type="checkbox"/> Illinois schools will be used <input checked="" type="checkbox"/> Illinois schools will not be used</p> |
|--|

## Section 12. INCLUSION AND EXCLUSION CRITERIA

|  |
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| <p><b>12A. List specific criteria for inclusion and exclusion of subjects in the study, including treatment and control groups.</b><br/> Participants who Amazon Mechanical Turk reports to be 18+, have a 95% past work approval rating, and are U.S. residents will be included.</p>   |
| <p><b>12B. Explain how the inclusion/exclusion criteria will be assessed and by whom. If special expertise is required to evaluate screening responses or data, list who will make this evaluation and describe their training and experience.</b><br/> Only Mechanical Turk Workers who have a 95% approval rating or higher, and who reside in the USA, will be able to see and participate in the study.</p>  |
| <p><b>12C. Drafts or final copies of all screening materials are attached.</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not Applicable</p>   |
| <p><b>12D. Describe procedures to assure equitable selection of subjects. Justify the use of the groups marked in Section 8B. Selection criteria that target one sex, race, or ethnic group require a clear scientific rationale.</b><br/> We will use Mechanical Turk Workers whose approval rating is above 95% because prior work has shown such workers are more likely to pay attention to the given task without attention questions (Peer et al. "Reputation as a sufficient condition for data quality on Amazon Mechanical Turk". Behavior Research Methods. 2014).</p> |

## Section 13. DEVICES & EQUIPMENTS

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| <p><b>Indicate if your research includes any of the following.</b></p> <p><input type="checkbox"/> Equipment [Researchers collecting physiological data, <u>not</u> testing the device]<br/> <i>(include Appendix A, the <a href="#">Research Equipment Form</a>)</i></p> <p><input type="checkbox"/> Devices [Researchers planning to test devices on human subjects]<br/> <i>(include Appendix B, the <a href="#">Device Form</a>)</i></p> <p><input type="checkbox"/> Materials of Human Origin</p> |
|--|

(include Appendix C, the [Biological Materials Form](#))

Drugs and Biologics

(include Appendix D, the [Drug and Chemical Usage Form](#))

MRI AT BIC To use the [Beckman Institute Biomedical Imaging Center](#) (BIC) in human subject's research, you must obtain prior approval from the BIC (217.244.0446; [ryambert@illinois.edu](mailto:ryambert@illinois.edu)) and use BIC-approved screening and consent forms. Attach:

BIC approval  BIC screening form  BIC consent form

**Section 14. RESEARCH PROCEDURES****14A. Select all research methods and/or data sources that apply.**

- Surveys or questionnaires, *select all that apply*:  Paper  Telephone  Online
- Interviews
- Focus groups
- Field work or ethnography
- Standardized written, oral, or visual tests
- Taste or smell testing
- Intervention or experimental manipulation
- Exercise and muscular strength testing
- Noninvasive procedures to collect biological specimens (e.g., hair and nail clippings, saliva, etc.)
- Noninvasive procedures to collect physiological data (e.g., physical sensors, electrocardiography, etc.)
- Procedures involving radiation
- Recording audio and/or video and/or taking photographs
- Recording other imaging
- Materials that have already been collected or already exist, *specify source of data*:
- [HIPAA-protected data](#)
- [FERPA-protected data](#)
- [GDPR-protected data](#)
- Other, *please specify*:

**14B. List all testing instruments, surveys, interview guides, etc. that will be used in this research.**

-Survey A

-Survey B

**Drafts or final copies of all research materials are attached.**  Yes

**14C. List approximate study dates.** Apr 2019-Nov 2019**14D. What is the duration of participants' involvement?** Approximately 20-25 min**14E. How many times will participants engage in research activities?** Once**14F. Narratively describe the research procedures in the order in which they will be conducted.**

Participants will give electronic consent and fill out the survey (see attached). They will be randomly assigned to either survey A or B, which differ slightly in the way URLs are displayed. Specific URLs will be randomly pulled from a pool and assigned to participants.

The survey consists of background questions, open questions about how the participant interprets URLs, a highlighting activity, a URL target identification exercise, and the standard SeBIS metric of computer security behaviors and intentions.

## Section 15. SUBJECT REMUNERATION

Refer to the University [Business and Financial Policies and Procedures](#) for further guidance on the compensation process and reporting requirements.

**15A. Will subjects receive inducements or rewards before, during, or after participation?**

Yes  No

If yes, complete the rest of Section 15. If no, move to Section 16.

**15B. Select all forms of remuneration that apply.**

Cash, *please specify amount:*

Check, *please specify amount:*

Gift Certificate, *please specify amount:*

Lottery, *please specify amount:*                      *and odds:*

Course Credit, *please specify amount:*                      *and specify equivalent alternative activity:*

Other, *please specify:* 3 USD Payment through Amazon Mechanical Turk

**15C. Will payment be prorated before, during, or after participation?**

Yes, *please specify how:*

No

**15D. For each group of participants, describe the details of the remuneration plan, including how, when and by whom they will be notified.**

Mechanical Turk workers will be automatically compensated upon completion of the task.

**15E. The information listed above is provided on the relevant consent forms.**

Yes

## Section 16. SUBJECT OUTLAY

**Will subjects incur costs for research-related procedures (e.g. longer hospitalization, extra tests, use of equipment, lost compensation, transportation over 50 miles, etc.)?**

No  Yes, *please explain:*

## Section 17. CONFIDENTIALITY AND PRIVACY

**17A. How is participant data, records, or specimens identified when received or collected by researchers? Identifiers include, but are not limited to, name, date of birth, email address, street address, phone number, audio or video recordings, and SSN.**

No identifiers are collected

Direct identifiers are collected

Indirect identifiers (e.g. a code or pseudonym used to track participants);

Does the research team have access to the identity key?  Yes  No

**17B. Select all methods used to safeguard research records during storage:**

- Written consent, assent, or parental permission forms are stored separately from the data
- Data is collected or given to research team without identifiers
- Data is recorded by research team without identifiers
- Direct identifiers are removed from collected data as soon as possible
- Direct identifiers are deleted and no identity key exists as soon as possible
- Participant codes or pseudonyms are used on all data and the existing identity key is stored separately from the data
- Electronic data is stored in a secure, [UIUC-approved location](#), *please specify*
- Hard-copy data is stored in a secure location on UIUC's campus, *please specify*
- Other, *please specify*: Data will be stored long-term on password-protected lab servers in the FERPA-compliant, access-controlled UIUC Advanced Computer Building. Data will also be on password-protected computers during analysis

**17C. How long will identifiable data be kept?** n/a

**17D. Describe provisions to protect the privacy interests of subjects.** The only identifier we will collect is the Mechanical Turk Worker ID which we need to pay participants. We are also applying to waive the requirement for a signed consent form in favor of anonymous electronic consent. We will delete personal information if we find it within short-answer question answers.

**17E. Describe the training and experience of all persons who will collect or have access to the data.** All persons who will collect the data have experience performing academic research. The responsible primary investigator, Michael Bailey, has published over 60 academic papers, many of which involve human subjects and thus IRB approval. The secondary investigator (Joshua Reynolds) is a second-year PhD student who has been an author of two conference publications involving human subjects, for one of which he was also the secondary investigator. The other investigators are a graduate student, two undergraduate research assistants, two industry user experience researchers, and a research scientist collaborating with Michael Bailey and Joshua Reynolds. We intend to make the data available for other researchers who wish to validate our conclusions.

**Section 18. INFORMED CONSENT PROCESS****18A. Indicate all that apply for the consent/assent/parental permission process.**

- Written informed consent (assent) with a document signed by
- adult subjects  parent(s) or guardian(s)  adolescents aged 8–17 years
- Waiver of Documentation (signature) of Informed Consent (*include the relevant [Waiver Form](#)*)
- adult subjects  parent(s) or guardian(s)  adolescents aged 8–17 years
- Waiver of Informed Consent (*include the relevant [Waiver Form](#)*)
- adult subjects  parent(s) or guardian(s)  adolescents aged 8–17 years
- Alteration of Informed Consent (*include the relevant [Alteration Form](#)*)
- adult subjects  parent(s) or guardian(s)  adolescents aged 8–17 years

**18B. List all researchers who will obtain consent/assent/parental permission from participants. The**

# Protocol Form

survey will not be displayed unless participants agree to the displayed consent agreement.

**18C. Describe the method for obtaining consent/assent/parental permission.** When a participant first begins, the study server will ask them to review and consent before allowing them access to any protocols or collecting any data. We do not intend to collect signed consent forms, since the study involves no more than minimal risk and participants could otherwise participate entirely anonymously.

**18D. Describe when consent/assent/parental permission will be obtained.** As Mechanical Turk Workers are deciding to take on our survey task.

**18E. Will participants receive a copy of the consent form for their records?**

Yes  No, if no, explain: Consent will be electronic. They can create a copy.

**18F. Indicate factors that may interfere or influence the collection of voluntary informed consent/assent/parental permission.**

No known factors

Research will involve students enrolled in a course or program taught by a member of the research team

Research will involve employees whose supervisor(s) is/are recruiting participants

Participants have a close relationship to the research team

Other, specify any relationship that exists between the research team and participants:

**If applicable, describe the procedures to mitigate the above factors.**

**18G. Copies of the consent form(s) are attached.**  Yes  Not applicable

**18H. Will this project be registered as a clinical trial?**  Yes  No

If yes, effective January 21, 2019, an informed consent form must be posted on the Federal Web site after the clinical trial is closed to recruitment, and no later than 60 days after the last study visit.

## Section 19. DISSEMINATION OF RESULTS

**19A. List proposed forms of dissemination (e.g. journal articles, thesis, academic paper, conference presentation, sharing within industry, etc.).**

Journal article, thesis, academic paper, conference paper, workshop paper, posters.

**19B. Will any identifiers be published, shared, or otherwise disseminated?**  Yes  No

**If yes, does the consent form explicitly ask consent for such dissemination, or otherwise inform participants that it is required in order to participate in the study?**  Yes

**19C. Do you intend to put de-identified data in a data repository?**  Yes  No

**If yes, explain how data will be de-identified.** Identifiers will not be collected. Any identifiers found in free-response survey questions will already have been removed.

## Section 20. RISKS & BENEFITS

**20A. Describe all known risks to the participants for the activities proposed, such as risks to the participants' physical well-being, privacy, dignity, self-respect, psyche, emotions, reputation, employability, and criminal and legal status. Risks must be described on consent forms.**

This study is designed to involve no more harm or discomfort than is normally faced while using a mobile

# Protocol Form

phone or computer to complete a task. Participants may become concerned that their failures in making identity determinations in the study will harm the researchers' opinions of them or make them feel vulnerable to online scams. They may also recall past harms they have received from fake websites.

**20B. Describe the steps that will be taken to minimize the risks listed above.**

Participants will be given no feedback on their success or failure at any of the tasks, will be paid for their time, and will be treated politely by our survey system. They may stop participating at any time.

**20C. Indicate the risk level.**

**No more than minimal risk**

(The probability and magnitude of harm or discomfort anticipated for participation in the proposed research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests).

**More than minimal risk** (answer 20D)

**20D. If you checked that the research is more than minimal risk, describe the provisions for monitoring the data to ensure the safety of subjects, such as who will monitor data and how often, what criteria will be used to stop the research, etc.**

**20E. Describe the expected benefits of the research to the subjects and/or to society.**

The research will have no direct benefits to the study participants, themselves. This exploratory research is the first step in our effort to identify under which circumstances URLs fail to communicate identity well. Identifying the failure points is the first step in making improvements.

**20F. Weigh the risks with regard to the benefits. Provide evidence that benefits outweigh risks.**

The participants will face no more than minimal risks. When we improve the way browsers convey identity, fewer organizations and individuals will be fooled by phishing attempts and impostor news sources.

**Section 21. INVESTIGATOR ASSURANCES**

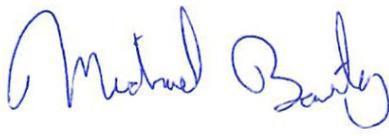
- I certify that the information provided in this application is complete and correct.
- I certify that I will follow my IRB Approved Protocol.
- I accept ultimate responsibility for the conduct of this study, the ethical performance of the project, and the protection of the rights and welfare of the human subjects who are directly or indirectly involved in this project.
- I will comply with all applicable federal, state and local laws regarding the protection of human subjects in research.
- I will ensure that the personnel performing this study are qualified and adhere to the provisions of this IRB-certified protocol.

**The original signature of the PI is required before this application may be processed (electronic signature are acceptable).**



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# Protocol Form

|   |      |
|---|------|
|  |      |
| Principal Investigator  | Date |

## Section 22. DEPARTMENTAL ASSURANCE (OPTIONAL)

**If the PI is not eligible to serve as PI under the [Campus Administrative Manual](#), the applicable academic dean, institute director, or campus administrative officer indicates their approval of the researcher to act as Principal Investigator. Please note that departmental assurance only needs to be provided in the initial application.**

|                                |      |
|--------------------------------|------|
|                                |      |
| Applicable Authorizing Officer | Date |

|  |  |                  |                      |
|--|--|------------------|----------------------|
| OFFICE FOR THE PROTECTION OF RESEARCH SUBJECTS         | UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN |                  |                      |
| 805 West Pennsylvania Avenue, MC-095, Urbana, IL 61801 | T 217-333-2670                             | irb@illinois.edu | www.irb.illinois.edu |
|  |  |                  | Revised: 12/3/18     |

**For Listing Additional Researchers who are Involved in the Project****All forms must be typewritten and submitted via email to [irb@illinois.edu](mailto:irb@illinois.edu).**

**When to use this form:** If there are collaborating researchers participating in a research study, including those from other institutions, complete this form by listing all collaborating researchers. Include all persons who will be: 1) directly responsible for project oversight and implementation, 2) recruitment, 3) obtaining informed consent, or 4) involved in data collection, analysis of identifiable data, and/or follow-up. **Please copy and paste text fields to add additional research team members.**

Note:

- Changes made to the Principal Investigator require a revised [Protocol Form](#) and an [Amendment Form](#).
- A complete Research Team form with all research team members included needs to be submitted every time the research team is updated.

**Section 1. PROTOCOL INFORMATION**

|  |
|--|
| <b>1A. Principal Investigator:</b> Michael Bailey                |
| <b>1B. Protocol Number:</b>                                      |
| <b>1C. Project Title:</b> Measuring Users' Ability to Parse URLs |

**Section 2. ADDITIONAL INVESTIGATORS**

|  |                     |                            |
|--|---------------------|----------------------------|
| <b>Full Name:</b> Joshua Reynolds  | <b>Degree:</b> B.S. | <b>Dept. or Unit:</b> CS   |
| <b>Professional Email:</b> joshuar3@illinois.edu   |                     | <b>Phone:</b> 916-676-6076 |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify:</i>  |                     |                            |
| <b>Campus Status:</b><br><input type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify:</i> |                     |                            |
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): 14 Sept 2017<br><input type="checkbox"/> Additional training, <b>Date of Completion:</b>  |                     |                            |
| <input checked="" type="checkbox"/> <b>This researcher should be copied on OPRS and IRB correspondence.</b>  |                     |                            |

|  |                    |                           |
|--|--------------------|---------------------------|
| <b>Full Name:</b> Joshua Mason   | <b>Degree:</b> PhD | <b>Dept. or Unit:</b> ECE |
| <b>Professional Email:</b> joshm@illinois.edu  |                    | <b>Phone:</b>             |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify:</i>  |                    |                           |
| <b>Campus Status:</b><br><input checked="" type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify:</i> |                    |                           |



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of Research Subjects

# Research Team

|  |
|--|
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): Mar 5 2018<br><input type="checkbox"/> Additional training, <b>Date of Completion</b> : |
| <input checked="" type="checkbox"/> <b>This researcher should be copied on OPRS and IRB correspondence.</b>  |

|   |                     |                            |
|---|---------------------|----------------------------|
| <b>Full Name:</b> Deepak Kumar  | <b>Degree:</b> B.S. | <b>Dept. or Unit:</b> CS   |
| <b>Professional Email:</b> dkumar11@illinois.edu  |                     | <b>Phone:</b> 248-231-3575 |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify</i> :  |                     |                            |
| <b>Campus Status:</b><br><input type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify</i> : |                     |                            |
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): 4/8/19<br><input type="checkbox"/> Additional training, <b>Date of Completion</b> :  |                     |                            |
| <input checked="" type="checkbox"/> <b>This researcher should be copied on OPRS and IRB correspondence.</b>   |                     |                            |

|   |                     |                            |
|---|---------------------|----------------------------|
| <b>Full Name:</b> Paul Murley   | <b>Degree:</b> M.S. | <b>Dept. or Unit:</b> CS   |
| <b>Professional Email:</b> pmurley2@illinois.edu  |                     | <b>Phone:</b> 512-569-4645 |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify</i> :  |                     |                            |
| <b>Campus Status:</b><br><input type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify</i> : |                     |                            |
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): 10/12/17<br><input type="checkbox"/> Additional training, <b>Date of Completion</b> :  |                     |                            |
| <input checked="" type="checkbox"/> <b>This researcher should be copied on OPRS and IRB correspondence.</b>   |                     |                            |

|   |                  |                          |
|---|------------------|--------------------------|
| <b>Full Name:</b> Rohan Subramaniam   | <b>Degree:</b> - | <b>Dept. or Unit:</b> CS |
| <b>Professional Email:</b> rcsupra2@illinois.edu  |                  | <b>Phone:</b>            |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify</i> :  |                  |                          |
| <b>Campus Status:</b><br><input type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input type="checkbox"/> Graduate Student <input checked="" type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify</i> : |                  |                          |
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): 2/10/19<br><input type="checkbox"/> Additional training, <b>Date of Completion</b> :   |                  |                          |



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# Research Team

This researcher should be copied on OPRS and IRB correspondence.

|  |                  |                          |
|--|------------------|--------------------------|
| <b>Full Name:</b> Meishan Wu   | <b>Degree:</b> - | <b>Dept. or Unit:</b> CS |
| <b>Professional Email:</b> meishan2@illinois.edu   |                  | <b>Phone:</b>            |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify:</i>  |                  |                          |
| <b>Campus Status:</b><br><input type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input type="checkbox"/> Graduate Student <input checked="" type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify:</i> |                  |                          |
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): 2/9/19<br><input type="checkbox"/> Additional training, <b>Date of Completion:</b>  |                  |                          |
| <input checked="" type="checkbox"/> This researcher should be copied on OPRS and IRB correspondence.   |                  |                          |

|  |                     |                              |
|--|---------------------|------------------------------|
| <b>Full Name:</b> Zane Ma  | <b>Degree:</b> B.S. | <b>Dept. or Unit:</b> CS     |
| <b>Professional Email:</b> zanema2@illinois.edu  |                     | <b>Phone:</b> (310)-498-0016 |
| <b>Campus Affiliation:</b><br><input checked="" type="checkbox"/> University of Illinois at Urbana-Champaign <input type="checkbox"/> Other, <i>please specify:</i>  |                     |                              |
| <b>Campus Status:</b><br><input type="checkbox"/> Faculty <input type="checkbox"/> Academic Professional/Staff <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student<br><input type="checkbox"/> Visiting Scholar <input type="checkbox"/> Other, <i>please specify:</i> |                     |                              |
| <b>Training:</b><br><input checked="" type="checkbox"/> Required CITI Training, <b>Date of Completion</b> (valid within last 3 years): 2/9/19<br><input type="checkbox"/> Additional training, <b>Date of Completion:</b>  |                     |                              |
| <input checked="" type="checkbox"/> This researcher should be copied on OPRS and IRB correspondence.   |                     |                              |

# Survey

Welcome to the survey activity. Thank you for your help in our research on web addresses and website identity. Please carefully enter your workerID so we can be sure you get paid for completing the activity. Then, follow the instructions for each section. Answer the following questions. For free-response questions we are expecting a 1-3 sentence answer.

M-Turk Worker ID

## Background

Answer the following questions:

What is your Gender?

- Male
- Female
- Non-binary/Third Gender
- Prefer to Self Describe
- Prefer not to answer

Do you Identify as transgender?

- Yes
- No
- Prefer not to Say

Age

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66+
- Prefer not to answer

Education Level

- No High School Diploma
- High School

- Some College
- Associate's Degree
- Bachelor's Degree
- Master's Degree or PhD
- Prefer not to answer

I usually use the Internet on a \_\_\_\_\_.

- Smartphone/Tablet
- Laptop/Desktop Computer

I know how to read a URL

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

When you arrive at a website, how do you figure out what website you are seeing?

I know how to tell which website I am on.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

I know how to check where a link will take me before I click.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

I check where a link will take me before I click.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True

I don't understand the statement

I know how to check where a link will take me before I touch it on a smartphone or tablet.

- Very True  
 Mostly True  
 Neither True or Untrue  
 Not Very True  
 Not at all True  
 I don't understand the statement

I check where a link will take me before I touch it on a smartphone or tablet.

- Very True  
 Mostly True  
 Neither True or Untrue  
 Not Very True  
 Not at all True  
 I don't understand the statement

I have been harmed by a fake websites.

- Very True  
 Mostly True  
 Neither True or Untrue  
 Not Very True  
 Not at all True  
 I don't understand the statement

When you see a link or a URL, how do you decide if it is safe to go there?

When you do go to a website, how do you decide whether it is trustworthy?

I find fake websites

- Daily  
 Weekly  
 Monthly  
 Yearly  
 Never

How would you recognize a fake website?

What harm might a fake website cause?

## URL Highlighting

Complete the following activity to demonstrate your strategy for reading web addresses (URLs). For each URL:

1. Click and drag to highlight each group of characters that helps you learn the identity of the website it points to.
2. While it is highlighted, click "Add Selection" to mark it permanently.
3. In the text box which appears, let us know what you learned from that section you highlighted.
4. Repeat for each part of the URL that is helpful to figure out the identity of the website it points to.

Hover over the gif below for an example.



<http://www.google.com>

Add Selection

<https://secure05b.chase.com/web/auth/dashboard>

Add Selection

<https://www.paypal.com/us/signin>

Add Selection

https://cnn.com.bay.comFbuy-and-sell-online.com?  
@facebook.com#paypal.com!\*\*\*\*SECURE-BANK-OF-AMERICA-  
SITE\*\*\*\*

Add Selection

## URL Identification

For each of the following URLs, please give the identity of the web site it points to. Some of these URLs will be hard to read. Always make your best guess for each of these URLs, but only check the "I'm certain" box when you feel confident in your answer. Do not visit these URLs!

https://signin.xn--lea24dy6b8a.com/ws/ebayisapi.dll?  
signin&ru=https%3a%2f%2fwww.ebay.com%2f

I am Certain

https://sites.google.com/site/www.amazon.com/ap/signin?  
\_encoding=utf8&ignoreauthstate=1&openid.assoc\_handle=usflex&  
openid.claimed\_id=http%3a%2f%2fspecs.openid.net%2fauth%2f  
2.0%2fidentifier\_select&openid.identity=http%3a%2f%2fspecs.op  
enid.net%2fauth%2f2.0%2fidentifier\_select&openid.mode=checkid  
\_setup&openid.ns=http%3a%2f%2fspecs.openid.net%2fauth%2f2  
.0&openid.ns.pape=http%3a%2f%2fspecs.openid.net%2fextensio  
ns%2fpape%2f1.0&openid.pape.max\_auth\_age=0&openid.return\_t  
o=https%3a%2f%2fwww.amazon.com%2f%3fref\_%3dnav\_custre  
c\_signin&switch\_account=

I am Certain

https://www.foxnews.com.personalized-content-  
delivery.info/world/stolen-28m-picasso-painting-found-by-indiana-  
jones-of-the-art-world-after-20-years

I am Certain

https://www.walmart.com.personalized-content-delivery.app/account/login?tid=0&returnurl=%2f

I am Certain

https://www.facebook.com.hbrpoig9.page/

I am Certain

https://www.bankofamerica.com.000webhostapp.com//www.bankofamerica.com.000webhostapp.com

I am Certain

https://xn--i-xia76rbaa35gl7c.com/login

I am Certain

https://www.bankofamerica.com-zyofeo90xdns.website/

I am Certain

https://twitter.com.wixsite.com/mysite/login?twitter.com

I am Certain

https://www.reddiitt.com/

I am Certain

https://www.bbc.com.xkxwnrek9pk4yr0oudocuzren-un6z4jqip09q2zxoi76fdhjk.2eyy48q0ah9rvhs2k4aq7l7gt7mjxk98au6bhxtpdp-ff6e9ii.50kq82n9mtzx383hpoevb0ooaedocve7pr6n9i-5p51magg2w.214dgdzvgpmm93i2lr4pe30gd9afpk165nzdkyayq4s206jmsn.d9dudd578kd7fleepzh-pcf1-8uqnupqzit4uea4-ge9n7qiwe/news/business-47710332

I am Certain

https://www.foxnews.latest-updates.com/world/stolen-28m-picasso-painting-found-by-indiana-jones-of-the-art-world-after-20-years

I am Certain

https://secure-login-page.com/2019/03/26/us/politics/endangered-species-david-bernhardt.html?action=click&module=top%20stories&pgtype=homepage

I am Certain

<https://xn--i-xia76rbaa35gl7c.com/login>

I am Certain

<https://www.secure-reddit.com/>

I am Certain

[https://accounts.google.com.wixsite.com/mysite/signin/v2/identifier?  
continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=  
mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogi  
n/accounts.google.com](https://accounts.google.com.wixsite.com/mysite/signin/v2/identifier?continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogin/accounts.google.com)

I am Certain

<https://bit.ly/PBHAX4>

I am Certain

<http://27.194.146.91/news/business-47710332>

I am Certain

[https://accounts.gcgllle.com/signin/v2/identifier?  
continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=  
mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogi  
n](https://accounts.gcgllle.com/signin/v2/identifier?continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogin)

I am Certain

[https://accounts.google.latest-updates.com/signin/v2/identifier?  
continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=  
mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogi  
n](https://accounts.google.latest-updates.com/signin/v2/identifier?continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogin)

I am Certain

**Please answer these final 16 questions.**

When someone sends me a link, I open it without first verifying where it goes.

- Never
- Rarely
- Sometimes
- Often
- Always

I use a PIN or passcode to unlock my mobile phone.

- Never
- Rarely
- Sometimes
- Often
- Always

I manually lock my computer screen when I step away from it.

- Never
- Rarely
- Sometimes
- Often
- Always

When I'm prompted about a software update, I install it right away.

- Never
- Rarely
- Sometimes
- Often
- Always

I use different passwords for different accounts that I have

- Never
- Rarely
- Sometimes
- Often
- Always

If I discover a security problem, I continue what I was doing because I assume someone else will fix it.

- Never
- Rarely
- Sometimes
- Often
- Always

When I create a new online account, I try to use a password that goes beyond the site's minimum requirements.

- Never
- Rarely
- Sometimes
- Often

Always

When browsing websites, I mouseover links to see where they go, before clicking them

- Never  
 Rarely  
 Sometimes  
 Often  
 Always

I try to make sure that the programs I use are up-to-date

- Never  
 Rarely  
 Sometimes  
 Often  
 Always

I use a password/passcode to unlock my laptop or tablet.

- Never  
 Rarely  
 Sometimes  
 Often  
 Always

I submit information to websites without first verifying that it will be sent securely (e.g., SSL, "https://", a lock icon)

- Never  
 Rarely  
 Sometimes  
 Often  
 Always

I do not change my passwords, unless I have to

- Never  
 Rarely  
 Sometimes  
 Often  
 Always

I do not include special characters in my password if it's not required.

- Never  
 Rarely  
 Sometimes  
 Often  
 Always

I verify that my anti-virus software has been regularly updating itself

- Never  
 Rarely

- Sometimes
- Often
- Always

I know what website I'm visiting based on its look and feel, rather than by looking at the URL bar.

- Never
- Rarely
- Sometimes
- Often
- Always

I set my computer screen to automatically lock if I don't use it for a prolonged period of time.

- Never
- Rarely
- Sometimes
- Often
- Always

Submit

# Survey

Welcome to the survey activity. Thank you for your help in our research on web addresses and website identity. Please carefully enter your workerID so we can be sure you get paid for completing the activity. Then, follow the instructions for each section. Answer the following questions. For free-response questions we are expecting a 1-3 sentence answer.

M-Turk Worker ID

## Background

Answer the following questions:

What is your Gender?

- Male
- Female
- Non-binary/Third Gender
- Prefer to Self Describe
- Prefer not to answer

Do you Identify as transgender?

- Yes
- No
- Prefer not to Say

Age

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66+
- Prefer not to answer

Education Level

- No High School Diploma
- High School

- Some College
- Associate's Degree
- Bachelor's Degree
- Master's Degree or PhD
- Prefer not to answer

I usually use the Internet on a \_\_\_\_\_.

- Smartphone/Tablet
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- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

When you arrive at a website, how do you figure out what website you are seeing?

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- Not Very True
- Not at all True
- I don't understand the statement

I check where a link will take me before I click.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True

I don't understand the statement

I know how to check where a link will take me before I touch it on a smartphone or tablet.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

I check where a link will take me before I touch it on a smartphone or tablet.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

I have been harmed by a fake websites.

- Very True
- Mostly True
- Neither True or Untrue
- Not Very True
- Not at all True
- I don't understand the statement

When you see a link or a URL, how do you decide if it is safe to go there?

When you do go to a website, how do you decide whether it is trustworthy?

I find fake websites

- Daily
- Weekly
- Monthly
- Yearly
- Never

How would you recognize a fake website?

What harm might a fake website cause?

## URL Highlighting

Complete the following activity to demonstrate your strategy for reading web addresses (URLs). For each URL:

1. Click and drag to highlight each group of characters that helps you learn the identity of the website it points to.
2. While it is highlighted, click "Add Selection" to mark it permanently.
3. In the text box which appears, let us know what you learned from that section you highlighted.
4. Repeat for each part of the URL that is helpful to figure out the identity of the website it points to.

Hover over the gif below for an example.



<http://www.google.com>

Add Selection

<https://secure05b.chase.com/web/auth/dashboard>

Add Selection

<https://www.paypal.com/us/signin>

https://cnn.com.bay.comFbuy-and-sell-online.com?  
@facebook.com#paypal.com!\*\*\*\*SECURE-BANK-OF-AMERICA-  
SITE\*\*\*\*

## URL Identification

For each of the following URLs, please give the identity of the web site it points to. Some of these URLs will be hard to read. Always make your best guess for each of these URLs, but only check the "I'm certain" box when you feel confident in your answer. Do not visit these URLs!

https://www.facebook.com.hbrpoig9.page/

I am Certain

https://www-reddit-com.page/

I am Certain

https://login.yahoo.com/@login.yeoo.com/?src=ym&lang=&done  
=https%3a%2f%2fmail.yahoo.com%2f%3fguce\_referrer%3dah0c  
hm6ly93d3cuymlyzy5jb20vc2vhcmnop3e9ewfob28rbwfpbczmb3jt  
puver0vbuizxcz1qrizdmlkptdhmzzimwmwngq0mzqwmtbimthhzh  
hotc4yzq3mgqxjmnjpvvtjnnldgxhbm9zw4tvvmmcgx2yxi9ma%26g  
uce\_referrer\_sig%3daqaaedq7whejzliip87pdoqnd1ikqkminvpwsz6  
d4unp1xye969-9i4l3qcdh5zfimceyjo8nbzendpjjakjddus-svk2b9fu-  
lnr8owjkse3p0gkorr0we2be7p0tdh5h41zxphejjhsfqrklul3rld7k3ofcn  
gn9y7gucepwix8jh

I am Certain

https://twittér.com/login

I am Certain

https://nvgfygwwqc.university/signin/v2/identifier?continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=mail&sacu=1&rip=1&flowname=glifwebsignin&flowentry=servicelogin?accounts.google.com

I am Certain

https://www.bankofamerica.com.000webhostapp.com//www.bankofamerica.com.000webhostapp.com

I am Certain

https://sites.google.com/site/www.amazon.com/ap/signin?\_encoding=utf8&ignoreauthstate=1&openid.assoc\_handle=usflex&openid.claimed\_id=http%3a%2f%2fspecs.openid.net%2fauth%2f2.0%2fidentifier\_select&openid.identity=http%3a%2f%2fspecs.openid.net%2fauth%2f2.0%2fidentifier\_select&openid.mode=checkid\_setup&openid.ns=http%3a%2f%2fspecs.openid.net%2fauth%2f2.0&openid.ns.pape=http%3a%2f%2fspecs.openid.net%2fextensions%2fpape%2f1.0&openid.pape.max\_auth\_age=0&openid.return\_to=https%3a%2f%2fwww.amazon.com%2f%3fref\_%3dnav\_custrec\_signin&switch\_account=

I am Certain

https://payment-processing-usd.com/account/login?tid=0&returnurl=%2f#www.walmart.com

I am Certain

https://customer-support-page.com/web/auth/dashboard?secure05b.chase.com

I am Certain

https://www.bbc.com/ @www.b.com/news/business-47710332

I am Certain

https://www.facebcch.com/

I am Certain

https://twitter.com.ma78iu8z7rg-1kpok2bx0yrk415s8ng3mayzlnfx8f497jsjy.xv-t10b1jpi4jo5h37bko5-dc2ur93d0r43uqe316uum8e99c.3n47eweu6d0tx7y kz0n7q0731n8bjb5zfj pzglhbfv09gj-

98y.g7ib6azychd4io5j0jy0oor72t4cpuc16u4718omvw3a63pgkn.guv  
vcu3cwif85o8rrqctx79ngetet5dgjoudmz93huz9ec3339/login

I am Certain

https://2qvd-bchd90v5o.link/news/business-47710332

I am Certain

https://accounts.google.com%2e%6f%75%65%6e%36%6e%2d%61%2e%6d%78/signin/v2/identifier?  
continue=https%3a%2f%2fmail.google.com%2fmail%2f&service=mail&sacu=1&rip=1&flowname=glifwebsigin&flowentry=servicelogin

I am Certain

https://www.facebook.latest-updates.com/

I am Certain

https://twitter.com/login

I am Certain

https://www.reddit..mx/

I am Certain

https://www.secure-facebook.com/

I am Certain

https://shopping-cart-view.com/ap/signin?  
\_encoding=utf8&ignoreauthstate=1&openid.assoc\_handle=usflex&openid.claimed\_id=http%3a%2f%2fspecs.openid.net%2fauth%2f2.0%2fidentifier\_select&openid.identity=http%3a%2f%2fspecs.openid.net%2fauth%2f2.0%2fidentifier\_select&openid.mode=checkid\_setup&openid.ns=http%3a%2f%2fspecs.openid.net%2fauth%2f2.0&openid.ns.pape=http%3a%2f%2fspecs.openid.net%2fextensions%2fpape%2f1.0&openid.pape.max\_auth\_age=0&openid.return\_to=https%3a%2f%2fwww.amazon.com%2f%3fref\_%3dnav\_custrec\_signin&switch\_account=/www.amazon.com

I am Certain

http://0xcf.0x7.0x61.0x3/world/stolen-28m-picasso-painting-found-by-indiana-jones-of-the-art-world-after-20-years

I am Certain 

## Please answer these final 16 questions.

If I discover a security problem, I continue what I was doing because I assume someone else will fix it.

- Never
- Rarely
- Sometimes
- Often
- Always

When I create a new online account, I try to use a password that goes beyond the site's minimum requirements.

- Never
- Rarely
- Sometimes
- Often
- Always

I set my computer screen to automatically lock if I don't use it for a prolonged period of time.

- Never
- Rarely
- Sometimes
- Often
- Always

I verify that my anti-virus software has been regularly updating itself

- Never
- Rarely
- Sometimes
- Often
- Always

I do not change my passwords, unless I have to

- Never
- Rarely
- Sometimes
- Often
- Always

I do not include special characters in my password if it's not

required.

- Never
- Rarely
- Sometimes
- Often
- Always

I use a password/passcode to unlock my laptop or tablet.

- Never
- Rarely
- Sometimes
- Often
- Always

I try to make sure that the programs I use are up-to-date

- Never
- Rarely
- Sometimes
- Often
- Always

When I'm prompted about a software update, I install it right away.

- Never
- Rarely
- Sometimes
- Often
- Always

I manually lock my computer screen when I step away from it.

- Never
- Rarely
- Sometimes
- Often
- Always

I submit information to websites without first verifying that it will be sent securely (e.g., SSL, "https://", a lock icon)

- Never
- Rarely
- Sometimes
- Often
- Always

When browsing websites, I mouseover links to see where they go, before clicking them

- Never
- Rarely
- Sometimes
- Often
- Always

I use a PIN or passcode to unlock my mobile phone.

- Never
- Rarely
- Sometimes
- Often
- Always

I know what website I'm visiting based on its look and feel, rather than by looking at the URL bar.

- Never
- Rarely
- Sometimes
- Often
- Always

I use different passwords for different accounts that I have

- Never
- Rarely
- Sometimes
- Often
- Always

When someone sends me a link, I open it without first verifying where it goes.

- Never
- Rarely
- Sometimes
- Often
- Always

Submit

Payment: \$3

Title:

Help researchers learn about how people understand web addresses (URLs).

HIT Description:

Key Information - You are being asked to participate in a voluntary research study. The purpose of this study is to learn how people understand web addresses (URLs). Participating in this study will involve completing an online survey and your participation will last 20-25 minutes. Risks related to this research include feeling vulnerable to phishing websites and recalling negative experiences in the past regarding falsified websites. There are no expected direct benefits to you from participation in this research. The alternative to participating in this study is to choose not to participate.

Principal Investigator Name and Title: Associate Professor Dr. Michael Bailey

Department and Institution: Department of Electrical and Computer Science at the University of Illinois at Urbana-Champaign

Contact Information: [mdbailey@illinois.edu](mailto:mdbailey@illinois.edu)

What procedures are involved?

The study procedures are a survey activity consisting of background and demographic questions, describing and demonstrating your website address reading strategy, and identifying where certain web addresses would take you.

This research will be performed at our survey website. You will enter your MTurk worker ID in our survey site so we can track your completion and pay you. You will only participate once. The survey activity is expected to last 20-25 minutes.

Will my study-related information be kept confidential?

Faculty, researchers, students, and staff who may see your information will maintain confidentiality to the extent of laws and university policies. Personal identifiers will not be published or presented. The research team will not make any attempts to link your worker ID to your identifiable information on the Internet.

Will I be reimbursed for any expenses or paid for my participation in this research?

You will be compensated \$3 for participation in this study. Compensation will not be pro-rated for partial completion of the task.

Can I withdraw or be removed from the study?

If you decide to participate, you are free to withdraw your consent and discontinue participation at any time. Your participation in this research is voluntary. Your decision whether or not to participate, or to withdraw after beginning participation, will not affect your current or future dealings with the University of Illinois at Urbana-Champaign.

The researchers also have the right to stop your participation in this study without your consent if they believe it is in your best interest.

Will data collected from me be used for any other research?

Your de-identified information could be used for future research without additional informed consent.

Who should I contact if I have questions?

If you have questions about this project, you may contact Michael Bailey at [mdbailey@illinois.edu](mailto:mdbailey@illinois.edu). If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois at Urbana-Champaign Office for the Protection of Research Subjects at 217-333-2670 or via email at [irb@illinois.edu](mailto:irb@illinois.edu).

Please print this consent form if you would like to retain a copy for your records.

I have read and understand the above consent form. I certify that I am 18 years old or older. By accepting this HIT, I indicate my willingness to voluntarily take part in this study.

# Waiver of Documentation of Informed Consent

**For Requesting a Waiver of the Documentation of Informed Consent**All forms must be typewritten and submitted via email to [irb@illinois.edu](mailto:irb@illinois.edu).**Section 1. PROTOCOL INFORMATION**

|   |
|---|
| <b>1A. Primary Investigator:</b> Michael Bailey   |
| <b>1B. Protocol Number:</b>   |
| <b>1C. Project Title:</b> Measuring Users' Ability to Parse URLs  |
| <b>1D. Is this research regulated by the US Food and Drug Administration?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

**Section 2. REQUEST FOR WAIVER OF DOCUMENTATION**

|   |
|---|
| <p>A consent procedure which does not document obtained consent through a physical signature may be approved by the IRB under certain conditions. To request IRB approval of a consent procedure which does not document consent through a physical signature, provide a response to <b>only one</b> of the following. Note that the IRB may require the investigator to provide subjects with a written statement regarding the research, even though the documentation requirement may be waived.</p> |
| <p><b>2A. The only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern. (Note: A waiver of documentation of informed consent is not permissible under this category if the research is subject to FDA regulations.)</b></p> <p>-</p>    |
| <p><b>2B. The research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside the consent.</b></p> <p>This statement applies. We will obtaining electronic consent without a signature. Participants will be recruited and participate online using the Amazon Mechanical Turk crowdsourcing platform.</p>  |
| <p><b>2C. The subjects or legally authorized representatives are members of a distinct cultural group or community in which signing forms is not the norm, the research presents no more than minimal risk of harm to subjects, and there is an appropriate alternative mechanism for documenting that informed consent was obtained.</b></p> <p>-</p>  |