

Curriculum Vitae

David Eargle

Assistant Professor
Organizational Leadership and Information Analytics
Leeds School of Business
University of Colorado Boulder

Courtesy appointment as Assistant Professor
Department of Information Science
University of Colorado Boulder

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RESEARCH INTERESTS

1. Behavioral Information Systems Security
2. Human-Computer Interaction
3. Neuroscience applications to HCI and information security

TEACHING INTERESTS

1. Data mining and business intelligence; business statistics
2. Information security management
3. Databases, business systems development, PaaS, web and mobile development, server administration

EDUCATION

PhD in Information Systems and Technology Management 2017

Katz Graduate School of Business, University of Pittsburgh, Pittsburgh, Pennsylvania, USA

- Dissertation: "Security Messages: Or, How I Learned to Stop Disregarding and Heed the Warning"

Master of Information Systems Management, Marriott School August 2013

Bachelor of Science, Information Systems, Marriott School August 2013

Marriott School of Management, Brigham Young University, Provo, Utah, USA

- Magna Cum Laude with University Honors

SCHOLARSHIP METRICS

- 649 citations per Google Scholar
- h-index of 10; i10-index of 10

REFEREED JOURNAL PUBLICATIONS

9. Vance, A., Eargle, D., Eggett, D., Straub, D., Ouimet, K. "Do Security Fear Appeals Work When They Interrupt Tasks? A Multi-Method Examination of Password Strength," *MIS Quarterly*, forthcoming.
8. Kirwan, C., Bjornn, D., Anderson, B., Vance, A., Eargle, D., Jenkins, J. 2020. "Repetition of Computer Security Warnings Results in Differential Repetition Suppression Effects as Revealed With Functional MRI," *Frontiers in Psychology*, 11, pp. 1–10.
7. Veen, Hendrik van, Nathaniel Saul, David Eargle, and Sam Mangham. "Kepler Mapper: A Flexible Python Implementation of the Mapper Algorithm." *Journal of Open Source Software* 4, no. 42 (2019): 1315.
6. Anderson, B.B., Vance, A., Kirwan, C.B., Jenkins, J. and **Eargle, D.** "From warnings to wallpaper: Why the brain habituates to security warnings and what can be done about it." *Journal of Management Information Systems*, 33, 3 (2016), 713-743. doi: [10.1080/07421222.2016.1243947](https://doi.org/10.1080/07421222.2016.1243947)
5. Anderson, B.B., Jenkins, J., Vance, A., Kirwan, C.B. and **Eargle, D.** "Your memory is working against you: How eye tracking and memory explain habituation to security warnings." *Decision Support Systems*, 92 (2016), 3-13. doi: [10.1016/j.dss.2016.09.010](https://doi.org/10.1016/j.dss.2016.09.010)
4. Jenkins, J., Anderson, B., Vance, A., Kirwan, B. and **Eargle, D.** "More harm than good? How security messages that interrupt make us vulnerable." *Information Systems Research*, 27, 4 (2016), 880-896. Awarded ISR's "Best Published Paper" for 2016. doi: [10.1287/isre.2016.0644](https://doi.org/10.1287/isre.2016.0644)
3. Anderson, B., Vance, A., Kirwan, B., **Eargle, D.** and Jenkins, J. "How users perceive and respond to security messages: A NeuroIS research agenda and empirical study." *European Journal of Information Systems*, 25, 4 (2016), 364-390. doi: [10.1057/ejis.2015.21](https://doi.org/10.1057/ejis.2015.21)
2. Anderson, B., Kirwan, B., **Eargle, D.**, Jensen, S. and Vance, A. "Neural correlates of gender differences and color in distinguishing security warnings and legitimate websites: A neurosecurity study." *Journal of Cybersecurity*, 1, 1 (2015), 109-120. doi: [10.1093/cybsec/tyv005](https://doi.org/10.1093/cybsec/tyv005)
1. Vance, A., Anderson, B.B., Kirwan, C.B. and **Eargle, D.** "Using measures of risk perception to predict information security behavior: Insights from electroencephalography (EEG)." *Journal of the Association for Information Systems*, 15, 10 (2014), 679-722.

CONFERENCE PAPERS

25. Larsen KR, Gefen D, Petter S, Eargle D. (2020) "Creating Construct Distance Maps with Machine Learning: Stargazing Trust." In Conference of the Association for

Information Systems (AMCIS 2020). Online. Awarded AMCIS' **"Best Completed Paper"** for 2020. 60% acceptance rate.

24. A Vance, D Eargle, JL Jenkins, CB Kirwan, BB Anderson. (2019) "The Fog of Warnings: How Non-Essential Notifications Blur with Security Warnings." In Fifteenth Symposium on Usable Privacy and Security (SOUPS 2019). Santa Clara, CA: USENIX Association, 2019. <https://www.usenix.org/conference/soups2019/presentation/vance>
23. Kirwan, C.B., Anderson, B., Eargle, D., Jenkins, J., and Vance, A. (2019, October). Attentional habituation to non-essential computer notifications generalizes to security warnings: an fMRI study. Program No. 665.###. Neuroscience 2019 Abstracts. Washington, DC: Society for Neuroscience, 2019. Online.
22. Anderson, B., Kirwan, B., Eargle, D., Jenkins, J., Vance, A., "Neural Evidence of Generalization of Software Notifications to Security Warnings," Security and Human Behavior Workshop, Harvard University, June 2019
21. Kirwan, C.B., Anderson, B., Eargle, D., Jenkins, J., and Vance, A. (2019, June). Using fMRI to Measure Stimulus Generalization of Software Notification to Security Warnings. Retreat on NeuroIS, Vienna, Austria. Information Systems and Neuroscience, 93-99.
20. **Eargle, D.**, Galletta, D., Shadi, J., Dimitar, K., and Shivendu, S. "The Chaos of Order: Sequence and Mindlessness Effects in Obtaining Successive App Permissions." In *Workshop on Information Security & Privacy*. Seoul, South Korea: AIS SIGSEC and IFIP TC11.1. (2017).
19. **Eargle, D.**, Galletta, D. and Jenkins, J. "How much is your security worth? Applying a risk tradeoff paradigm to explain the bimodal nature of user elaboration over interruptive security messages." In *Workshop on Information Security & Privacy*, Dublin, Ireland: AIS SIGSEC and IFIP TC11.1 (2016).
18. **Eargle, D.**, Galletta, D. and Cranor, L. "On the use of motivational components as attention hooks in security message interface design: Avoiding "tl;dr"." In *Dewald Roode Workshop on Information Systems Security Research*, Albuquerque, New Mexico: IFIP WG8.11/WG11.13 (2016).
17. **Eargle, D.**, Galletta, D., Kirwan, C. B., Vance, A., and Jenkins, J. 2016. "Integrating Facial Cues of Threat into Security Warnings – an fMRI and Field Study." Paper presented at the Americas Conference on Information Systems (AMCIS), San Diego, California.
16. Galletta, D., **Eargle, D.**, Shadi, J., Kunev, D. and Singh, S. "Integrating social and economic models of responding to privacy messages in mobile computing: A research agenda." In *Workshop on Information Security & Privacy*, Fort Worth, Texas: AIS SIGSEC and IFIP TC11.1 (2015).
15. **Eargle, D.**, Godfrey, J., Miao, H., Stevenson, S., Shay, R., Ur, B. and Cranor, L. "Poster: You can do better – motivational statements in password-meter feedback." In *Symposium on Usable Privacy and Security (SOUPS '15)*, Ottawa, CA: (2015).
14. **Eargle, D.**, Galletta, D., Kirwan, C.B. and Vance, A. "Integrating facial threat signals into security messages: An extension of media naturalness theory to an information security context." In *Dewald Roode Workshop on Information Systems Security Research*, Newark, Delaware: IFIP WG8.11/WG11.13 (2015).

13. Anderson, B., Kirwan, B., Jenkins, J., **Eargle, D.**, Howard, S. and Vance, A. "How polymorphic warnings reduce habituation in the brain: Insights from an fMRI study." In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, Seoul, South Korea: ACM (2015).
12. **Eargle, D.**, Taylor, R., Sawyer, L. and Gaskin, J. "Acquiring IS skill through habitual use." In *2014 47th Hawaii International Conference on System Sciences (HICSS)*: (2014), pp. 3-12.
11. **Eargle, D.**, Galletta, D. and Siegle, G. "Using fearful facial facial expressions to increase the effectiveness of protective security messages: Proposing an fMRI and field study." In *The Dewald Roode Workshop on Information Systems Security Research, IFIP WG8.11/WG11.13*, Newcastle, UK: (2014).
10. Anderson, B., Vance, A., Kirwan, B., **Eargle, D.** and Howard, S. "Why users habituate to security warnings: Insights from fMRI." In *The Dewald Roode Workshop on Information Systems Security Research, IFIP WG8.11/WG11.13*, Newcastle, UK: (2014).
9. Anderson, B., Vance, A., Kirwan, B., **Eargle, D.** and Howard, S. "Users aren't (necessarily) lazy: Using NeuroIS to explain habituation to security warnings." In *International Conference on Information Systems*, Auckland, New Zealand: AIS (2014).
8. Vance, A., **Eargle, D.**, Ouimet, K. and Straub, D. "Enhancing password security through interactive fear appeals: A web-based field experiment." In *2013 46th Hawaii International Conference on System Sciences (HICSS)*: (2013), pp. 2988-2997.
7. Vance, A., Anderson, B., Brock, K. and **Eargle, D.** "Using measures of risk perception to predict information security behavior: Insights from electroencephalography (EEG)." In *JAIS workshop, Gmunden Retreat on NeuroIS*, Gmunden, Austria: (2013).
6. **Eargle, D.**, Vance, A.O. and Lowry, P.B. "How moral intensity and impulsivity moderate the influence of accountability on access policy violations in information systems." In *Proceedings of the Eighth Pre-ICIS Workshop on Information Security and Privacy*: (2013).
5. Anderson, B., Vance, A., **Eargle, D.** and Kirwan, C.B. "Your memory is working against you: How eye tracking and memory explain susceptibility to phishing." In *The Dewald Roode Workshop on Information Systems Security Research, IFIP WG8.11/WG11.13*: (2013).
4. Anderson, B., Vance, A. and **Eargle, D.** "Is your susceptibility to phishing dependent on your memory?" In *Proceedings of the Eighth Pre-ICIS Workshop on Information Security and Privacy*, Milan, Italy: (2013).
3. Vance, A., **Eargle, D.**, Ouimet, K. and Straub, D. "How interactivity can enhance the effectiveness of fear appeals: A web-based field experiment of password security." In *The Dewald Roode Workshop on Information Systems Security Research, IFIP WG8.11/WG11.13*, Provo, UT: (2012).
2. **Eargle, D.**, Vance, A., Allen, G., Barrick, D., Bearnson, T. and Tialin, T. "Justifying breaking the glass: How accountability can deter unauthorized access." In *WISP 2012 Proceedings*, Orlando, Florida: AIS SIGSEC and IFIP TC11.1 (2012).
1. Anderson, B., Vance, A., Hansen, J., Kirwan, B., **Eargle, D.**, Hinkle, L. and Weagel, A. "Neural correlates of gender differences in distinguishing malware warnings and legitimate websites: A NeuroIS study." In *IFIP WG8.11/WG11.13*, Provo, UT: (2012).

SELECT CREATIVE WORKS

1. Eargle, David, Gureckis, Todd, Rich, Alexander S., McDonnell, John, & Martin, Jay B. (2020, January 6). psiTurk: An open platform for science on Amazon Mechanical Turk (Version v2.3.7). Zenodo. <http://doi.org/10.5281/zenodo.3598652>

TEACHING EXPERIENCE

Leeds School of Business, University of Colorado

Fall 2017 - Present

- Information Security Management
- Business Analytics
 - covering topics such as text mining, association rules, k-means clusters, regressions, and correlations

College of Business Administration at the University of Pittsburgh

- Database Management Spring 2017
 - Taught relational database structures and data querying in MySQL and R to Juniors and Seniors from various departments
- Introduction to Information Systems Management Fall 2015
 - Full responsibility for a class of 60 undergraduate students from various departments of the University of Pittsburgh's College of Business Administration.
 - Complete direction over course curriculum, policies, and syllabus.

Katz Graduate School of Business at the University of Pittsburgh

Fall 2013 – 2015

- Taught four beginner-to-advanced-level Microsoft Excel workshops to part-time Katz MBA students

Department of Information Systems

Summer 2013

Marriott School of Management, Brigham Young University

- Full responsibility for four college-level class sections on computer spreadsheet skills, with total enrollment of over 270 across four sections. Mix of online plus in-class teaching. Oversight of three teaching assistants.
- Overall instructor and course evaluations per course-section:

OTHER WORK EXPERIENCE

- Research Assistant** Fall 2011 to Summer 2013
Department of Information Systems at Brigham Young University
- Digital Forensics Analyst Intern at Paraben Corporation** Summer 2012
Paraben Corporation, Ashburn, VA
- Network and Systems Administrator** Fall 2011 to Spring 2012
Better Logic LLC, Orem, UT
- Web Developer** Fall 2010 to Winter 2012
Center for Teaching and Learning, BYU

SERVICE

- Director of Security Analytics track within the Masters of Business Analytics degree at Leeds – University of Colorado Boulder** Fall 2017 to Present
- Developed a proposal for a track with a pioneering collaboration between the school of business and school of engineering at CU Boulder
 - Supervise graduate students who enrolled in the track.
 - Point-person from Leeds meeting with directors of the interdisciplinary telecom program from the school of engineering.
 - Ambassador for the track; In charge of reach-out to and bond-forming with industry partners, including Webroot, IBM, and Crowdstrike.
- JMIS Website Editor** 2014 to Present
Manage the web presence at <http://jmis-web.org> for the Journal of Management Information Systems, working directly with Vladimir Zwass.
- AIS IS Theory Wiki Editor** Fall 2011 to Present
Information Systems Theory Community Wiki, <http://istheory.byu.edu>, associated with the Association for Information Systems
- psiTurk Project Leader** June 2016 to present
An open platform for science on Amazon Mechanical Turk, hosted on github. Used by researchers around the world.
- Ad Hoc Reviewer**
- ISR, MISQ, EJIS, ECIS, ICIS, HICSS, CAIS, WISP, and The Dewald Roode Workshop on Information Systems Security Research, IFIP WG8.11/WG11.13

HONORS AND AWARDS

- Fellowships
 - NSF Graduate Research Fellow (DGE-1247842) - \$132,000
 - GAR Foundation Fellow - \$24,000
- Grants
 - David Berg Center for Ethics and Leadership at the University of Pittsburgh - \$8,420
 - Brigham Young University Marriott School of Business - \$1,000
 - Rollins Center for Entrepreneurship & Technology (2013) - \$4,000
- Scholarships
 - Brigham Young University Undergraduate Scholarship - \$8,278
 - BYU Masters of Information Systems Management Scholarship - \$4,380
 - Robert K. Thomas BYU Honors Department Scholarship - \$1,488
 - Khona Family BYU Honors Department Scholarship - \$1,488
 - Ella M. Herman Scholarship - \$1,054
- AIS Global Competition 2012, Windows Phone Development Track, 2nd Place Worldwide

COMPUTER SKILLS

- Statistics
 - R (dplyr, ggplot2), SAS, SPSS, python pandas/scipy/numpy
- Databases
 - MySQL, MS Access, NoSQL (Google cloud datastore)
- Data mining and business intelligence
 - R, python scikit-learn, RapidMiner
- Scripting & programming
 - Bash
 - Python
 - php
 - VBA for Excel
 - Powershell
 - Java
 - C#
- Web development
 - Python, php (slim, CakePHP, propel), javascript/jquery, html/css/less, bootstrap (tbs), bower, npm & grunt, python flask, pip, ruby (rvm, RoR, Jekyll), markdown, twig/Jinja2
- Web Hosting
 - Nginx, apache, gunicorn, Red Hat openshift, amazon web services (s3, ec2, cloudfront, route 53)
- Server administration
 - Linux (Debian), vim
 - Windows server (active directory and group policies)
 - Vagrant, docker

PROFESSIONAL AFFILIATIONS

- IFIP Working Group 8.11/11.13, "Information Systems Security Research" Active Member
- Association for Information Systems Member

FOREIGN LANGUAGE

- Spanish