

Eric Spero, PhD

Research Fellow, School of Computer Science
University of Auckland
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EDUCATION

Doctor of Philosophy, Computer Science June 2023
Carleton University, Ottawa, Canada

- THESIS: *User Interfaces, Mental Models, and Cybersecurity*
 - Supervisor: Robert Biddle
- Courses:
 - Visual Analytics (A+)
 - Systems and Architecture for Electronic Commerce (A+)
 - Computer Security and Usability (A+)

Master of Arts, Human-Computer Interaction June 2018
Carleton University, Ottawa, Canada

- THESIS: *A Non-Linear Electronic Textbook Format to Facilitate Deep Learning*
 - Supervisors: Robert Biddle, Ali Arya

Bachelor of Cognitive Science, Honours, Cognitive Science Nov. 2014
with Specialization in Language and Linguistics
Carleton University, Ottawa, Canada

- THESIS: *Construction Grammar and the Argument-Adjunct Distinction*
 - Supervisor: Ida Toivonen
- Graduated with high distinction

AWARDS

Senate Medal for Outstanding Academic Achievement, Doctoral	2023
NSERC Alexander Graham Bell Canada Graduate Scholarship	2020–2023
Ontario Graduate Scholarship	2019–2020
Senate Medal for Outstanding Academic Achievement, Undergraduate	2014
E.W.R. Steacie Scholarship	2013
Hyman Soloway Scholarship	2012
Gerhard Herzberg Scholarship	2011
Dean's Honour List	2010–2013

PROFESSIONAL SKILLS

Research: Quantitative and qualitative research design and analysis; UI/UX design; conducting studies with human participants; parametric, non-parametric, and Bayesian methods of statistical analysis; academic writing and presentation

Software: R, MATLAB, Web development (JavaScript, HTML, CSS, d3.js), Python, C, C++, Java, SQL, Linux administration, Bash, Latex, Lisp, ACT-R

WORK EXPERIENCE

Instructor of Record, Usable Security and Privacy Engineering (graduate course) Jul. 2025–present
School of Computer Science, University of Auckland

Auckland, New Zealand

- Designed and developed a new graduate-level course focused on critical engagement with foundational and landmark papers in Usable Security and Privacy
- Delivered lectures and facilitated seminar-style discussions
- Created and administered assessments (quizzes, presentations, research paper, final exam) to build students' research and critical analysis skills

Research Fellow

Dec. 2024–present

School of Computer Science, University of Auckland

SECRET Lab

Manager: Giovanni Russello

Auckland, New Zealand

- Helping supervise graduate students on various anti-phishing cybersecurity projects, including:
 - Multi-agent LLM to detect phishing and explain rationales to users
 - Systematic literature review on in-situ phishing support in mail clients
 - Systematic literature review on in-situ security support for programmers
- Continued work on phishing simulation study with Pacific Island country

Research Associate

June 2023–Dec. 2024

Carleton University

HotSoft Research Laboratory

Supervisor: Robert Biddle

Ottawa, Canada

- Performed further analyses on research data, leading to multiple publications.
- Statistically analyzed data from a longitudinal phishing simulation study and presented findings in monthly reports
- Collaborated with Pacific Island partners to identify and resolve operational issues in conducting the study
- Conducted literature reviews related to in-situ security support for developers: cognitive science foundations, related works, and studies on developer behaviour, identifying key gaps and requirements for developing a novel security tool
- Informally co-supervised Undergraduate Honours project on a UI tool for building mental models of website security

Research Assistant

May 2019–Apr. 2020

National Research Council Canada

Flight Research Laboratory

NSERC CLUE

Supervisor: Andrew Law, PhD (Biomedical Engineering)

Ottawa, Canada

- Analyzed functional neuroimaging data from cognitive performance tasks using MATLAB, investigating whether cognitive strategy can be inferred using objective measures
- Modified existing ACT-R models of cognitive performance tasks by programming in LISP, and evaluated model performance against human subjects data to assess accuracy

Research Assistant

May 2018–June 2023

Carleton University

HotSoft Research Laboratory

Supervisor: Robert Biddle

Ottawa, Canada

- Built early prototype for an ‘evidence browser’—a web application to help intelligence analysts manage evidence documents—using JavaScript, Node.js, and MongoDB
- Designed and led a driving simulation workshop for SHAD summer enrichment program, facilitating discussions on related research topics
- Co-led workshop on using the R programming language in HCI research as part of the NSERC CLUE initiative
- Presented research to incoming HCI graduate students during orientation, offering a glimpse into their future academic and research journey

Teaching Assistant

Sept. 2015–May 2022

Carleton University

Ottawa, Canada

Courses: Introduction to Programming and Problem Solving (BIT 1400), Intermediate Programming (BIT 2400), Introductory Psychology (PSYC 1000), Introduction to Cognitive Psychology (PSYC 2700), Computing for Arts Students (COMP 1001), Human-Computer Interaction (COMP 3008)

- Explaining technical concepts using everyday language and helping students improve their work through tutorials, office hours, email correspondence, and assessments/feedback

Junior Technical Analyst

Apr.–Aug. 2013

Carleton University

Computing and Communication Services, Ancillary Systems

Ottawa, Canada

- Implemented and documented procedures for data retention and server configuration
- Implemented UI changes to Carleton University websites

SAP Business Analyst

Apr.–Aug. 2012

Department of National Defence

Defence Resource Management Information System—Support

Ottawa, Canada

- Created and edited Business Process Procedures, documents for learning and executing business processes in the DND’s SAP-based information integration system
- Interviewed stakeholders to improve educational/archival utility of BPPs

PUBLICATIONS

Peer-reviewed journals

E. Spero and R. Biddle. The ‘home-away’ model for home and online security, 2025. Manuscript in submission at ACM Transactions on Privacy and Security

E. Spero and R. Biddle. Site Inspector: improving browser communication of website security information. *ACM Transactions on Privacy and Security*, Apr. 2025. DOI: 10.1145/3726867. URL: <https://doi.org/10.1145/3726867>

M. Stojmenović, **E. Spero**, M. Stojmenović, and R. Biddle. What is beautiful is secure. *ACM Transactions on Privacy and Security*, 2022. doi: 10.1145/3533047

- I co-led the statistical analysis and interpretation of study results, as well as situating the findings within the broader literature.

Peer-reviewed conferences

E. Spero, L. Betts, I. Seow, E. Fuatimau, R. Biddle, D. Lottridge, and G. Russello. Language as lure: a naturalistic study on Pasifika phishing susceptibility. In *USENIX Symposium on Security and Privacy (SOUPS) 2025*, Seattle, WA, USA. ACM, 2025. URL: <https://www.usenix.org/conference/soups2025/presentation/spero>

L. Betts, **E. Spero**, D. Lottridge, R. Biddle, and G. Russello. Detecting malicious email content concealment with text similarity metrics, 2025. URL: <https://aisel.aisnet.org/pacis2025/security/security/6>

- I assisted with statistical analysis and visualization of the study results.

E. Spero and R. Biddle. Out of sight, out of mind: UI design and the inhibition of mental models of security. In *New Security Paradigms Workshop (NSPW) 2020*, Online, USA. ACM, 2020. doi: 10.1145/3442167.3442174

E. Spero and R. Biddle. Home and away: UI design patterns for supporting end-user security. In *2020 European Conference on Pattern Languages of Programs (EuroPLoP)*, Virtual event, Germany. ACM, July 2020. doi: 10.1145/3424771.3424780

E. Spero, M. Stojmenović, S. Chiasson, and R. Biddle. Control and understanding in malware and legitimate software. In *2019 APWG Symposium on Electronic Crime Research (eCrime)*, Pittsburgh, PA, USA. IEEE, Nov. 2019. doi: 10.1109/eCrime47957.2019.9037597

M. Stojmenović, **E. Spero**, T. Oyelowo, and R. Biddle. Website identity notification: testing the simplest thing that could possibly work. In *17th International Conference on Privacy, Security and Trust (PST)*, Fredericton, NB, Canada. IEEE, Aug. 2019. doi: 10.1109/PST47121.2019.8949048

- I assisted with statistical analysis and interpretation of the study results.

E. Spero, M. Stojmenović, A. Arya, and R. Biddle. Learning with trees: a non-linear e-textbook format for deep learning. In *Learning and Collaboration Technologies. Designing Learning Experiences*. 21st International Conference on Human-Computer Interaction (HCI), Orlando, FL, USA. Springer, July 2019. ISBN: 978-3-030-21814-0. doi: 10.1007/978-3-030-21814-0_31

Peer-reviewed posters

E. Spero, M. Stojmenović, Z. Hassanzadeh, S. Chiasson, and R. Biddle. Mixed pictures: mental models of malware. In *17th International Conference on Privacy, Security and Trust (PST)*, Fredericton, NB, Canada. IEEE, Aug. 2019. doi: 10.1109/PST47121.2019.8949030

E. Spero, M. Stojmenović, and R. Biddle. Helping users secure their data by supporting mental models of VeraCrypt. In *HCI International 2019 - Posters, Part I*, Orlando, FL, USA. Springer, July 2019. ISBN: 978-3-030-23522-2. doi: 10.1007/978-3-030-23522-2_27

Non-peer-reviewed conferences

E. Spero and R. Biddle. Security begins at home: everyday security behaviour and lessons for cybersecurity research. In *26th Conference on Pattern Languages of Programs (PLoP)*, Ottawa, ON, Canada. ACM, Oct. 2019. URL: <https://dl.acm.org/doi/10.5555/3492252.3492279>

E. Spero, M. Stojmenović, A. Arya, and R. Biddle. Creating a non-linear textbook format to facilitate deep learning. In *INTED2019 Proceedings*, 13th International Technology, Education and Development Conference, Valencia, Spain. IATED, Mar. 2019. DOI: 10.21125/inted.2019.0753

CONFERENCE PRESENTATIONS

<i>21st USENIX Symposium on Usable Privacy and Security</i>	Aug. 2025
<i>Pacific Asia Conference on Information Systems 2025</i>	Jul. 2025
<i>New Security Paradigms Workshop 2020</i>	Oct. 2020
<i>42nd Annual Virtual Meeting of the Cognitive Science Society</i>	July 2020
<i>14th Symposium on Electronic Crime Research</i>	Nov. 2019
<i>21st International Conference on Human-Computer Interaction</i>	July 2019
<i>23rd Annual CyberPsychology, CyberTherapy & Social Networking Conference</i>	June 2018

PERSONAL INTERESTS

Linux/open source software:

- Author of *foreground* patch for dwm window manager (<https://dwm.suckless.org/patches/foreground/>; written in C)
- Self-hosted email (postfix + dovecot), web (apache, nginx), and XMPP (prosody) servers
- Submitting bug reports (e.g. https://bugzilla.kernel.org/show_bug.cgi?id=215880)
- Volunteer support on Gentoo Linux Discord server