

William C. Garrison III, Ph.D.

Curriculum Vitæ

Department of Computer Science
University of Pittsburgh
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Education

University of Pittsburgh
August 2009–December 2015
Ph.D. in Computer Science
Advisor Dr. Adam J. Lee
Dissertation Techniques for Application-Aware Suitability Analysis of Access Control Systems

Clarkson University
August 2005–May 2009
B.S. in Computer Science *GPA 3.88*
B.S. in Physics *GPA 3.95*
Overall GPA 3.83

Appointments

Department of Computer Science, University of Pittsburgh

Teaching Assistant Professor (Fall 2022–Present)
Lecturer (Fall 2017–Summer 2022)
Visiting Lecturer (Fall 2015–Summer 2017)
Part-time Instructor (Spring 2015)
Graduate Student Researcher (Fall 2011–Summer 2015)
Teaching Assistant (Fall 2010–Spring 2011, Spring 2014)

School of Computing and Information, University of Pittsburgh

Assistant Dean (Spring 2020–Present)

Teaching and Research Awards

Summer Undergraduate Research Award (Mentor) Joan Campana and William C. Garrison III, “The Manifestation of Beauty Archetypes in Selfies,” Awarded by Office of Undergraduate Research, Scholarship, and Creative Activity (Dietrich School of Arts and Sciences), April 2020.

Innovation in Education Award “A Flexible and Scalable Approach to Multidisciplinary Introductory Computer Science,” Awarded by Office of the Provost (University of Pittsburgh), April 2019.

Curiosity Grant (Mentor) Andrew Stengel and William C. Garrison III, “Driver Distraction Mitigation Techniques,” Awarded by Office of Undergraduate Research, Scholarship, and Creative Activity (Dietrich School of Arts and Sciences), December 2018.

Summer Undergraduate Research Award (Mentor) Andrew Stengel and William C. Garrison III, “Driver Distraction Mitigation Techniques,” Awarded by Office of Undergraduate Research, Scholarship, and Creative Activity (Dietrich School of Arts and Sciences), March 2018.

SIGSAC Doctoral Dissertation Award Runner-up “Techniques for Application-Aware Suitability Analysis of Access Control Systems,” Awarded by ACM Special Interest Group on Security, Audit, and Control (SIGSAC), October 2016.

Summer Undergraduate Research Award (Mentor) George Hoesch and William C. Garrison III, “Private But Not Broken: Practically Blocking Web Trackers without Extensive Configuration,” Awarded by Office of Undergraduate Research, Scholarship, and Creative Activity (Dietrich School of Arts and Sciences), April 2016.

dB-SERC Mentor-Mentee Evidence-Based Teaching Award William C. Garrison III and Adam J. Lee, Awarded by the Discipline-Based Science Education Research Center (University of Pittsburgh), March 2015.

Outstanding Paper Award William C. Garrison III, Yechen Qiao, Adam J. Lee, “On the Suitability of Dissemination-centric Access Control Systems for Group-centric Sharing,” in *Proceedings of the Fourth ACM Conference on Data and Application Security and Privacy (CODASPY): 1-12*, March 2014.

Research Competition Winner “Suitability and Dissemination-centric vs. Group-centric Sharing,” in *14th Annual Computer Science Day*, Awarded by the Department of Computer Science (University of Pittsburgh) and Compunetix, March 2014.

Teaching Experience

Instructor, University of Pittsburgh

CS 1653: Applied Cryptography and Network Security (Spring 2015, Spring 2016, Fall 2018, Fall 2019, Fall 2020, Fall 2022, Fall 2023)

CS 0441: Discrete Structures for Computer Science (Summer 2017, Fall 2017, Summer 2018, Spring 2019, Summer 2019, Summer 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023)

CS 1501: Algorithm Implementation (Fall 2015, Spring 2017, Spring 2018, Spring 2019, Fall 2019, Spring 2020, Summer 2022, Summer 2023)

CS 1657: Privacy in the Electronic Society (Spring 2021, Spring 2022, Spring 2023)

CS 0445: Data Structures (Fall 2015, Spring 2016, Summer 2016, Fall 2016, Spring 2017, Summer 2017, Fall 2017, Summer 2018, Fall 2018, Summer 2019, Fall 2019, Summer 2020, Summer 2021, Summer 2022)

CS 1699: Privacy in the Electronic Society (Spring 2018, Spring 2019, Spring 2020, Summer 2020)

CS 0008: Introduction to Computer Programming with Python (Spring 2016, Summer 2016, Summer 2017, Summer 2018)

Technology Leadership Initiative: High School Academy (Summer 2014)

Teaching Assistant, University of Pittsburgh

CS 1653: Applied Cryptography and Network Security (Spring 2014)

CS 0449: Introduction to Systems Software (Spring 2011)

CS 0007: Introduction to Programming (Fall 2010)

Teaching Assistant, Clarkson University

MA 231: Calculus III (Spring 2007, Spring 2009)

Individual & Group Tutor, Clarkson University

PH 131: Physics I (Spring 2006, Spring 2008)

MA 131: Calculus I (Spring 2006)

School and Departmental Service

School of Computing and Information, University of Pittsburgh

Diversity, Equity, and Inclusion Committee (2021-present)

Undergraduate Transfer Admissions Committee (Chair, 2020-present)

Faculty Recruitment, Quantum (2021, 2023)

Equity and Inclusion in Teaching, Community of Practice (2022-2023)

Academic Council (2018-2021)

Department of Computer Science, University of Pittsburgh

GREAT: Graduate Evaluation, Assignment & Training Committee (2015-2018; chair, 2023-present)

TAT: TA Assignment and Training Committee (Co-Chair, 2018-2022)

Faculty Advisor, Information Security Club (2016-2022)

UGRAC: Undergraduate Recruiting & Advising Committee (2015-2022)

Undergraduate Assessment Committee (2015-2019)

Student Outreach Committee (2015-2018; Chair, 2016-2018)

CS Day Committee (2015-2016)

Research Interests

My research interests are based in the formal study of computer systems to better understand the practical implications of security decisions. My dissertation work is in access control suitability analysis: given the requirements of an application, choose the access control system that is most well-suited to that application among those that are expressive enough to safely satisfy it. This is in contrast to traditional access control evaluation, which is application-agnostic and deems the most expressive system the best. To this end, I am developing techniques that evaluate access control systems while considering application-sensitive requirements and evaluation metrics (both qualitative and quantitative).

My other research interests include end-user web privacy tools and adversarial examples in neural networks for classification.

Publications

Book Chapters

- [B21a] **William C. Garrison III** and Adam J. Lee, “Dynamic Access Control Using Identity-Based Encryption,” in *Encyclopedia of Cryptography, Security and Privacy*, 5 pages, March 2021.

Refereed Conference and Workshop Papers

- [C16a] **William C. Garrison III**, Adam Shull, Steven Myers, and Adam J. Lee, “On the Practicality of Cryptographically Enforcing Dynamic Access Control Policies in the Cloud,” in *Proceedings of the 37th IEEE Symposium on Security and Privacy (S&P)*: 819–838, May 2016.

- Extended version of this paper listed as [T16a].

- [C15a] **William C. Garrison III** and Adam J. Lee, “Decomposing, Comparing, and Synthesizing Access Control Expressiveness Simulations,” in *Proceedings of the 28th IEEE Computer Security Foundations Symposium (CSF)*: 18–32, July 2015.

- Extended version of this paper listed as [T15a].

- [C14b] **William C. Garrison III**, Adam J. Lee, and Timothy L. Hinrichs, “An Actor-Based, Application-Aware Access Control Evaluation Framework,” in *Proceedings of the 19th ACM Symposium on Access Control Models and Technologies (SACMAT)*: 199–210, June 2014.

- Extended version of this paper listed as [T13a].

- [C14a] **William C. Garrison III**, Yechen Qiao, and Adam J. Lee, “On the Suitability of Dissemination-centric Access Control Systems for Group-centric Sharing,” in *Proceedings of the Fourth ACM Conference on Data and Application Security and Privacy (CODASPY)*: 1–12, March 2014.

- Proofs of theorems in this paper listed as [T14a].

- [C13a] Timothy L. Hinrichs, Diego Martinoia, **William C. Garrison III**, Adam J. Lee, Alessandro Panebianco, and Lenore Zuck, "Application-Sensitive Access Control Evaluation using Parameterized Expressiveness," in *Proceedings of the 26th IEEE Computer Security Foundations Symposium (CSF)*: 145–160, June 2013.
- Extended version of this paper listed as [T13b].
- [C12a] **William C. Garrison III**, Adam J. Lee, and Timothy L. Hinrichs, "The Need for Application-Aware Access Control Evaluation," in *Proceedings of the 2012 New Security Paradigms Workshop (NSPW)*: 115–126, September 2012.
- [C11a] Timothy L. Hinrichs, **William C. Garrison III**, Adam J. Lee, Skip Saunders, and John C. Mitchell, "TBA: A Hybrid of Logic and Extensional Access Control Systems," in *Proceedings of the 8th International Workshop on Formal Aspects of Security & Trust (FAST)*: 198–213, September 2011.
- Extended version of this paper listed as [T11a].

Technical Reports

- [T16a] **William C. Garrison III**, Adam Shull, Steven Myers, and Adam J. Lee, "On the Practicality of Cryptographically Enforcing Dynamic Access Control Policies in the Cloud (Extended Version)," Technical Report arXiv:1602.09069 (arxiv.org/abs/1602.09069), 26 pages, April 2016.
- Extended version of [C16a].
- [T15a] **William C. Garrison III** and Adam J. Lee, "Decomposing, Comparing, and Synthesizing Access Control Expressiveness Simulations (Extended Version)," Technical Report arXiv:1504.07948 (arxiv.org/abs/1504.07948), 24 pages, April 2015.
- Extended version of [C15a].
- [T14a] **William C. Garrison III**, Yechen Qiao, and Adam J. Lee, "On the Suitability of Dissemination-centric Access Control Systems for Group-centric Sharing (Full Proofs)," cs.pitt.edu/~bill/pubs/T14a.pdf, 61 pages, January 2014.
- Proofs of theorems in [C14a].
- [T13b] Timothy L. Hinrichs, Diego Martinoia, **William C. Garrison III**, Adam J. Lee, Alessandro Panebianco, and Lenore Zuck, "Application-Sensitive Access Control Evaluation using Parameterized Expressiveness (Extended Version)," cs.pitt.edu/~bill/pubs/T13b.pdf, 41 pages, April 2013 [PDF]
- Extended version of [C13a].
- [T13a] **William C. Garrison III**, Adam J. Lee, and Timothy L. Hinrichs, "The Design and Demonstration of an Actor-Based, Application-Aware Access Control Evaluation Framework," Technical Report arXiv:1302.1134 (arxiv.org/abs/1302.1134), 27 pages, February 2013.

- Extended version of [C14b].

[T11a] Timothy L. Hinrichs, **William C. Garrison III**, Adam J. Lee, Skip Saunders, and John C. Mitchell, "TBA: A Hybrid of Logic and Extensional Access Control Systems (Extended Version)," University of Pittsburgh Dept. of Computer Science Tech. Report No. TR-11-182, 32 pages, September 2011.

- Extended version of [C11a].

Selected Presentations

Invited talk "Applications of Cryptographic Constructions in Cryptocurrency," Clarkson University, Department of Computer Science, October 2020.

Invited talk "The RiDE Language for Blocking (Mobile) Web Trackers," Duquesne University, Department of Computer Science, March 2018.

Conference presentation "On the Practicality of Cryptographically Enforcing Dynamic Access Control Policies in the Cloud," 37th IEEE Symposium on Security and Privacy (S&P), May 2016.

Conference presentation "An Actor-Based, Application-Aware Access Control Evaluation Framework," 18th ACM Symposium on Access Control Models and Technologies (SACMAT), June 2014.

Conference presentation "On the Suitability of Dissemination-centric Access Control Systems for Group-centric Sharing," Fourth ACM Conference on Data and Application Security and Privacy (CODASPY), March 2014.

Colloquium talk "Application-Sensitive Access Control Evaluation using Parameterized Expressiveness," Food for Thought Graduate Colloquium Series, University of Pittsburgh, Department of Computer Science, October 2013.

Conference presentation "Application-Sensitive Access Control Evaluation using Parameterized Expressiveness," 26th IEEE Computer Security Foundations Symposium (CSF), June 2013.

Colloquium talk "The Need for Application-Aware Access Control Evaluation," Coffee Hour Talks, University of Pittsburgh, Department of Computer Science, October 2012.

Workshop presentation "The Need for Application-Aware Access Control Evaluation," 2012 New Security Paradigms Workshop (NSPW), September 2012.

Professional Service

Conference and Workshop Organizing Committees

Poster Co-Chair, 21st ACM Symposium on Access Control Models and Technologies (SACMAT 2016)

Conference and Workshop Program Committees

Workshop on Privacy in Collaborative & Social Computing (PiCSoc 2016)

Journal Reviewer

Elsevier Computers & Security

IEEE Transactions on Dependable and Secure Computing

ACM Transactions on Privacy and Security

Journal of Computer Security

External Reviewer

Privacy Enhancing Technologies Symposium (PETS 2013, 2014, 2017, 2018, 2019)

European Symposium on Research in Computer Security (ESORICS 2012, 2013, 2014, 2015, 2016)

ACM Symposium on Information, Computer and Communications Security (ASIACCS 2015, 2016)

IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2013, 2014, 2015)

ACM Symposium on Access Control Models and Technologies (SACMAT 2013, 2014, 2015)

ACM Conference on Data and Application Security and Privacy (CODASPY 2013, 2014, 2015)

Annual Computer Security Applications Conference (ACSAC 2013, 2014)

International Conference on Security and Cryptography (SECRYPT 2013, 2014)

ACM Workshop on Privacy in the Electronic Society (WPES 2013)

ERCIM Workshop on Security and Trust Management (STM 2013)

International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2013)