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Carnegie Mellon University
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Last Updated: 6/19/2023

Education

NORTH CAROLINA STATE UNIVERSITY   05/2009
Doctorate of Philosophy in Computer Science; Advisor: Annie I. Antón

UNIVERSITY OF OREGON   12/2003
Bachelor of Science in Computer and Information Science
Awarded Departmental Honors

UNIVERSITY OF HOUSTON   05/1999
Bachelor of Arts in Anthropology

Research and Teaching Experience

CARNEGIE MELLON UNIVERSITY
Software and Societal Systems Department
Pittsburgh, Pennsylvania

(08/2019–Present)   Associate Professor with Indefinite Tenure.

(04/2019-Present)   Director of the Masters of Software Engineering Professional Programs: Providing leadership in administrative, financial and program planning for a suite of professional Masters degrees in software engineering.

(08/2016–08/2019)   Associate Professor.

(08/2010–07/2016)   Assistant Professor: Conducting research and teaching on requirements, software engineering, and legal compliance-related topics.

NATIONAL SECURITY AGENCY
Research Directorate, Maryland

(11/2017-10/2018)   Senior Researcher. Conducts research in privacy, security and systems engineering, and explores technology transition opportunities.

INSTITUTE FOR DEFENSE ANALYSES
Information Technology and Systems Division
Alexandria, Virginia

(06/2009–8/2010)   Research Staff Member: Multiple projects funded under the Office of the Secretary of Defense, include Defense Research and Engineering (DDR&E)

NORTH CAROLINA STATE UNIVERSITY
College of Engineering, Department of Computer Science

Raleigh, North Carolina

(09/2004–05/2009)   Research Assistant to Dr. Annie I. Antón: Developed systematic, formal methods to acquire and model legal security and privacy requirements for trustworthy and dependable information systems. Project funded by the IBM PhD Fellowship awarded by the IBM Center for Advanced Studies, Research Triangle Park, NC

PURDUE UNIVERSITY
Center for Education and Research in Information Assurance and Security
West Lafayette, Indiana

(05/2006–8/2006)   Research Assistant to Dr. Annie I. Antón, Dr. Eugene H. Spafford: Analyzed U.S. Federal regulations to acquire privacy and security access requirements to manage ambiguity, conflicts and complex exceptions. Project funded by NSF ITR CyberTrust *Policy-Driven Framework for Online Privacy Protection* (NSF 043-0166)

IBM THOMAS J. WATSON RESEARCH CENTER
Department of Privacy Enabling Technology
Hawthorne, New York

(05/2005–08/2005)   Research Assistant to Dr. Claire-Marie Karat: Analyzed organizational security policies from several large organizations and security standards (ISO 27000 series, NIST SP 800 series, etc.) Evaluated existing policy languages (EPAL, P3P, XACML) for mapping between human- and machine-readable policies.

OAK RIDGE NATIONAL LABORATORY
Applied Software Engineering Research Group
Oak Ridge, Tennessee

(04/2004–08/2004)   Research Assistant to Dr. Robert Patton: Researched terrorist attack scenario prediction techniques from sparse, open source intelligence; developed methods and interactive tools to reduce polysemy in place-name geo-location.

(06/2003–08/2003)   Research Assistant to Dr. Thomas E. Potok: Applied ontology to hierarchical clustering on semi-structured data for information retrieval from document repositories.

Professional Positions and Memberships

Member of the IFIP Working Group 2.9 on Requirements Engineering, since May 2015
Chair of the Security and Privacy Committee of the USACM, 2012-2015
Member of the Executive Council of the USACM, 2014-2015
Member (at large) of the U.S. Public Policy Council of the ACM, 2011, re-appointed through 2013
Member of the CMU Masters of Software Engineering Executive Committee, since Dec. 2012
Member of the International Association of Privacy Professionals, since September 2010
Member of the U.S. Public Policy Committee of the ACM, since June 2006
Member of the IBM Data Governance Council, February 2005-2006
Member of the IEEE Computer Society, since January 2006, Senior Member since 2014
Member of the ACM Special Interest Group on Software Engineering (SIGSOFT), since August 2006
Member of the Privacy Place, a CERIAS Affiliate, since September 2004
Member of Institute for Electrical and Electronics Engineers (IEEE), since January 2004
Member of Association for Computing Machinery (ACM), since August 2003, Senior Member since 2014

Steering, Organizing and Program Committees and Editorships

Organizing Committee Member, Journal First Track Co-Chair, *32nd IEEE International Requirements Engineering Conference (RE'24)*, Reykjavik, Iceland, 2024.

Program Committee Member, Doctoral Symposium, *31st IEEE International Requirements Engineering Conference (RE'23)*, Hannover, Germany, 2023.

Program Committee Member, Research Track, *31st IEEE International Requirements Engineering Conference (RE'23),* Hannover, Germany, 2023.

Program Committee Member, *29th International Working Conference on Requirements Engineering: Foundation for Software Quality* (REFSQ), Barcelona, Catalunya, Spain, 2023.

Steering Committee Member, *IEEE International Requirements Engineering Conference*, September 2019-August 2024.

Editorial Board Member, *Transactions on Software Engineering Methodology (TOSEM)*, September 2018-September 2023

Program Committee Member, *44td ACM/IEEE International Conference on Software Engineering,* Pittsburgh, USA, May 2022.

Program Committee Member, RE:Next! Track, *30th IEEE International Requirements Engineering Conference (RE'22),* Melbourne, Victoria, Australia, 2022.

Program Committee Member, Doctoral Symposium, *28th International Working Conference on Requirements Engineering: Foundation for Software Quality* (REFSQ), United Kingdom, 2022.

Program Committee Member, *29th IEEE International Requirements Engineering Conference (RE'21),* Notre Dame, South Bend, USA, 2021.

Program Committee Member, *27th International Working Conference on Requirements Engineering: Foundation for Software Quality* (REFSQ), Essen, Germany, 2021.

Doctoral Symposium Co-Chair, *27th International Working Conference on Requirements Engineering: Foundation for Software Quality* (REFSQ), Essen, Germany, 2021.

Program Co-Chair, *28th IEEE International Requirements Engineering Conference (RE'20),* Zurich, Switzerland, September 2020.

Program Committee Member, *42nd ACM/IEEE International Conference on Software Engineering,* Seoul, South Korea, May 2020.

Program Committee Member, *27th IEEE International Requirements Engineering Conference (RE'19),* Jeju Island, South Korea, September 2019.

Program Committee Member, Doctoral Symposium, *41st ACM/IEEE International Software Engineering Conference*, Montreal, Canada, September 2019.

Co-Organizing Chair, *SCORE Workshop on Computational Cybersecurity in Compromised Environments (C3E)*, Georgia Tech University, September 16-18, 2018.

Program Committee Member, *26th IEEE International Requirements Engineering Conference (RE'18),* Banff, Canada, September 2018.

Program Committee Member, *40th ACM/IEEE International Conference on Software Engineering*, 2018.

Program Co-Chair, *RE:Next! Track at the 24th IEEE International Requirements Engineering Conference (RE'16)*, Beijing, China, September 2016.

Program Committee Member, Doctoral Symposium, *24th IEEE International Requirements Engineering Conference (RE'16)*, Beijing, China, September 2016.

Program Committee Member, *23rd IEEE International Requirements Engineering Conference (RE'15)*, Ottawa, Canada, September 2015.

Organizing Co-Chair, *8th International Workshop on Requirements Engineering and Law (RELAW'15)*, co-located with RE'15, Ottawa, Canada, September 2015.

Organizing Co-Chair, *Privacy by Design Workshop Series* hosted at Berkeley, Georgia Tech, CMU and NYU, sponsored by the Computing Community Consortium, August 2014-November 2015.

Workshops Chair, *22nd IEEE International Requirements Engineering Conference (RE'14)*, Karlskrona, Sweden, September 2014.

Organizing Co-Chair, *7th International Workshop on Requirements Engineering and Law (RELAW'14)*, co-located with RE'14, Karlskrona, Sweden, September 2014.

Program Committee, *36th IEEE International Conference on Software Engineering (ICSE)*, Hyderabad, India, June 2014.

Program Committee, *20th Working Conference on Requirements Engineering: Foundations for Software Quality,* Essen, Germany, April 2014.

Organizing Co-Chair, *6th International Workshop on Requirements Engineering and Law (RELAW'13)*, co-located with RE'13, Rio de Janeiro, Brasil, July 2013.

Program Board Member, *21st IEEE International Requirements Engineering Conference (RE'13)*, Rio de Janeiro, Brazil, September 2013.

Book Editor, IAPP Certification for Information Privacy Professionals for Information Technology Course Textbook, expected 2013.

Program Board Member, *20th IEEE International Requirements Engineering Conference (RE'12)*, Chicago, Illinois, September 2012.

Publicity Chair, *20th IEEE International Requirements Engineering Conference (RE'12)*, Chicago, Illinois, September 2012.

Organizing Co-Chair, *5th International Workshop on Requirements Engineering and Law (RELAW'12)*, co-located with RE'12, Chicago, Illinois, September 2012.

Program Committee Member, *Foundations on Software Engineering, New Ideas (FSE'10)*, Szeged, Hungary, September 2011.

Program Committee Member, *19th International Requirements Engineering Conference (RE'11)*, Trento, Italy, September 2011.

Tutorials Co-Chair, *19th International Requirements Engineering Conference (RE'11)*, Trento, Italy, September 2011.

Organizing Co-Chair, *4th International Workshop on Requirements Engineering and Law (RELAW'11)*, co-located with RE'11, Trento, Italy, September 2011.

Program Committee Member, *4th International Workshop on Managing Requirements Knowledge (MaRK'11)*, Trento, Italy, September 2011.

Program Co-Chair, *Security and Privacy Requirements Engineering (SPREE), Software Engineering Institute*, Pittsburgh, Pennsylvania, June 2011.

Program Committee Member, *1st Workshop on the Web and Requirements Engineering (WeRE'10)*, Sydney, Australia, September 2010.

Program Committee Member, *18th International Requirements Engineering Conference (RE'10)*, Sydney, Australia, September 2010.

Publications Chair, *18th International Requirements Engineering Conference (RE'10)*, Sydney, Australia, September 2010.

Program Co-Chair, *3rd International Workshop on Requirements Engineering and Law (RELAW'10)*, co-located with RE'10, Sydney, Australia, September 2010.

Guest Editor, Requirements Engineering Journal, Special Issue on Digital Privacy: Theories, Policies and Technologies, Springer, 2010.

Program Committee Co-chair, *2nd International Workshop on Requirements Engineering and Law (RELAW'09)*, co-located with RE'09, Atlanta, Georgia, September 8th, 2009.

Program Committee Member, *Workshop on Information Security and Privacy in a De-Perimeterised World (DISP-09)*, co-located with PASSAT'09, Vancouver, Canada, August 29-30, 2009.

Program Committee Member, *6th International Conference on Trust, Privacy and Security (TrustBus'09)*, Linz, Austria, August 31-September 4, 2009.

Program Committee Member, *IEEE 6th International Conference on Information Technology (ITNG'09)*, Software Compliance Track, Las Vegas, Nevada, USA, April 27-29, 2009.

Program Committee Co-chair, *1st International Workshop on Requirements Engineering and Law (RELAW'08)*, co-located with RE'08, Barcelona, Spain, September 8th, 2008.

Program Committee Member, *Workshop on Security and Privacy in Wireless Mobility*, co-located with *IEEE WiMob*, Avignon, France, October 12th 2008.

Program Committee Member, *Symposium on Requirements Engineering for Information Security (SREIS'08)*, co-located with *ARES'08*, Barcelona, Spain, March 4-7th 2008.

Organizing Committee Member, *Preparing the Faculty Candidate: Recruiter and New Faculty Perspectives*, North Carolina State University, Raleigh, NC, November 13th 2007.

Steering Committee Member, *Land Grant University Research Ethics Program*, North Carolina State University, Raleigh, North Carolina, USA, 2006–2007.

Invited Referee and Reviewer Participation

Associate Editor, ACM Transactions on Software Engineering and Methodology (ACM TOSEM), 2019-2023.
Reviewer, Empirical Software Engineering Journal, since 2022.
Reviewer, Software and Systems Modeling, since 2020, voted in top 1% of best reviewers in 2021.
Reviewer, ACM Transactions on Software Engineering and Methodology (ACM TOSEM), since 2011.
Reviewer, ACM Transactions on the Web, since 2010.
Reviewer, Automated Software Engineering Journal (ASEJ), since 2010.
Reviewer, Enterprise Information Systems, since 2010.
Reviewer, IEEE Security & Privacy, since 2009.
Reviewer, Requirements Engineering Journal (REJ), since 2008.
Reviewer, Communications of the ACM (CACM), since 2008.
Reviewer, Elsevier Computer Standards and Interfaces, since 2008.
Reviewer, IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE), since 2007.
Reviewer, Elsevier Computers and Security, since 2007.
Reviewer, Grace Hopper Celebration of Women in Computing Conference, 2006.
Reviewer, IEEE Transactions on Software Engineering (IEEE TSE), since 2005.

Book Chapters

B1.   **Engineering Privacy**, Stuart Shapiro, Travis D. Breaux. In Introduction to IT Privacy: A Handbook for Technologists, 3rd Edition, IAPP, Expected December 2023.

B2.   **Interference**, Travis D. Breaux, Aaron Massey. In Introduction to IT Privacy: A Handbook for Technologists, 3rd Edition, IAPP, May 2023.

B3.   **Engineering Privacy**, Travis D. Breaux, Stuart Shapiro, David Gordon. In Introduction to IT Privacy: A Handbook for Technologists, 2nd Edition, IAPP, December 2019, ISBN: 978-0-9885525-5-5.

B4.   **Ensuring Privacy in the Clouds**. Travis D. Breaux and Siani Pearson, In *Encyclopedia of Cloud Computing*, San Murugesan and Irena Bojanova (eds.), Wiley-IEEE, ISBN: 978-1118821978, 2015.

B5.   **Engineering Privacy**, Travis D. Breaux, Stuart Shapiro, David Gordon. In Introduction to IT Privacy: A Handbook for Technologists, IAPP, May 2013, ISBN: 978-0-9885525-5-5.

B6.   **Interference**, in the IAPP Certification for Information Privacy Professionals. Aaron Massey, Travis D. Breaux. In Introduction to IT Privacy: A Handbook for Technologists, IAPP, May 2013, ISBN: 978-0-9885525-5-5.

Refereed Journal Publications

J1. **Extracting Stakeholder Preferences from Scenarios**.
Yuchen Shen, Travis D. Breaux. Accept w/ Major Revision: *IEEE Transactions on Software Engineering*, June 2023.

J2. **Consent Verification Monitoring.**
Marco Robol, Travis D. Breaux, Elda Paja, Paolo Giorgini, *ACM Transactions on Software Engineering Methodology*, February 22, 2023.

J3. **DAISY: Dynamic-Analysis-Induced Source Discovery for Sensitive Data.**
Xueling Zhang, John Heaps, Rocky Slavin, Jianwei Niu, Travis D. Breaux, and Xiaoyin Wang. *ACM Trans. Softw. Eng. Methodol.*, Accepted: October 2022.

J4. **A Systemic Approach for Natural Language Scenario Elicitation of Security Requirements.**
Hanan Hibshi, Stephanie Jones, Travis Breaux. *IEEE Transactions on Dependable and Secure Computing*, pp. 1-13, 2022.

J5. **Analyzing privacy policies through syntax-driven semantic analysis of information types.**
Mitra Bokaei Hosseini, Travis D. Breaux, Rocky Slavin, Jianwei Niu, Xiaoyin Wang: Information & Software Technology 138: 106608 (2021)

J6. **Identifying incompleteness in privacy policy goals using semantic frames.**
Jaspreet Bhatia, Morgan C. Evans, Travis D. Breaux, *Requirements Engineering Journal*, 24(3): 291-313. 2019.

J7. **RSL-IL4Privacy: a domain-specific language for the rigorous specification of privacy policies**.
João Caramujo, Alberto Rodrigues da Silva, Shaghayegh Monfared, André Ribeiro, Pável Calado, Travis D. Breaux, *Requirements Engineering Journal*, 24(1): 1-26, 2019.

J8. **Empirical Measurement of Perceived Privacy Risk**
Jaspreet Bhatia, Travis Breaux. *ACM Transactions on Human Computer Interaction*, 25(6): 34:1-34:47 (2018)

J9. **A Grounded Analysis of Experts' Decision-Making During Security Assessments**
Hanan Hibshi, Travis Breaux, Maria Riaz, and Laurie Williams. *Journal of Cybersecurity*, Oxford Press, (2)2: 147-163, 2016.

J10. **Ambiguity in Privacy Policies and the Impact of Regulation**
Joel R. Reidenberg, Jaspreet Bhatia, Travis D. Breaux, and Thomas B. Norton, (**Honorable Mention in 7th Annual Papers for Policy Makers Award**) *Journal of Legal Studies*, 45(S2): pp. S163-S190, 2016.

J11. **Privacy Goal Mining through Hybridized Task Re-composition**
Jaspreet Bhatia, Travis D. Breaux, Florian Schaub. *ACM Transactions on Software Engineering Methodology*, 25(3): Article 22, 2016.

J12. **How Have We Evaluated Software Patterns in Problem Solving? A Systematic Mapping Study of Research Design Practices**
Maria Riaz, Travis Breaux, Laurie Williams. *Information and Software Technology*, v. 65, Elsevier, 2015.

J13. **Eddy, A Formal Language for Specifying and Analyzing Data Flow Specifications for Conflicting Privacy Requirements.**
Travis D. Breaux, Hanan Hibshi, Ashwini Rao. *Requirements Engineering Journal (REJ)*, 19(3): 281-307 (2014).

J14. **A Cross-Domain Empirical Study and Legal Evaluation of the Requirements Water Marking Method**
David G. Gordon, Travis D. Breaux. *Requirements Engineering Journal (REJ)*, 18(2): 147-173, 2013.

J15. **Legally "Reasonable" Security Requirements: A 10-year FTC Retrospective.**
Travis D. Breaux, David L. Baumer. *Computers and Security (COSE),* November 2010, pp. 178-193.

J16. **IT Compliance: Aligning Legal and Product Requirements.**
Travis D. Breaux, Annie I. Anton, Kent Boucher, Merlin Dorfman. *IT Professional*, 11(5): 54-58, September/October 2009.

J17. **A Distributed Requirements Management Framework for Compliance and Accountability.**
Travis D. Breaux, Annie I. Antón, Eugene H. Spafford. *Computers and Security (COSE)*, 28(1-2): 8-17, February/March 2009.

J18. **Semantic Parameterization: A Conceptual Modeling Process for Domain Descriptions.**
Travis D. Breaux, Annie I. Antón, Jon Doyle. *ACM Transactions on Software Engineering Methodology (ACM TOSEM)*, 18(2): 5, November 2008.

J19. **Analyzing Regulatory Rules for Privacy and Security Requirements.**
Travis D. Breaux, Annie I. Antón. *IEEE Transactions on Software Engineering (IEEE TSE)*, *Special Issue on Software Engineering in Secure Systems*, 34(1): 5-20, January/February 2008.

Refereed Conference Proceedings

C1. **Mobile Application Privacy Risk Assessments from User-authored Scenarios.**
Tianjian Huang, Vaishnavi Kaur, Travis D. Breaux, Mitra Bokaei Hosseini. Accepted: *30th IEEE International Conference on Requirements Engineering*, 2023.

C2. **A Metric for Measuring Software Engineering Post-Graduate Outcomes**.
Travis D. Breaux, Jennifer Moritz. 45th *ACM/IEEE International Conference on Software Engineering*, 2023.

C3. **Legal Accountability as Software Quality: A U.S. Data Processing Perspective**.
Travis D. Breaux, Thomas B. Norton. **(Distinguished Paper)** *29th IEEE International Requirements Engineering Conference (RE'22),* pp. 101-113, 2022.

C4. **Ambiguity and Generality in Natural Language Privacy Policies.**
Mitra Bokaei Hosseini, John Heaps, Rocky Slavin, Travis Breaux, Jianwei Niu. *29th IEEE International Requirements Engineering Conference*, 2021.

C5. **How Does Misconfiguration of Analytic Services Compromise Mobile Privacy?**
Xueling Zhang, Xiaoyin Wang, Rocky Slavin, Travis D. Breaux, and Jianwei Niu. *42nd ACM/IEEE International Conference on Software Engineering (ICSE)*, 2020, pp. 1572-1583.

C6. **Disambiguating Requirements through Syntax-Driven Semantic Analysis of Information Types.**
Mitra Bokaei Hosseini, Mitra Bokaei Hosseini, Rocky Slavin, Travis D. Breaux, Xiaoyin Wang, and Jianwei Niu. *26th International Working Conference on Requirements Engineering: Foundation for Software Quality* (REFSQ), 2020, 97-115.

C7. **Toward Detection of Access Control Models from Source Code via Word Embedding.**
John Heaps, Xiaoyin Wang, Travis D. Breaux, Jianwei Niu, 24th ACM Symposium on Access Control Models and Technologies (SACMAT), pp. 103-112, 2019.

C8. **Consent Verification Under Evolving Privacy Policies.**
Marco Robol, Travis D. Breaux, Elda Paja, Paolo Giorgini, *27th IEEE International Requirements Engineering Conference (RE'19),* Jeju Island, South Korea, pp. 422-427, 2019.

C9. **Semantic Agreement among Stakeholder Interpretations of Logical Hyponymy**
Morgan C. Evans, Dominic Contreras, Travis D. Breaux. In Submission: 27th *IEEE International Requirements Engineering Conference (RE'19),* Jeju Island, South Korea, 2019.

C10. **Systematic Scenario Creation for Requirements Elicitation, Validation and Analysis**
Hanan Hibshi, Stephanie Jones, Travis D. Breaux. In Submission**:** 27th *IEEE International Requirements Engineering Conference (RE'19),* Jeju Island, South Korean, 2019.

C11. **Semantic Incompleteness in Privacy Policy Goals**
Jaspreet Bhatia, Travis D. Breaux. (**Distinguished Paper Award**) 26th *IEEE International Requirements Engineering Conference (RE'18),* Banff, Canada, pp. 159-169, 2018.

C12. **GUILeak: Tracing Privacy Policy Claims on User Input Data for Android Applications**
Xiaoyin Wang, Xue Qin, Mitra Bokaei Hosseini, Rocky Slavin, Travis D. Breaux, Jianwei Niu. *40th International Conference on Software Engineering (ICSE'18)*, Gothenberg, Sweden, pp. 37-47, 2018.

C13. **Inferring Ontology Fragments from Semantic Typing of Lexical Variants.**
Mitra Bokaei Hosseini, Travis D. Breaux, Jianwei Niu. *24th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ'18),* Utrecht, Netherlands, pp. 39-56, 2018.

C14. **Reinforcing Security Requirements with Multifactor Quality Measurement.**
Hanan Hibshi, Travis D. Breaux. *25th IEEE International Requirements Engineering Conference (RE'17),* Lisbon, Portugal, pp. 144-153, 2017.

C15. **An Evaluation of Constituency-based Hyponymy Extraction from Privacy Policies**.
Morgan C. Evans, Jaspreet Bhatia, Sudarshan Wadkar, Travis D. Breaux. *25th IEEE International Requirements Engineering Conference (RE'17),* Lisbon, Portugal, pp. 312-321, 2017.

C16. **Improved Cyber Threat Indicator Sharing by Scoring Privacy Risk.**
Daniel M. Best, Jaspreet Bhatia, Elena S. Peterson and Travis D. Breaux, *2017 IEEE International Symposium on Technologies for Homeland Security (HST),* Waltham, MA, USA, pp. 1-5, doi: 10.1109/THS.2017.7943482.

C17. **Improving Security Requirements Adequacy: an Interval Type 2 Fuzzy Logic Security Assessment System**.
Hanan Hibshi, Travis D. Breaux, Christian Wagner. *IEEE Symposium Series on Computational Intelligence (SSCI'16),* Athens, Greece, pp. 1-8, 2016.

C18. **Towards a Theory of Vagueness and Privacy Risk Perception in Privacy Policies**.
Jaspreet Bhatia, Travis Breaux, Joel Reidenberg, Thomas Norton. **(Nominated for Best Paper).** *24th IEEE International Requirements Engineering Conference,* 2016.

C19. **Toward a Framework for Detecting Privacy Policy Violation in Android Application Code**
Rocky Slavin, Xiaoyin Wang, Mitra Bokaei Hosseini, William Hester, Ram Krishnan, Jaspreet Bhatia, Travis D. Breaux, Jianwei Niu. *ACM/IEEE 38th International Software Engineering Conference,* Austin, Texas, pp. 25-35, 2016.

C20. **Assessment of Risk Perception in Security Requirements Composition**
Hanan Hibshi, Travis Breaux, Stephen Broomell. 23rd *IEEE International Requirements Engineering Conference*, Ottawa, Canada, pp. 146-155, 2015.

C21. **Detecting Repurposing and Over-Collection in Multi-Party Privacy Specifications**
Travis Breaux, Daniel Smullen, Hanan Hibshi. *23rd IEEE International Requirements Engineering Conference*, Ottawa, Canada, pp. 166-175, Sep. 2015.

C22. **Scaling Requirements Extraction to the Crowd: Experiments on Privacy Policies**
Travis Breaux, Florian Schaub. *22nd IEEE International Requirements Engineering Conference*, Karlskrona, Sweden, 2014, pp. 163-172.

C23. **Modeling Security Requirements Expertise: Understanding Security Experts' Decision Making**
Hanan Hibshi, Travis Breaux, Maria Riaz, Laurie Williams. In Submission: *11th Symposium on Usable Privacy and Security*, Ottawa, Canada 2015.

C24. **Managing Security Requirements Patterns Using Feature Diagram Hierarchies**
Rocky Slavin, Jean-Michel Lehker, Jianwei Niu, Travis Breaux. *22nd IEEE International Requirements Engineering Conference*, Karlskrona, Sweden, 2014, pp. 193-202.

C25. **The Role of Legal Expertise in Interpretation of Legal Requirements and Definitions**
David G. Gordon, Travis D. Breaux. *22nd IEEE International Requirements Engineering Conference*, Karlskrona, Sweden, 2014, pp. 273-282.

C26. **Less is More? Investigating the Role of Examples in Security Studies using Analogical Transfer**
Ashwini Rao, Hanan Hibshi, Travis Breaux, Jean-Michel Lehker and Jianwei Niu, *2014 Symposium and Bootcamp in the Science of Security (HotSoS),* April, 2014, Article No. 7.

C27. **Assessing Regulatory Change through Legal Requirements Coverage Modeling**
David G. Gordon, Travis D. Breaux, *21st IEEE International Requirements Engineering Conference*, Rio de Janeiro, 2013, pp. 145-154.

C28. F**ormal Analysis of Privacy Requirements Specifications for Multi-Tier Applications**
Travis D. Breaux, Ashwini Rao, **(Nominated for Best Paper)** *21st IEEE International Requirements Engineering Conference*, Rio de Janeiro, 2013, pp. 14-23.

C29. **Regulatory Requirements Traceability and Analysis Using Semi-Formal Specifications**
Travis D. Breaux, David G. Gordon, *19th Working Conference on Requirements Engineering: Foundations for Software Quality (REFSQ'13)*, Essen, Germany, Apr. 2013, pp. 141-157

C30. **Reconciling Multi-Jurisdictional Legal Requirements: A Case Study in Requirements Water Marking**
David G. Gordon, Travis D. Breaux, **(Nominated for Best Paper)** *20th IEEE International Conference on Requirements Engineering*, Chicago, Illinois, Sep. 2012, pp. 91-100

C31. **Towards a Privacy Management Framework for Distributed Cybersecurity in the New Data Ecology,**
Travis D. Breaux, Catherine B. Lotrionte. *IEEE International Conference on Technologies for Homeland Security (HST'11)*, Waltham, Massachusetts, November 2011, pp. 6-12

C32. **Exercising Due Diligence in Legal Requirements Acquisition**
Travis D. Breaux. In Proc. *17th International Requirements Engineering Conference (RE'09)*, Atlanta, Georgia, September 2009, pp. 225-230.

C33. **Early Studies in Acquiring Evidentiary, Reusable Business Process Models for Legal Compliance**
Travis D. Breaux, Calvin Powers. In Proc. *6th International Conference on Information Technology: New Generations (ITNG'09)*, Las Vegas, NV, April 2009, pp. 272-277.

C34. **Automating the Extraction of Rights and Obligations for Regulatory Compliance**
Nadzeya Kiyavitskaya, Nicola Zeni, Travis D. Breaux, Annie I. Antón, James R. Cordy, Luisa Mich, John Mylopoulos. In Proc. *27th International Conference on Conceptual Modelling (ER'08)*, Barcelona, Spain, October 2008, pp. 154-168.

C35. **Legal Requirements, Compliance and Practice: An Industry Case Study in Accessibility**
Travis D. Breaux, Annie I. Antón, Kent Boucher, Merlin Dorfman. In Proc. *IEEE 16th International Requirements Engineering Conference (RE'08)*, Barcelona, Catalonia, Spain, September 2008, pp. 43-52.

C36. **Identifying Vulnerabilities and Critical Requirements using Criminal Court Proceedings**
Travis D. Breaux, Jonathan D. Lewis, Paul N. H. Otto, Annie I. Antón. In Proc. *ACM Symposium on Applied Computing (ACM SAC'09)*, Honolulu, Hawaii, August 2008, pp. 355-359.

C37. **Extracting Rights and Obligations from Regulations: Towards a Tool-Supported Process**
Nadzeya Kiyavitskaya, Nicola Zeni, Luisa Mich, Travis D. Breaux, Annie I. Antón, John Mylopoulos In Proc. *IEEE/ACM 22nd International Conference Automated Software Engineering (ASE'07),* Atlanta, Georgia, November 2007, pp. 429-432.

C38. **Towards Compliance: Extracting Rights and Obligations to Align Requirements with Regulations**
Travis D. Breaux, Matthew W. Vail, Annie I. Antón. In Proc. *IEEE 14th International Requirements Engineering Conference (RE'06)*, Minneapolis, MN, USA, September 2006, pp. 49–58. **(Honorable Mention for RE 2016 Most Influential Paper Award)**

C39. **Analyzing Goal Semantics for Rights, Permissions and Obligations**
Travis D. Breaux, Annie I. Antón. In Proc. *13th IEEE International Requirements Engineering Conference (RE'05)*, Paris, France, August 2005, pp. 177–186.

C40. **Hierarchical Information Clustering Using Ontology Languages**
Travis D. Breaux and Joel Reed. In Proc. *38th Hawaii International Conference on System Sciences (HICSS-38)*, Honolulu, Hawaii, January 2005, p. 112b.

Refereed Workshop Proceedings

W1. **Domain Model Extraction from User-authored Scenarios and Word Embeddings**. Yuchen Shen, Travis D. Breaux, *9th International Workshop on Artificial Intelligence and Requirements Engineering (AIRE'22),* pp. 143-151, 2022.

W2. **A Data Purpose Case Study of Privacy Policies.**
Jaspreet Bhatia, Travis D. Breaux. *RE:Next! Track in the 25th IEEE International Requirements Engineering Conference,* pp. 394-399, 2017.

W3. **Lexical Similarity of Information Type Hypernyms, Meronyms and Synonyms in Privacy Policies.**
Mitra Bokaei Hosseini, Sudarshan Wadkar, Travis D. Breaux, Jianwei Niu. *AAAI Fall Symposium on Privacy and Language Technologies (PLT)*, Arlington, Virginia, Nov. 2016.

W4. **Privacy Risk in Cybersecurity Data Sharing.**
Jaspreet Bhatia, Travis D. Breaux, Liora Friedberg, Hanan Hibshi, Daniel Smullen. *ACM 3rd International Workshop on Information Sharing and Collaborative Security (WISCS)*, Vienna, Austria, Oct. 2016.

W5. **Automated Extraction of Regulated Information Types using Hyponymy Relations.**
Jaspreet Bhatia, Morgan Evans, Sudarshan Wadkar, Travis D. Breaux. *IEEE 3rd International Workshop on Artificial Intelligence for Requirements Engineering (AIRE)*, Beijing, China, Aug. 2016.

W6. **Towards an Information Type Lexicon for Privacy Policies**
Jaspreet Bhatia, Travis D. Breaux, *8th IEEE International Workshop on Requirements Engineering and Law*, Ottawa, Canada, 2015, pp. 19-24.

W7. **Comparing and Analyzing Definitions in Multi-Jurisdictions**
Sepideh Ghanavati, Travis D. Breaux, *8th IEEE International Workshop on Requirements Engineering and Law*, Ottawa, Canada, 2015, pp. 47-56.

W8. **Towards a framework to measure security expertise in requirements analysis.**
Hanan Hibshi, Travis D. Breaux, Maria Riaz, Laurie A. Williams, *1st Evolving Security & Privacy Requirements Engineering Workshop*, Karlskrona, Sweden, August 25, 2014, pp. 13-18.

W9. **Mapping Legal Requirements to IT Controls**
Travis Breaux, David Gordon, Nick Papanikolaou and Siani Pearson, *6th IEEE International Workshop on Requirements Engineering and Law (RELAW'13)*, Rio de Janeiro, July 2013, pp. 11-20.

W10. **Toward Benchmarks to Assess Advancement in Legal Requirements Modeling**
Ivan Jureta, Travis Breaux, Alberto Siena and David Gordon. *6th IEEE International Workshop on Requirements Engineering and Law (RELAW'13)*, Rio de Janeiro, July 2013, pp. 25-33.

W11. **Towards a Framework for Pattern Experimentation: Understanding empirical validity in requirements engineering patterns**
Travis D. Breaux, Hanan Hibshi, Ashwini Rao, Jean-Michel Lehjker. *2nd International Workshop on Requirements Patterns*, Chicago, Illinois, September 2012, pp. 41-47.

W12. **Managing Multi-Jurisdictional Requirements in the Cloud.**
David G. Gordon, Travis D. Breaux. *3rd ACM Cloud Computing Security Workshop (CCSW'11)*, Chicago, Illinois, October 2011, pp. 83-94.

W13. **Comparing Requirements from Multiple Jurisdictions.**
David G. Gordon, Travis D. Breaux. *4th IEEE International Workshop on Requirements Engineering and Law (RELAW'11)*, Trento, Italy, August 2011, pp. 43-49.

W14. **Governance and Accountability in the New Data Ecology: A Vision for Electronic Data Licenses.**
Travis D. Breaux, Thomas A. Alspaugh. *4th IEEE International Workshop on Requirements Engineering and Law (RELAW'11)*, Trento, Italy, Aug. 2011, pp. 5-14.

W15. **A Method to Acquire Compliance Monitors from Regulations**
Travis D. Breaux. In Proc. *3rd IEEE International Workshop on Requirements Engineering and Law (RELAW'10)*, Sydney, Australia, September 2010, pp. 17-26.

W16. **A Systematic Method for Acquiring Regulatory Requirements: A Frame-based Approach**

Travis D. Breaux, Annie I. Antón. In Proc. *6th International Workshop on Requirements for High Assurance Systems (RHAS-6)*, Delhi, India, October 2007.

W17. Compliance Engineering: Aligning Software Requirements with Policies and Regulations
Travis D. Breaux. *ACM/SIGSOFT 14th Symposium on Foundations of Software Engineering (FSE-14), Doctoral Symposium,* Portland, OR, USA, November 2006.

W18. Enforceability vs. Accountability in Electronic Policies
Travis D. Breaux, Annie I. Antón, Clare-Marie Karat, John Karat. In Proc. *IEEE 7th International Workshop on Policies for Distributed Systems and Networks (POLICY'06)*, London, ON, Canada, June 2006*, pp. 227–230.

W19. Mining Rule Semantics for Understanding Legislative Compliance
Travis D. Breaux, Annie I. Antón. In Proc. *ACM Workshop on Privacy in the Electronic Society (WPES'05)*, Alexandria, VA, USA, November 2005, pp. 51–54.

W20. Deriving Semantic Models from Privacy Policy Goals
Travis D. Breaux, Annie I. Antón. In Proc. *IEEE 6th International Workshop on Policies for Distributed Systems and Networks (POLICY'05)*, Stockholm, Sweden, June 2005, pp. 67–76.

Invited Papers, Technical Reports and Theses

T1. Managing Risk in Mobile Applications with Formal Security Policies
Travis D. Breaux, Ashwini Rao. Invited Paper: *10th Annual Acquisition Research Symposium*, Naval Postgraduate School, March 21, 2013.

T2. Regulatory Requirements as Open Systems: Structures, Patterns and Metrics for the Design of Formal Requirements Specifications
Travis D. Breaux, David G. Gordon. CMU Technical Report #ISR-11-100, February 25, 2011

T3. Legal Requirements Acquisition for the Specification of Legally Compliance Information Systems
Travis D. Breaux, Ph.D. Dissertation, NC State University, April 22nd 2009. Advisor: Annie I. Antón

T4. Acquiring Software Compliance Artifacts from Policies and Regulations
Travis D. Breaux, Annie I. Antón, Technical Report #TR-2006-27, North Carolina State University, Department of Computer Science, September 8th 2006.

T5. Policy-Parametric Software
Travis D. Breaux, Technical Report #TR-2004-30, North Carolina State University, Department of Computer Science, November 17th 2004.

Academic Paper Presentations

P1. Empirical Measurement of Perceived Privacy Risk
Jaspreet Bhatia and Travis D. Breaux, *Privacy Law Scholars Conference*, Berkeley, June 1, 2017.

P2. Scaling Requirements Extraction to the Crowd: Experiments with Privacy Policies
Travis D. Breaux, *IEEE* 22nd International Requirements Engineering Conference, August 28, 2014

P3. The Role of Legal Expertise in Interpretation of Legal Requirements and Definitions
Travis D. Breaux, *IEEE* 22nd International Requirements Engineering Conference, August 29, 2014

P4. Formal Analysis of Privacy Requirements Specifications for Multi-Tier Applications
Travis D. Breaux, *IEEE 21st International Requirements Engineering Conference,* July 17, 2013

P5. Tracing Regulatory Requirements using Formal Specification Languages
Travis D. Breaux, *19th Working Conference on Requirements Engineering: Foundations for Software Quality (REFSQ'13),* April 9, 2013

P6. Towards a Privacy Management Framework for Distributed Cybersecurity in the New Data Ecology

Travis D. Breaux. *IEEE International Conference on Technologies for Homeland Security (HST'11)*, Waltham, Massachusetts, November 15, 2011.

P7.   Governance and Accountability in the New Data Ecology: A Vision for Electronic Data Licenses.
Travis D. Breaux. *4th IEEE International Workshop on Requirements Engineering and Law (RELAW'11),* Trento, Italy, August 30, 2011.

P8.   A Method to Acquire Compliance Monitors from Regulations
Travis D. Breaux. *3rd IEEE International Workshop on Requirements Engineering and Law (RELAW'10)*, Sydney, Australia, September 28th, 2010.

P9.   Exercising Due Diligence in Legal Requirements Acquisition
Travis D. Breaux. *17th International Requirements Engineering Conference (RE'09)*, Atlanta, Georgia, September 2nd, 2009.

P10.   Early Studies in Acquiring Evidentiary, Reusable Business Process Models for Legal Compliance
Travis D. Breaux, *6th International Conference on Information Technology: New Generations (ITNG'09)*, Las Vegas, NV, April 27th 2009.

P11.   Legal Requirements Acquisition for the Specification of Legally Compliance Information Systems
Travis D. Breaux, *Doctoral Thesis Defense,* North Carolina State University, Raleigh, North Carolina, February 2nd 2009.

P12.   Legal Requirements, Compliance and Practice: An Industry Case Study in Accessibility
Travis D. Breaux, *IEEE 16th International Requirements Engineering Conference (RE'08)*, Barcelona, Catalonia, Spain, September 10th 2008.

P13.   A Systematic Method for Acquiring Regulatory Requirements: A Frame-based Approach
Travis D. Breaux, *6th International Workshop on Requirements for High Assurance Systems (RHAS-6)*, Delhi, India, October 15th 2007.

P14.   The Frame-Based Requirements Analysis Method (FBRAM)
Travis D. Breaux, *Doctoral Thesis Proposal*, North Carolina State University, Raleigh, NC, USA, August 17th 2007.

P15.   Compliance Engineering: Aligning Software Requirements with Policies and Regulations
Travis D. Breaux, *ACM/SIGSOFT 14th Symposium on Foundations of Software Engineering (FSE-14), Doctoral Symposium,* Portland, OR, USA, November 6th 2006.

P16.   Towards Compliance: Extracting Rights and Obligations to Align Requirements with Regulations
Travis D. Breaux, *IEEE 14th International Requirements Engineering Conference (RE'06)*, Minneapolis, MN, USA, September 13th 2006.

P17.   Enforceability vs. Accountability in Electronic Policies
Travis D. Breaux, *IEEE 7th International Workshop on Policies for Distributed Systems and Networks*, London, Ontario, June 8th 2006.

P18.   Mining Rule Semantics for Understanding Legislative Compliance
Travis D. Breaux, *2005 ACM Workshop on Privacy in Electronic Society*, Alexandria, Virginia, November 7th 2005.

P19.   Analyzing Goal Semantics for Rights, Permissions and Obligations
Travis D. Breaux, *13th IEEE Requirements Engineering Conference*, Paris, France, September 1st 2005.

P20.   Deriving Semantic Models from Privacy Policies
Travis D. Breaux, *IEEE 6th International Workshop on Policies for Distributed Systems and Networks*, Stockholm, Sweden, June 6th 2005.

P21.   Rights, Obligations and Suggestions: Encoding Rules from Privacy Law
Travis D. Breaux, *The PrivacyPlace Spring 2005 Workshop*, Department of Computer Science, North Carolina State University, Raleigh, North Carolina, March 14th 2005.

P22.   Semantic Parameterization of Privacy Goals

Travis D. Breaux, *The Privacy Place Fall 2004 Workshop*, Department of Computer Science, North Carolina State University, Raleigh, North Carolina, October 19th 2004.

Invited Presentations

P23. **Consent Management at-scale under Rapidly Evolving Data Practices**
Travis D. Breaux, University of Gothenburg, June 13, 2023.

P24. **Robust Consent Monitoring and Verification for Privacy-by-Design**
Travis D. Breaux, *Smith College, Massachusetts, United States*, March 30, 2023.

P25. **What Are We Afraid Of? Quantifying Risk in Privacy and Security (Keynote)**
Travis D. Breaux, *8th International Workshop on Evolving Security & Privacy Requirements Engineering*, September 21, 2021.

P26. **The Ontology of Personal Information (Keynote)**
Travis D. Breaux, PrivateNLP, collocated with North American Chapter of the Association for Computational Linguistics (NAACL), June 11, 2021.

P27. **Consent Analysis under General Data Protection Regulation (GDPR).**
Travis D. Breaux, IFIP WG2.9, Panama City, Panama, February 12, 2020.

P28. **Verifying Consent in Privacy and Data-Intensive Systems.**
Travis D. Breaux, University of Nottingham, United Kingdom, July 30, 2019.

P29. **Engineering Privacy through Integrated Policy and Source Code Analysis**
Travis D. Breaux, University of Trento, Trento, Italy, September 6, 2018

P30. **Determinism and Legal Ambiguity: Making Computational Sense of Policy and Law**
Travis D. Breaux, University of Maryland, College Park, April 24, 2018

P31. **Information Designations for Privacy**
Travis D. Breaux, IFIP Working Group 2.9 Meeting, Guanacaste, Costa Rica, February 21, 2018.

P32. **Engineering Privacy through Integrated Policy and Source Code Analysis**
Travis D. Breaux, SnT – Unviersity of Luxembourg, Luxembourg, January 16, 2018.

P33. **Empirical Measurement of Perceived Privacy Risk**
Travis D. Breaux, National Institute of Standards and Technology (NIST), June 9, 2017.

P34. **Privacy Requirements Engineering: Methods and Research Challenges**
Travis D. Breaux, Workshop on Privacy by Design Beyond the Screen, Lorentz@Snellius, Leiden, Netherlands, April 26, 2017.

P35. **Privacy Impacts of Industry Sharing Cybersecurity Indicators with (US) Government Entities**
Travis D. Breaux, *North Atlantic Treaty Organization (NATO), Science and Technology Organization Lecture Series IST-143 on Cyber Security Science and Engineering,* Washington, D.C., November 8, 2016

P36. **Information Sharing in the Age of Digital Privacy**
Travis D. Breaux, *Intelligence Community Academic Research Symposium*, September 21, 2016

P37. **Privacy Risk: A Measurement Misnomer?**
Travis D. Breaux, *IFIP WG 2.9 on Requirements Engineering*, Recife, Brazil, February 25, 2016

P38. **Checking Data Practices against Privacy Policies**
Travis D. Breaux, *U.S. Federal Trade Commission,* Washington, D.C., July 9, 2015

P39. **Governance and Compliance within the Limits of Technology**
Travis D. Breaux, *Workshop on Principles and Practice of Privacy Science (3PS),* College Park, MD, December 14-15, 2015

P40. **Hermeneutics of Information Privacy**
Travis D. Breaux, *IFIP WG 2.9 on Requirements Engineering*, Cozumel, Mexico, February 18, 2015

P41. Going Native - Relying on Pidgins and Creoles to Construct High Confidence Software
Travis D. Breaux, Keynote Speaker, *High Confidence Software and Systems Conference,* Annapolis, MD, May 6, 2014

P42. Verifying Data Protection Rules in Complex Data Ecosystems
Travis D. Breaux, Keynote Speaker, *NSA/CSS Mission Compliance Conference*, Baltimore, May 7, 2014

P43. Privacy Engineering: Examples of System Design Strategy
Travis D. Breaux, *NIST Privacy Engineering Workshop*, Gaithersburg, MD, April 9, 2014

P44. Privacy Requirements Analysis in Distributed Systems
Travis D. Breaux, *IFIP WG 2.9 on Requirements Engineering*, Costa Rica, February 24, 2014

P45. Modeling HIPAA and Health-related Privacy Statutes
Travis D. Breaux, *MIDAS Workshop on Engaging Computational Methods for Public Health Law & Policy,* October 7-8, 2013

P46. Privacy Laws, Requirements and Policies
Travis D. Breaux, *Institute for Information Infrastructure Protection (I3P),* Washington, D.C., June 6, 2012

P47. Privacy and Security Requirements in the Cloud
Travis D. Breaux, Secure Architectures in the Cloud, *Dagstuhl*, Germany, Dec 5-8, 2011

P48. Requirements Analysis for Multi-jurisdictional, Distributed Systems
Travis D. Breaux, *Hewlett-Packard Research Lab*, Bristol, UK, October 4, 2011

P49. Toward Computational Policies for Regulatory Compliance
Travis D. Breaux, Mission Rules Analysis Pod, National Security Agency, February 23, 2011.

P50. What should Software Developers Know about Developing Legally Compliant Software?
Travis D. Breaux, *University of Queensland*, Brisbane, Australia, October 6, 2010.

P51. Exercising Due Diligence: Legal Requirements Acquisition and Formalization
Travis D. Breaux, *Institute for Defense Analyses*, Alexandria, Virginia, April 15th 2009.

P52. Exercising Due Diligence: Legal Requirements Acquisition and Formalization
Travis D. Breaux, *Carnegie Mellon University*, Pittsburgh, Pennsylvania, May 26th 2009.

P53. Aligning Information Systems with Policies and Laws
Travis D. Breaux, *Science and Technology Policy Institute*, Washington, DC, April 9th 2009.

P54. Exercising Due Diligence: Legal Requirements Acquisition and Formalization
Travis D. Breaux, *RAND Corporation*, Arlington, Virginia, March 23rd 2009.

P55. Requirements Acquisition for Legal Compliance
Travis D. Breaux, *University of Texas at San Antonio*, San Antonio, Texas, March 6th 2009.

P56. Requirements Acquisition for Legal Compliance
Travis D. Breaux, *DePaul University*, Chicago, Illinois, March 2nd 2009.

P57. Legal Requirements: Theory and Practice for Specifying Legally Compliant Information Systems
Travis D. Breaux, *University of Nebraska*, Lincoln, Nebraska, February 26th 2009.

P58. Legal Requirements: A Research Perspective from Theory to Practice
Travis D. Breaux, *IFIP WG 2.9 on Requirements Engineering*, Salvador, Brazil, February 28th 2008.

P59. Beliefs, Determinations and Agreements: Contextualizing Privacy in Practice
Travis D. Breaux, *Carolina Privacy Officials Network*, Raleigh, NC, January 29th 2008.

P60. Ethics in Computer Science: Technologists and Value-free Technology
Travis D. Breaux, *Annual NCSU Computer Science Fall Seminar Series*, Raleigh, NC, December 8th 2006.

P61. What do Organizational Security Policies Say about Security?
Travis D. Breaux, *IBM Thomas J. Watson Research Laboratory*, Hawthorne, New York, July 28th 2005.

P62. Information Analysis Techniques using Upper Ontology Languages

Travis D. Breaux, *Oak Ridge National Laboratory*, Oak Ridge, Tennessee, August 6th 2003.

University Service

Faculty Senate Executive Committee, Secretary, 2021-2025

University Committee on Non-Tenure Appointments, 2019-2021

Faculty Senate Executive Committee, At-large Member, 2016-2017

Faculty Senate Member, 2015-2017

SCS Space Committee, ISR Faculty Representative, 2015

Invited Panels

Panelist, "Data De-Identification as a Practical Risk Control," IAPP Global Privacy Summit, Washington, D.C., April 13, 2022

Panelist, "Protecting Our Elections from Domestic and Foreign Cyberattacks," NCSA and Nasdaq Cybersecurity Summit, New York, New York, October 16, 2018.

Panelist, "Securing America's Critical Infrastructure," NCSA and Nasdaq Cybersecurity Summit, New York, New York, October 16, 2018.

Panelist, "Accountable Machine Learning & AI," Center for Information Policy and Leadership, Washington, D.C., July 20, 2017.

Panelist, "Privacy: Protecting Trust and Promoting Transparency", Highmark, Inc., Pittsburgh, PA, June 11, 2015

Panelist, "Overview of Privacy Engineering Approaches," NIST Privacy Engineering Workshop, Gaithersburg, MD, April 9, 2014

Panelist, "Overview of the Data Industry," *Attorneys General Education Program, Public Policy Conference on the Law & Economics of Privacy and Data Security,* George Mason University, Washington, D.C., June 20, 2013

Panelist, *International Privacy Day*, Carnegie Mellon University, Pittsburgh, PA January 28, 2013

Panelist, "Laws against adopting PETs (Privacy Enhancing Techniques)," *International Financial Cryptography*, Bonaire, Netherlands Antilles, February 29, 2012

Panelist, "Translating between Law and Technology,"*15th Annual Berkeley Center for Law and Technology Symposium*, Berkeley, California, March 3, 2011

Panelist, "Shaping the Task of Law Making,"*15th Annual Berkeley Center for Law and Technology Symposium*, Berkeley, California, March 3, 2011

Panelist, *International Privacy Day*, Carnegie Mellon University, Pittsburgh, PA January 26, 2011

Invited Grant Proposal Reviewer

Reviewer, Natural Sciences and Engineering Research Council (NSERC) of Canada, 2010, 2020
Panel Member, U.S. National Science Foundation, 2013, 2014, 2017, 2021
Interest Group Panel Member, ENDORSE ICT, European Commission, FP7, 2012
Reviewer, Austrian Science Fund (FWF), 2012
Reviewer, Fonds de recherché Nature et technologies, Quebec, 2016.
Reviewer, Fonds National del la Recherche (FNR) Luxembourg, 2009, 2012- 2014

Patents and Invention Disclosures

CMU Invention Disclosure 2014-056 entitled "Data Flow Tracing Within and Across Requirements Specifications," October 21, 2013

CMU Invention Disclosure 2014-043 entitled "Conflict Detection in Data Requirements Specifications," October 21, 2013

CMU Invention Disclosure 2013-010 entitled "Requirements Water Marking: A Method for Reconciling Multi-jurisdictional Regulatory Requirements," July 25, 2012

CMU Invention Disclosure 2011-077 entitled "Requirements Specification Language for the Design and Debugging of Computational Policy Documents", March 4, 2011

Teaching

Fall 2023	Requirements for Information Systems (17-627)
Fall 2022	Requirements for Information Systems (17-627)
Spring 2022	Applied Machine Learning (17-635)
Fall 2021	Applied Machine Learning (17-635)
Fall 2020	Requirements for Information Systems (17-627)
Fall 2019	Artificial Intelligence for Software Engineering (CMU 17-649, 17-749)
Fall 2019	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Spring 2019	Artificial Intelligence for Software Engineering (CMU 17-649)
Fall 2016	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Fall 2015	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Spring 2016	Engineering Privacy in Software (CMU 08-605)
Fall 2015	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Spring 2015	Engineering Privacy in Software (CMU 08-605)
Fall 2014	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Fall 2014	Current Topics in Privacy Seminar (CMU 08-602)
Spring 2013	Engineering Privacy in Software (CMU 08-605)
Fall 2013	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Fall 2012	Methods: Deciding What to Design, graduate course (CMU 17-652, 17-752)
Fall 2012	Foundations of Software Engineering, undergraduate course, co-taught with William Scherlis (CMU 15-313)
Fall 2012	Software Engineering Research, undergraduate course, co-taught with ISR faculty (CMU 15-313)
Spring 2012	Privacy Policy, Law, and Technology (CMU 8-533, 8-733, 19-608, 95-818)
Fall 2011	Foundations of Software Engineering, undergraduate course, co-taught with William Scherlis (CMU 15-313)
Fall 2011	Methods: Deciding What to Design, graduate course co-taught with Jim Herbsleb (CMU 17-652, 17-752)

Academic Advising

Yuchen Shen, Ph.D. in Software Engineering, started Fall 2020.

Morgan C. Evans, Ph.D. in Software Engineering, Fall 2017-2020.

Jaspreet Bhatia, Ph.D. in Software Engineering, started Fall 2014, graduated May 2019, Thesis Title: *Ambiguity in Privacy Policies and Perceived Privacy Risk*

Hanan Hibshi Ph.D. in Societal Computing, started Fall 2011, graduated August 2018, Thesis Title: *Composite Security Requirements in the Presence of Uncertainty*

Daniel Smullen, Ph.D. in Software Engineering, Fall 2014-2017

Sudharshan Wadkar, Masters in Software Engineering, Spring 2014-2018

Ashwini Rao, Ph.D. in Software Engineering, Fall 2012-2013

David Gordon, Ph.D. in Engineering and Public Policy, started Fall 2010, graduated June 2014, Thesis Title: *Without Borders: Addressing Legal Requirements in Multi-Jurisdictional IT Environments*

Research Funding

Title: Collaborative Research: DASS: Legal Accountability as Software Quality
PI: Travis Breaux, Co-PI: Thomas Norton, Fordham University
Agency: National Science Foundation
Duration: October 2022 – September 2025
Amount: $511,483

Title: SHF: Small: Privacy Impact and Risk Assessment at Design-Time
PI: Travis Breaux
Agency: National Science Foundation
Duration: August 2020 – September 2023
Amount: $498,221

Title: Leveraging the Multi-Stakeholder Nature of Cyber Security
PI: Christian Wagner, Co-PI: Travis Breaux
Agency: UK Engineering and Physical Sciences Research Council
Duration: January 2017 – December 2019
Amount: £1,000,000 with sub-contract to CMU for $179,625

Title: Information Assurance Decision Support and Automation
PI: Travis D. Breaux
Agency: Naval Postgraduate School
Duration: August 2018 – July 2019
Amount: $120,000

Title: Architecture-driven Information Assurance for Rapid Acquisition
PI: Travis D. Breaux
Agency: Naval Postgraduate School
Duration: January 2016 – December 2017
Amount: $120,000

Title: Real-time Privacy Risk Evaluation and Enforcement
PI: Travis D. Breaux
Agency: National Security Agency
Duration: March 2016 – February 2017
Amount: $139,811

Title: CAREER: Software Requirements Evolution in a Multi-Jurisdictional, Socio-Technical Ecosystem
PI: Travis D. Breaux
Agency: National Science Foundation
Duration: September 2015 – August 2020
Amount: $600,000

Title: Tools to improve consistency between privacy policies and current practice
PI: Travis D. Breaux, Co-PIs: Alberto Silva
Agency: Government of Portugal
Duration: December 2014 – November 2015
Amount: $17,000

Title: Improving Rapid Information Technology Acquisition in an Integrated, Risk-Managed Environment
PI: Travis D. Breaux
Agency: Naval Postgraduate School
Grant No: Pending
Duration: January 2014 – August 2015
Amount: $120,000

Title: Usable Formal Methods for the Design and Composition of Security and Privacy Policies
PI: Travis D. Breaux; Co-PIs: Jianwei Niu
Agency: National Security Agency
Duration: April 2013 – February 2016
Amount: $240,000

Title: TWC SBE: Option: Frontier: Collaborative: Towards Effective Web Privacy Notice and Choice: A
            Multi-Disciplinary Prospective
PI: Norman Sadeh; Co-PIs: Alessandro Acquisti, Travis Breaux, Lorrie Cranor, Noah Smith
Agency: National Science Foundation
Grant No: 1330596
Duration: September 2013 – February 2017
Amount: $693,716

Title: Deconstructing Context and Comparative Analysis in Multi-National Privacy Policy
PI: Travis D. Breaux; Co-PIs: Alessandro Acquisti, Rahul Telang
Agency: Department of Homeland Security, under the Institute for Information Infrastructure Protection (I3P)
Grant No: 2006-CS-001-000001
Duration: February 2011 – July 2012
Amount: $175,000

Title: Harmonizing Privacy and Security Requirements Across Multiple Jurisdictions
PI: Travis D. Breaux
Agency: Hewlett-Packard Labs Innovation Research Program
Award No: CW267287
Duration: October 2011 – September 2013
Amount: $150,000

Title: Rapid Acquisition for Mobile Applications in a Risk-Managed Environment
PI: Travis D. Breaux
Agency: Naval Postgraduate School
Duration: October 2011 – September 2012
Amount: $119,809

Title: Improving Usability of Security Requirements by Software Developers through Empirical Studies and
            Analysis
PI: Travis D. Breaux; Co-PIs: Laurie Williams, Jianwei Niu
Agency: National Security Agency
Duration: December 2011 – September 2013
Amount: $260,000