WPES '22: 21st Workshop on Privacy in the Electronic Society

Yuan Hong
yuan.hong@uconn.edu
University of Connecticut
Storrs, Connecticut, USA

Lingyu Wang
wang@ciise.concordia.ca
Concordia University
Montreal, Quebec, Canada

ABSTRACT

These proceedings contain the papers selected for inclusion in the technical program for the 21st ACM Workshop on Privacy in the Electronic Society (WPES 2022), held in conjunction with the 29th ACM Conference on Computer and Communication Security (CCS 2022). This year, WPES is held as a hybrid event (including both in-person and online presentations) on November 7, 2022.

In response to the workshop's call for papers, 59 valid submissions were received. These 59 submissions include 43 submissions as full papers and 16 submissions as short papers. They were evaluated by a technical program committee consisting of 51 researchers whose backgrounds include a diverse set of topics related to privacy. Each paper was reviewed by at least 3 members of the program committee, and the average number of reviews for each paper is 3.75. Papers were evaluated based on their importance, novelty, and technical quality. After the rigorous review process, 12 submissions were accepted as full papers (acceptance rate: 20.3%) and additionally 8 submissions were accepted as short papers. The complete workshop proceedings are available at the following URL: https://dl.acm.org/doi/proceedings/10.1145/3559613.

CCS CONCEPTS

• **Security and privacy → Human and societal aspects of security and privacy**.

KEYWORDS

Privacy; Privacy threats; Privacy models; Privacy metrics; Privacy policies; Anonymization

ACM Reference Format:
Yuan Hong and Lingyu Wang. 2022. WPES '22: 21st Workshop on Privacy in the Electronic Society. In *Proceedings of the 2022 ACM SIGSAC Conference on Computer and Communications Security (CCS '22), November 7–11, 2022, Los Angeles, CA, USA.* ACM, New York, NY, USA, 3 pages. https://doi.org/10.1145/3548606.3563220

1 INTRODUCTION

The need for privacy-aware policies, regulations, and techniques has been widely recognized. WPES discusses the problems of privacy in the global interconnected societies and possible solutions. The workshop, co-located with the ACM CCS conference in 2022, is the twenty-first in a yearly forum for papers on all the different aspects of privacy in today's electronic society.

To facilitate attendance to a global audience in times of the ongoing public health challenges, the workshop takes place both in person and online. Two types of papers are presented:

- Full papers, which are no more than 12 pages in the ACM double-column format, plus 2 extra pages for bibliography and 1 extra page for well-marked appendix (appendices).
- Short papers, which are up to 4 pages for results that are preliminary or that simply require few pages to describe, plus 1 extra page for bibliography and well-marked appendix (appendices). Authors of regular submitted papers indicate at the time of submission whether they would like their paper to also be considered for publication as a short paper.

In addition to in-person presentations, online presentations are performed over an audio-video communication system, and the audience has the opportunity to ask questions during both.

The WPES '22 workshop proceedings are available at the following URL: https://dl.acm.org/doi/proceedings/10.1145/3559613.

2 TOPICS OF INTEREST

The workshop seeks submissions from academia, industry, and government presenting novel research on all theoretical and practical aspects of privacy, as well as experimental studies of fielded systems. We also encourage submissions from other communities such as law and business that present these communities' perspectives on technological issues related to privacy. Topics of interest include, but are not limited to:

- access and query privacy
- anonymization and transparency
- crowdsourcing for privacy and security
- data correlation and leakage attacks
- data and computations integrity in emerging scenarios
- electronic communication privacy
- electronic communication privacy
- information dissemination control
- insiderprotection
- models, languages, and techniques for big data protection
- anonymization of text, unstructured data and multimedia
- anonymization of longitudinal data and streams
- statistical disclosure control
- theory of data anonymization
- privacy models
- network privacy
- personally identifiable information
- privacyaccess control
- privacy and anonymity on the Web
- privacy in big data

CCS '22, November 7–11, 2022, Los Angeles, CA, USA

ACM ISBN 978-1-4503-9450-5/22/11.
https://doi.org/10.1145/3548606.3563220

- privacy in biometric systems
- privacy in cloud and grid systems
- privacy and data mining
- privacy in the digital business
- privacy in the Internet of Things
- privacy enhancing technologies
- privacy in health care and public administration
- privacy and human rights
- privacy metrics
- privacy in mobile systems
- privacy in outsourced scenarios
- privacy in sensor networks
- privacy in surveillance systems
- privacy policies
- privacy of provenance data
- privacy in social networks
- privacy threats
- privacy and virtual identity
- user privacy
- wireless privacy

3 WORKSHOP ORGANIZERS

Yuan Hong serves as the workshop co-chair. He is an Associate Professor in the Department of Computer Science and Engineering at University of Connecticut (UConn). Prior to joining UConn, he was an Assistant Professor in Computer Science and Cybersecurity Program Director at Illinois Institute of Technology. He received his Ph.D degree from Rutgers University in 2014. Before that, he received his M.Sc degree from Concordia University, Montreal, Canada, and B.Sc degree from Beijing Institute of Technology, respectively. He is a recipient of the NSF CAREER Award and Cisco Research Award, as well as the Meta (Facebook) Research Award Finalist. His research focuses on Differential Privacy (both theory and applications), Secure Multiparty Computation (applied cryptography), Machine Learning Security and Privacy (both attacks and defenses), Cyber-Physical Systems Security and Privacy (e.g., IoT, ITS and V2X), and Optimization. His research contributions have been published in prestigious venues of Security (e.g., S&P/Oakland, CCS, PETS, TDSC, TIFS, and TOPS), Data Science (e.g., KDD, VLDB, ECCV, EMNLP, AAMAS, CIKM, EDBT, ICDE, ICDM, and TKDE), and Networking/Systems (e.g., ICDCS, and ICCD). He regularly serves as the TPC member for top conferences such as CCS, USENIX Security, PETS, NeurIPS, ICML, CVPR, and KDD.

Lingyu Wang serves as the workshop co-chair. He is a Professor at the Concordia Institute for Information Systems Engineering (CIISE) at Concordia University, Montreal, Canada. He holds the NSERC/Ericsson Senior Industrial Research Chair in SDN/NFV Security. He received his Ph.D. degree in Information Technology in 2006 from George Mason University. His research interests include privacy, cloud computing security, SDN/NFV security, security metrics, and software security. He has co-authored six books, two US patents, and about 150 refereed conference and journal articles at reputable venues including TOPS, TIFS, TDSC, TKDE, TMC, CUSR, S&P, CCS, NDSS, ESORICS, ICDT, PETS, WPES, etc. He is serving on the editorial boards of IEEE Transactions on Dependable and Secure Computing, Computers & Security, and Annals of Telecommunications. He has served as the program (co)-chair of seven international conferences and the technical program committee member of over 150 international conferences.

Azadeh Tabiban serves as the workshop publicity chair. She is a Ph.D. candidate at the Concordia Institute for Information Systems Engineering (CIISE) at Concordia University, Montreal, Canada. She has worked as a research assistant on industry-sponsored projects since 2017. Her Ph.D. research focuses on provenance analysis and its applications to virtualized environments including clouds, containers, and Network Functions Virtualization (NFV). Her recent work on provenance analysis for NFV has been presented at NDSS'22. Her work has also led to a US patent application, and several demos and presentations given at major industrial events.

4 COMMITTEE

We highly appreciate the efforts of our Steering and Program Committees and would like to thank all members for their great support.

Steering Committee

- Sabrina De Capitani di Vimercati, Universita degli Studi di Milano, Italy
- Sushil Jajodia, George Mason University, USA
- Pierangela Samarati (Chair), Universita degli Studi di Milano, Italy
- Paul Syverson, U.S. Naval Research Laboratory, USA

Program Committee

- Ghada Almashaqbeh, University of Connecticut
- Hafiz Asif, Rutgers University
- Erman Ayday, Case Western Reserve University
- Yang Cao, Kyoto University
- Bo Chen, Michigan Technological University
- Dong Chen, Colorado School of Mines
- Jeremy Clark, Concordia University
- Chris Clifton, Purdue University
- Mauro Conti, Padova University
- Frederic Cuppens, Polytechnique Montreal
- Sabrina De Capitani di Vimercati, Universita' degli Studi di Milano, Italy
- Ferdinando Fioretto, Syracuse University
- Sara Foresti, Universita' degli Studi di Milano, Italy
- Sebastien Gambs, Universite du Quebec a Montreal
- Joaquin Garcia-Alfaro, Institut Polytechnique de Paris
- Guangquan Xu, Tianjin University
- Yidan Hu, Rochester Institute of Technology
- Hongxin Hu, University at Buffalo, SUNY
- Aaron Johnson, U.S. Naval Research Laboratory
- Taeho Jung, University of Notre Dame
- Stefan Katzenbeisser, University of Passau
- Doowon Kim, University of Tennessee, Knoxville
- Peeter Laud, Cybernetica AS
- Adam J. Lee, University of Pittsburgh
- Zhou Li, University of California, Irvine
- Bingyu Liu, Harvard University
- Giovanni Livraga, University of Milan
- Rongxing Lu, University of New Brunswick

- Haibing Lu, Santa Clara University
- Bo Luo, The University of Kansas
- Suryadipta Majumdar, Concordia University
- Brad Malin, Vanderbilt University
- Amirreza Masoumzadeh, University at Albany, SUNY
- Sjouke Mauw, University of Luxembourg
- Meisam Mohammady, CSIRO
- Stefano Paraboschi, Universita di Bergamo
- Zhan Qin, Zhejiang University
- Chenxi Qiu, University of North Texas
- Indrakshi Ray, Colorado State University
- Pierangela Samarati, Universita' degli Studi di Milano, Italy
- Scott Stoller, Stony Brook University
- Shamik Sural, Indian Institute of Technology, Kharagpur
- Paul Syverson, U.S. Naval Research Laboratory
- Daniel Takabi, Georgia State University
- Vicenc Torra, University of Skovde
- Binghui Wang, Illinois Institute of Technology
- Shangyu Xie, Illinois Institute of Technology
- Ting Yu, Qatar Computing Research Institute
- Meng Yu, Roosevelt University
- Jiawei Yuan, University of Massachusetts Dartmouth
- Lei Zhang, East China Normal University

5 WORKSHOP STATISTICS

In response to the workshop's call for papers, 59 valid submissions were received. These 59 submissions include 43 submissions as full papers and 16 submissions as short papers. They were evaluated by a technical program committee consisting of 51 researchers whose backgrounds include a diverse set of topics related to privacy. Each paper was reviewed by at least 3 members of the program committee, and the average number of reviews for each paper is 3.75. Papers were evaluated based on their importance, novelty, and technical quality. After the rigorous review process, 12 submissions were accepted as full papers (acceptance rate: 20.3%) and additionally 8 submissions were accepted as short papers.