

Web-Science-Seminar: “Trust and Privacy in Social Media”

IIG topics: “Privacy in Social Media”

1. Applicability of Privacy-Enhancing Technologies in Social Media

Supervisor: Christian Zimmermann

Privacy-Enhancing Technologies (PETs) aim at data-minimization in order to protect privacy. A broad variety of PETs has been developed during the last decades for varying domains and with varying goals. Their applicability and usefulness in the context of Online Social Networks, however, has repeatedly been questioned. In particular, their suitability to meaningfully address the Big Data and inference problems in Online Social Media has increasingly come into question.

Basic Literature:

- Heurix, J., Zimmermann, P., Neubauer, T., and Fenz, S. (2015). A taxonomy for privacy enhancing technologies. *Computers & Security* 53, 1–17.
- Nissenbaum, H. (2011). A Contextual Approach to Privacy Online. *Daedalus* 140, 32–48.
- Pfitzmann, A., and Hansen, M. (2010). A terminology for talking about privacy by data minimization: Anonymity, Unlinkability, Undetectability, Unobservability, Pseudonymity, and Identity Management. [Online] url: http://dud.inf.tu-dresden.de/Anon_Terminology.shtml
- Schermer, B.W. (2011). The limits of privacy in automated profiling and data mining. *Computer Law & Security Review* 27, 45–52.

2. Applicability of Transparency-Enhancing Technologies in Social Media

Supervisor: Christian Zimmermann

Online Social Network providers and other E-Business providers collect, aggregate and analyze vast amounts of their users’ personal data. Traditional approaches towards privacy by secrecy by use of Privacy-Enhancing Technologies (PET) are often argued to come to their limits in this context. Recently, Transparency-Enhancing Technologies have come into focus as a supplement to PET. However, it is yet unclear how TET can provide trustworthy information and whether they actually contribute to privacy protection.

Basic Literature:

- Buchmann, J., Nebel, M., Rossnagel, A., Shirazi, F., Simo Fhom, H., and Waidner, M. (2013). Personal Information Dashboard: Putting the Individual Back in Control. In *Digital Enlightenment Yearbook 2013: The Value of Personal Data*, M. Hildebrandt, K. O’Hara, and M. Waidner, eds. (Amsterdam: IOS Press), pp. 139–164.
- Hansen, M. (2008). Marrying Transparency Tools with User-Controlled Identity Management. In *The Future of Identity in the Information Society*, S. Fischer-Hübner, P. Duquenoy, A. Zuccato, and L. Martucci, eds. (Springer US), pp. 199–220.
- Janic, M., Wijbenga, J.P., and Veugen, T. (2013). Transparency Enhancing Tools (TETs): An Overview. In *2013 Third Workshop on Socio-Technical Aspects in Security and Trust (STAST)*, pp. 18–25.
- Pulls, T., Peeters, R., and Wouters, K. (2013). Distributed Privacy-preserving Transparency Logging. In *Proceedings of the 12th ACM Workshop on Workshop on Privacy in the Electronic Society*, (New York, NY, USA: ACM), pp. 83–94.

3. Applicability of Usage Control Mechanisms in Social Media

Supervisor: Christian Zimmermann

Usage Control (UCON) has been proposed as a generalization of access control. The usage control model integrates access control, digital rights management and trust management. In contrast to classic access control, usage control aims at controlling not only who may access which data, but also how the data may be used or distributed afterwards.

Basic Literature:

- Lazouski, A., Martinelli, F., and Mori, P. (2010). Usage control in computer security: A survey. *Computer Science Review* 4, 81–99.
- Park, J., and Sandhu, R. (2002). Towards Usage Control Models: Beyond Traditional Access Control. In *Proceedings of the Seventh ACM Symposium on Access Control Models and Technologies*, (New York, NY, USA: ACM), pp. 57–64.
- Pretschner, A., Hilty, M., and Basin, D. (2006). Distributed Usage Control. *Commun. ACM* 49, 39–44.
- Pretschner, A., Hilty, M., Basin, D., Schaefer, C., and Walter, T. (2008). Mechanisms for Usage Control. In *Proceedings of the 2008 ACM Symposium on Information, Computer and Communications Security*, (New York, NY, USA: ACM), pp. 240–244.

4. Applicability of Accountability-Oriented Approaches towards Privacy in Social Media

Supervisor: Christian Zimmermann

The concept of accountability has a long history in the fields of economics and politics. However, it also increasingly gets into the focus of computer science and information systems research as a means towards privacy protection and policy compliance checking.

While some accountability mechanisms have already been proposed, it is yet an open question how accountability mechanisms can be applied for supporting privacy protection in Online Social Networks and other Internet services.

Basic Literature:

- Feigenbaum, J., Jaggard, A.D., and Wright, R.N. (2011). Towards a formal model of accountability. In *Proceedings of the 2011 Workshop on New Security Paradigms Workshop*, (New York, NY, USA: ACM), pp. 45–56.11
- Koppell, J.G. (2005). Pathologies of Accountability: ICANN and the Challenge of “Multiple Accountabilities Disorder.” *Public Administration Review* 65, 94–108.
- Pearson, S. (2013). On the Relationship between the Different Methods to Address Privacy Issues in the Cloud. In *On the Move to Meaningful Internet Systems: OTM 2013 Conferences*, R. Meersman, H. Panetto, T. Dillon, J. Eder, Z. Bellahsene, N. Ritter, P.D. Leenheer, and D. Dou, eds. (Springer Berlin Heidelberg), pp. 414–433.
- Weitzner, D.J., Abelson, H., Berners-Lee, T., Hanson, C., Hendler, J., Kagal, L., McGuinness, D.L., Sussman, G.J., and Waterman, K.K. (2006). *Transparent Accountable Data Mining: New Strategies for Privacy Protection* (Massachusetts Institute of Technology Computer Science and Artificial Intelligence Laboratory).

5. Digital Persona and Trust Banks in Social Media

Supervisor: Claus-Georg Nolte

The digital persona is a part of the individual identity that has been extended into the online sphere to which corresponds a digital unconscious structuring a digitally divided self. One attempt to control this digital persona and to ensure privacy and security is the so-called "trust bank". The task of this topic is to analyze the concept of trust banks with regard to the idea of privacy as online self-determination. Therefore, the provided literature should be used as entry point to find further papers and information to answer this question sufficiently.

Basic Literature:

- Bélanger, France, and Robert E. Crossler. "Privacy in the digital age: a review of information privacy research in information systems." *MIS quarterly* 35.4 (2011): 1017-1042.
- Nilakanta, Sree, and Kevin Scheibe. "The Digital Persona and Trust Bank: A Privacy Management Framework." *Journal of Information Privacy and Security* 1.4 (2005): 3-21.
- Clarke, Roger. "The digital persona and its application to data surveillance." *The information society* 10.2 (1994): 77-92.

6. Identity Management & Privacy in Social Media

Supervisor: Claus-Georg Nolte

In the last few years, profiles in social network services like Facebook, Google or Twitter have become an identity management tool which enables users to login into other services or applications and manage which data is transferred. Nevertheless, also other classic identity management approaches like "Open ID" still exist and keep being actively used. The guiding question for this task is if and how identity management preserves user privacy and which problems occur with this challenge. As usually, the provided literature is just an entrance and based on it further literature should be searched and analyzed.

Basic Literature:

- Angulo, Julio, and Erik Wästlund. "Identity management through "profiles": Prototyping an online information segregation service." *Human-Computer Interaction. Users and Contexts of Use* (2013): 10-19.
- Pfitzmann, Andreas, and Marit Hansen. "A terminology for talking about privacy by data minimization: Anonymity, unlinkability, undetectability, unobservability, pseudonymity, and identity management." (2010): 34.
- Bertino, Elisa, et al. "Privacy-preserving Digital Identity Management for Cloud Computing." *IEEE Data Eng. Bull.* 32.1 (2009): 21-27.
- Hansen, Marit, et al. "Privacy-enhancing identity management." *Information security technical report* 9.1 (2004): 35-44.