Designing an Ethical Consent Management Tool in the Context of Inverse Transparency

Master's Thesis

Supervisor: Prof. Dr. Alexander Pretschner
Advisor: Valentin Zieglmeier, Julia Schuller
Email: {pretschn, zieglmev}@in.tum.de
Phone: +49 (89) 289 - 17834
Starting date: As soon as possible

Fakultät für Informatik
Lehrstuhl 4
Software & Systems Engineering
Prof. Dr. Alexander Pretschner

Boltzmannstraße 3
85748 Garching bei München

Tel: +49 (89) 289 - 17834
https://www4.in.tum.de

Context

In the workplace, data on employees are used in various ways, e.g. to improve work processes, ensure compliance, or manage teams. So-called people analytics tools thereby focus specifically on analyzing the individual employees' behavior for management decisions. While many beneficial uses for such work-process-related data exist, they offer a unique potential of employee monitoring. Therefore, research on inverse transparency works towards ensuring full visibility of data accesses in such contexts to owners of the data.

While this transparency is one corner stone to empower data subjects with respect to their privacy rights, they must further be enabled to *control* the usage of their data exceeding pure informational insights. The idea of this thesis is to explore how the data access which are logged in the inverse transparency toolchain can be utilised to transfer control to data subjects over their data. One possibility to achieve data subject's control over their data is via a consent management tool, which enables them to provide or refrain consent. On the one hand, consent management is important to be realised given that it is a legal requirement of the GDPR. On the other hand, consent requirements exceed pure legal demands by being a morally right action, which enables informational self-determination and helps to protect one's private sphere from interference by others.

Goal

Designing, implementing, and evaluating a consent management tool, which is integrated in the existing inverse transparency architecture. This should include:

1. An architecture design of the tool, which is integrated into the existing inverse transparency toolchain.
2. An analysis of how prohibited data usage scenarios can be enforced.
3. A deliberative analysis of what kind of data usage scenarios there are to be potentially inhibited.
4. A user interface, which is oriented on best practices for informed consent to or rejection of certain data usage scenarios.
5. A user-focused evaluation considering how the solution enables sovereign data decisions.

Work Plan

1. Research related literature, such as:
   - Dark patterns of consent [3, 4, 5]
   - Theoretical motivation for consent [6]
   - Consent Management Platforms (CMPs) [2, 7]
2. Theoretical Conceptualisation
   - Designing a concrete consent management (CM) component for the inverse transparency toolchain based on best practices from literature.
   - Identifying the integration points for information collection required by the CM component.
   - What kind of data usage scenarios there are to be potentially inhibited?
3. Implement the CM incorporating real-world constraints where necessary.
4. Evaluate
   - To what extent are the requirements of the GDPR fulfilled by the developed UI? (theoretical analysis)
   - Analyse the technical implications of the integration of the CM into the toolchain, e.g. considering architectural changes (theoretical analysis).

- What effect do the integrated bright patterns of consent have on potential data subjects compared to dark patterns? (user study)

5. Document the work in the thesis.

Deliverables

- Source code of the implementation.
- Architectural schemata.
- Thesis written in conformance with TUM guidelines.

References

[1] Zieglmeier, Valentin, and Alexander Pretschner. “Trustworthy Transparency by Design.” arXiv preprint 2103.10769 (2021). Available: https://arxiv.org/pdf/2103.10769

[2] Hils, Maximilian, Daniel W. Woods, and Rainer Böhme. "Privacy preference signals: Past, present and future." Proceedings on Privacy Enhancing Technologies 2021.4 (2021): 249-269.

[3] Mathur, Arunesh, Mihir Kshirsagar, and Jonathan Mayer. "What makes a dark pattern... dark? Design attributes, normative considerations, and measurement methods." Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. 2021.

[4] Gray, Colin M., et al. "Dark patterns and the legal requirements of consent banners: An interaction criticism perspective." Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. 2021.

[5] Human, Soheil, and Florian Cech. "A human-centric perspective on digital consenting: The case of gafam." Human Centred Intelligent Systems. Springer, Singapore, 2021. 139-159.

[6] Müller, Andreas, and Peter Schaber, eds. The Routledge handbook of the ethics of consent. New York: Routledge, 2018.

[7] Santos, Cristiana, et al. "Consent Management Platforms under the GDPR: processors and/or controllers?." Annual Privacy Forum. Springer, Cham, 2021.

Fakultät für Informatik
Lehrstuhl 4
Software & Systems Engineering
Prof. Dr. Alexander Pretschner

Boltzmannstraße 3
85748 Garching bei München

Tel: +49 (89) 289 - 17834
https://www4.in.tum.de