Course Description

Web Trust

Contents

The Big Idea

> "Today we need to trust more people than ever before, further away — whether politically, ethnically or socially — than ever before. We need to trust larger corporations, more diverse institutions and more complicated systems. We need to trust via computer networks. […] At the same time, the scaling of technology means that the bad guys can do more damage than ever before."
>
> – Bruce Schneier [1]

The character of this course is driven by two major questions. How one can trust web resources (like content) and how one is able to offer web resources which others do trust in? These questions are already important in personal or private usage of the web. But in the context of e-commerce they may become crucial. More and more enterprises world-wide rely on web based services, e. g. Yammer, Sharepoint or Cloud Computing, and a growing number of people uses the web for their professional or private activities – with an increasing number of being unaware of the risks.

To address these two major questions were going to analyse how we, as users, trust in resources and how we would, as owners, change them to improve trust. For that were going to discuss several trust models and how they are transferable to a digital world. Then student adopt them to within practical tasks.

Intended Learning Outcomes

After completing this course participants

- know varied aspects of trust and its usage
- understand meanings and distinctions of technical term (e.g. trust, trustworthiness, distrust, credibility, reputation, risk, believability) and are able to apply these in own projects
- are able to analyse trust in web-based systems
- know methods for improving or inventing trust in web-based systems
- are familiar with criteria for building trust in content
- know cognitive processes and models for building trust in the web
- understand strengths and weaknesses of trust Management, reputation and social trust

Structure of the Course

Introduction

In the introductory part the students are acquainted with the most significant changes in trusting that resulted from the prevalence of the World Wide Web and the widespread use of resources available therein. Since this topic is quite new and innovative the course starts with a short overview of different approaches to and definitions of trust (as outlined above and for example in [1], [2] and [3]), and discusses their relevance for further considerations. Then the course focuses on the most challenging problems and the most important and best working methods for their solution in practical professional web usage.

General conditions of Web Trust

This course is related to, but not based on the knowledge the students acquired in the required course Web Security, where they learn to systematically analyse scenarios in respect of their relevant security aspects and develop analytical skills based on concrete use cases.

In the first stage the most relevant aspects and scenarios will be introduced and considered. Then an approach to a suitable systematic and a coarse grained framework for decisions about web trust are to be outlined. Due to time constraints the focus of the course lays on the different kinds of web resources and their trustworthiness. Especially in conjunction with research using web resources and effects on offering web resources (e. g. online information, online databases, web shops and so on) to consumers and professionals the most relevant aspects are to be considered. Assessing whether to trust any information or content provided by a web source or not is a complex process, which is affected by many factors.

Trust enabling mechanisms known from our common social life must be replaced by other mechanisms. But how can this be done and what mechanisms are appropriate? There is a strong but complex correlation between Trust and Security in our societies [6]. This is also true for the web as a subsystem of the society. The lessons learned from society in general can partially be transferred to the correlation between Web Trust and Web Security.

Trust perception

The inherent risk and uncertainties of an online environment can hamper the interaction and exchange between actors. Therefore, a desired goal in an online environment is to mediate stimuli in order to improve the formation of trust between actors. Nevertheless, the formation of trust is affected by many different factors depending on the specific context. This is especially important, when it comes to the interaction of actors without previous encounters or in the presence of a high risk. Participants of this course deal with scientific literature to learn about factors, which effect the formation of trust. This includes also the exploration of perceptual models to build trust and assess credibility. These models will be applied by the participant in their project.

Trust in content

Trust in content is omnipresent in the Web, because almost all services are based to provide content. Since Web 2.0 users have been emerged from consumers to content creators. So it's important to discuss what content is and how it can be trusted. For that were going to discuss opportunities on the example of Wikipedia and Semantic Web. Wikipedia is the biggest website with an open collaborative model and mostly user generated content, so trust in content is especially interesting here. Whilst Semantic Web is dealing with the proper representation of content itself.

Trust modelling and management

The final subject of this course deals with the transformation of social trust into digital trust. With a digital representation of trust, it is possible to specify and evaluate trust relationship between entities as well as do calculations based on trust values[4]. In relation to that, trust management encompasses aspects to gather, store and disseminate trust information to facilitate the trust model. Within this course, students learn different methodologies to transform trust for digital systems and develop models for their own project. This will be combined with defining suitable actions to manage trust in the chosen system.

Didactic Concept, Schedule and Assignments

This course deals with the theoretical and practical aspects of web trust. Theoretical concepts and models are addressed with activities, reading materials and lecture's presentations during the workshop. In addition every single workshop contains a dedicated part for feedback, discussions, artifacts and running tasks of ongoing students' workbooks. The outcome of the workbooks will be presented by the participants in a poster session.

Preparation and reading materials for this course

- Trust Models Analysis for the Semantic Web [5]
- Trust Management for Semantic Web [6]
- A survey of trust in computer science and the Semantic Web [7]

Introduction on-site

Trust is important in various fields of research, so not only psychologists are interested in trust, but also economists, sociologist, philosophers and even computer scientist. In this introduction, despite discussing organisational matters, we will present some basic trust models and how trust differs in a digital world. Furthermore, were going to discuss the motivation of handling trust in the Web environment.

1st Online Workshop - Perception of Trust

The participants of the course will examine a couple of web sites and figure out different trust characteristics. With these results, perceptual models [8] [9] for the perception of trust and information credibility will be presented and discussed. Afterwards the participants will continue working at their project and discuss their current state with the lecturers.

2nd Online Workshop - Trust in Content

The lecturer will introduce aspects of trust in content with face news and data driven content. As preparation for this course, the students should read a set of selected articles and papers regarding face news and build a big picture out of the conclusions drawn. This big picture is than applied on data driven content and what we can believe is already possible. In the workshop, sketches will be made for methods to sensitise persons about fake news and data driven content and guide them to a more responsible behaviour.

3rd Online workshop - Trust Management and Trust in People

This lectures focus on the aspect of Trust management and trust in people. These aspects will be examined with different activities and presentations, before the final group work session will take place.

Wrap-up session on-site

The participants will present their outcome in form of a poster session in this session. Afterwards the lectures will give feedback to the working documents and grading.

Examination

For grading the participants' workbooks will be used. For the workbook students have to use the Word or Latex template (passwords are given during the introduction).

References

↑ Schneier, Bruce, ed (2012, last retrieve September 2016) (in English). *Bruce Schneier on Trust, FiveBooks Interviews. Interview by Alec Ash*. Schneier on Security. https://www.schneier.com/news/archives/2012/02/bruce_schneier_on_tr.html.

↑ Vermeeren, Arnold, ed (2010) (in English). *User Experience Evaluation Methods: Current State and Development Needs*. ACM, Proceedings of the 6th Nordic Conference on Human-Computer Interaction (NordiCHI 2010). https://dl.acm.org/citation.cfm?id=1868973.

↑ Brogan, Chris, ed (2010) (in English). Trust Agents – Using the Web to build Influence, improve Reputation, and earn Trust.. John Wiley & Sons Inc., Hoboken, New Jersey.

↑ Zheng, Yan, ed (2007) (in English). *Trust modeling and management: from social trust to digital trust*.. IGI Global (2008). http://lib.tkk.fi/Diss/2007/isbn9789512291205/article1.pdf.

↑ Katebi, Mojtaba, ed (2009) (in English). *Trust Models Analysis for the Semantic Web*. IEEE. http://ieeexplore.ieee.org/xpl/abstractKeywords.jsp?reload=true&arnumber=5395086.

↑ Tahajod, Maryam; Khozooy, Nasim, eds (2009) (in English). *Trust Management for Semantic Web*. IEEE. http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5380157.

↑ Artz, Donovan, ed (2007) (in English). [http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.88.908 *A survey of trust in computer science and the* Semantic Web*]. Journal of Web Semantics. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.88.908*.

↑ Corritore, Cynthia L.; Wiedenbeck, Susan, eds (2003) (in English). *On-line trust: concepts, evolving themes, a model*. Int. J. Hum.-Comput. http://dx.doi.org/10.1016/S1071-5819(03)00041-7.

↑ Fogg, B.J., ed (2003) (in English). *Prominence-interpretation theory: explaning how people assess credibility online*. CHI '03 Extended Abstracts on Human Factors in Computing Systems. http://dl.acm.org/citation.cfm?id=765951.

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