

Summer Term 2019
Seminar / Proseminar
**„Recent Research Topics in Workflow Analysis,
Privacy and Machine Learning“**

Kick-Off Meeting 30th April 2019

SYSTEME DER INFORMATIONSVEWALTUNG, PROF. DR.-ING. KLEMENS BÖHM
INSTITUT FÜR PROGRAMMSTRUKTUREN UND DATENORGANISATION, FAKULTÄT FÜR INFORMATIK



Organizer

- Institute for Program Structures and Data Organisation (IPD)
- Chair for Systems of InformationManagement Prof. Klemens Böhm
 - Jutta Mülle, Room 361, muelle@kit.edu
 - Elaheh Ordoni, Room 362, elaheh.ordoni@kit.edu
 - Christine Tex, Room 341, christine.tex@kit.edu
 - Jakob Bach, Room 351, jakob.bach@kit.edu
 - Ábel Elekes, Room 339, abel.elekes@kit.edu
- Informatics Building Am Fasanengarten 5 (Building 50.34), 3rd floor
- Web-Seite: dbis.ipd.kit.edu

Learning Objectives

Intensive, critical reflection on a current research approach/topic

- Literature search and comparison with related work
- Oral presentation
- Discussion
- Preparing an elaboration / a report

Topics of the Proseminar (Bachelor)

- Business Process Management (BPM) is a mature and often used technique in business and other domains
- Recent challenges come from new formal approaches to handle data in workflows, new application domains and technical innovations,

Supervisor: Elaheh Ordoni

- P1: Verification Methods with Probabilistic Logics
Li, H.: Modeling and verification of probabilistic data-aware business processes. 3, (2015). (Chapter 4)
- P2: Reduction of Process Models for Enabling Verification of Large Processes
Mrasek, R., Mülle, J., & Böhm, K."A new verification technique for large processes based on identification of relevant tasks." *Information Systems* 47 (2015): 82-97.

Topics of the Proseminar (Bachelor) (2)

Supervisor: Jutta Mülle

- Topic P3: SMT-based Process Verification

S. Baarir, R. Bendraou, H. Metin, Y. Laurent: ProVer: An SMT-based Approach for Process Verification. Proc. MODELS-Workshop MoDeVVA, Copenhagen, Oct. 2018, CEUR-WS.org, Vol. 2245, pp. 555-562

- Topic P4: Process Verification with Data - a Database-Theory Perspective

R. DeMasellis, C. Di Francescomarino, C. Ghidini, M. Montali, S. Tessaris: Add Data into Business Process Verification: Bridging the Gap between Theory and Practice, Proc. Artificial Intelligence AAAI, 2017

D. Calvanese, M. Montali, G. De Giacomo: Foundations of Data-Aware Process Analysis: A Database Theory Perspective. PODS, June 2013, pp. 22-27

- Topic P5: Process Management in the Cloud

P. Waibel, C. Hochreiner, S. Schulte, A. Koschmider, J. Mendling: ViePEP-C: A Container-based Elastic Process Platform. IEEE Transactions on Cloud Computing PP (99), April 2019

Topics of the Seminar – BPM

- Business Process Management (BPM) is a mature and often used technique in business and other domains
- Recent challenges come from new formal approaches to handle data in workflows and technical innovations like Cloud computing

Supervisor: Elaheh Ordoni

- Topic S1: Reduction of State Space in Processes with Underlying Data Layer

Knuplesch, David, et al. On enabling data-aware compliance checking of business process models. Springer, Berlin, Heidelberg, 2010.

Supervisor: Jutta Mülle

- Topic S2: Evaluation Framework for Data-centric Process Management

S. Steinau, A. Marrella, K. Andrews, F. Leotta, M. Mecella, M. Reichert: DALEC: a framework for the systematic evaluation of data-centric approaches to process management software. Software & Systems Modeling, Springer, 2018, pp. 1-38

Topics of the Seminar – Privacy in Querying Databases

- Databases frequently contain private data, e.g., location data
- Challenge: Publish aggregated statistics, e.g., histograms or results of range-count queries about the database, but do not disclose private data
- Solution: Sanitize the statistics, or database itself, according to the differential privacy framework (Aggregation alone is not enough!)

Supervisor: Christine Tex

- Topic S3: Differentially private database indices for answering range queries

Cormode, Graham et. al, „Differentially Private Spatial Decompositions“, IEEE ICDE, 2012.

- Topic S4: Differentially private statistics on dynamic databases

Li, Haoran et. al, “Differentially Private Histogram Publication For Dynamic Datasets: An Adaptive Sampling Approach”, CIKM, 2015.

Topics of the Seminar – Meta-Learning

- Classical supervised machine-learning: make predictions for one dataset, consisting of several data objects
- Meta-learning: make predictions for a meta-dataset, each meta-data-object being a base dataset (described by certain characteristics) → e.g., predict which base classifier is best on which base dataset

Supervisor: Ábel Elekes, Student: Moritz Renftle

- Topic S5: Taxonomy of Use Cases for Word Embedding Models

Supervisor: Jakob Bach

- Topic S6: Meta-Learning Approaches for Clustering

De Souto, Marcilio CP, et al. "Ranking and selecting clustering algorithms using a meta-learning approach." *2008 IEEE International Joint Conference on Neural Networks*. IEEE, 2008.

- Topic S7: Generating Training Examples in Meta-Learning

Sousa, Arthur FM, et al. "Active learning and data manipulation techniques for generating training examples in meta-learning." *Neurocomputing* 194 (2016): 45-55.

Requirements for Passing the Seminar

- Prepare
 - Report structure (with some keywords) and literature list
 - Presentation slides
 - Report
- Oral presentation
- Actively participate at **all** oral presentation events
- Assessment: Preparation phase and report, oral presentation may change the assessment up to two grades better or worse.

Dates and Deadlines / Presentation Blocks

- Presentation dates each with 3 presentations at SR 348,
13:30 – 15:30 (19.6., 03.07 at 14:00)

3 Alternatives:

- *Wednesday afternoon? (19.06., 26.06., 03.07., 10.07.)*
- *Thursday afternoon? (27.06., 04.07., 11.07., 18.07.)*
- *Mixed? (Wednesday and Thursday afternoon):*
 - *26.06. and 27.06.*
 - *03.07. and 04.07.*

Assignment of the Topics

- Topic P1: Verification Methods with Probabilistic Logics *Raoul Schwagmeyer*
- Topic P2: Reduction of Process Models for Enabling Verification of Large Processes
- Topic S1: Reduction of State Space in Processes with Underlying Data Layer
- Topic P3: SMT-based Process Verification *Samarat Bisht* *Fangqiy Xu*
- Topic P4: Process Verification with Data - a Database-Theory Perspective
- Topic S2: Evaluation Framework for Data-centric Process Management *Layao Zhao*
- Topic S3: Differentially private database indices for answering range queries *Daniel Siegel*
- Topic S4: Differentially privacy statistics on dynamic databases
- Topic P5: Process Management in the Cloud *Ruskeel Tyet*
- Topic S5: Taxonomy of Use Cases for Word Embedding Models *N. Reuthe*
- Topic S6: Meta-Learning Approaches for Clustering *Niklas Nohrt*
- Topic S7: Generating Training Examples in Meta-Learning *Alexis Bourke*

Assignment of the Topics (not yet complete!)

- Topic P1: Raoul Schwagmeier
- Topic P2: -
- Topic P3: Samrat Bista
- Topic P4: Fangyi Xu
- Topic P5: Rusheel Iyer
- Topic S1: -
- Topic S2: Luyao Zhao
- Topic S3: David Siegele
- Topic S4: -
- Topic S5: Moritz Renftle
- Topic S6: Markus Mohr
- Topic S7: Alexis Bernhard

Organization

- Initial training: Reading and understanding the article(s) given
- Literature search
- Prepare material for oral presentation / for report
 - Adequate selection and structuring
 - Presentation of the relationships
 - Use own examples
 - Clearly present the facts (e. g., motivate, structure top-down)
 - Explain used terms
 - Critical evaluation
 - Sharply distinguish the approach presented from other literature
 - Provide good readability (e. g., enumerate the figures in your report and reference each figure in the text)
- The seminar report must not be a **1:1-version or translation** of the publication presenting the approach!

Formal Requirements

- Proseminar (Bachelor)
 - Report with 10-12 pages w/o title page and references
 - Minimum 2 new bibliographic references
 - Precise academic style
 - 20-25 minutes oral presentation (ca. 17 slides)
- Seminar (Master):
 - Report with 12-15 pages w/o title page and references
 - Minimum 4 new bibliographic references
 - Precise academic style
 - 20-25 minutes oral presentation (ca. 17 slides)

Technical/ Organisational Instructions

- Report: Use LaTeX or Word / OpenOffice
- Springer LNCS Format (Lecture Notes in Computer Science).
- Downloads + Guidelines see [http://www.springer.com/
computer/lncs?SGWID=0-164-6-793341-0](http://www.springer.com/computer/lncs?SGWID=0-164-6-793341-0)
- Presentation: Use Powerpoint, OpenOffice or PDF.

Dates and Deadlines

- Final registration until **6th May** at the „Studierendenportal“:
 - SPO 2015:
 - 7500102 Proseminar
 - 7500040 Seminar
- Tutorial: How to give a presentation?
- Deadline for Report structure and literature list: **21.05.2019**
- Individual discussions with the supervisor:
during the period **28.5.-13.06.2019** (ask for meeting!)

Dates and Deadlines / 2

- Presentation dates each with 3 presentations at SR 348,
13:30 – 15:30
 - **26.06.2019 (Topics P1, P2 and S1)**
 - **27.06.2019 (Topics P3, P4 and S2)**
 - **03.07.2019 (Topics S3, S4, and P5)**
 - **04.07.2019 (Topics S5, S6 and S7)**
- Deadline for first version of the complete presentation
(slides): **2 weeks before** presentation date, then work on comments
of the supervisor
- Deadline for the report: **31.08.2019**

Literature Research

Anmelden

Web Bilder News Maps Neu! Produkte Groups Desktop Mehr »

Privacy Preferences USA Japan

Suche Erweiterte Suche Einstellungen

Suche: Das Web Seiten auf Deutsch Seiten aus Deutschland

Web Ergebnisse 1 - 10 von ungefähr 1.730.000 für **Privacy Preferences USA Japan.** (0,16 Sekunden)

12 Ergebnisse auf Ihrem Computer gespeichert - [Ausblenden](#) - [Info](#)

 [Seminar Datenschutz \(Rich..\)](#) - E-commerce: **privacy preferences** versus actus

DuD 8/2000: ~~Gateway Platform for Privacy Preferences - P3P~~ A lot of papers are already on your computer?

Das Platform for **Privacy Preferences** Project (P3P) ist ein Standard des World ... Situation bezogen sind, gibt es bereits in **USA**, Deutschland und **Japan**. ...
www.datenschutz-und-datensicherheit.de/jhrg24/p3p.htm - 8k - [Im Cache](#) - [Ähnliche Seiten](#)

World Wide Web Consortium kürt P3P 1.0 zur W3C Recommendation

Das Platform for **Privacy Preferences** Project (P3P) 1.0, entwickelt vom W3C, ... P3P ist eine in den **USA** registrierte Wortmarke des World Wide Web Consortium.
www.w3.org/2002/04/p3p-pressrelease.html.de - 10k - [Im Cache](#) - [Ähnliche Seiten](#)

World Wide Web Consortium Issues P3P 1.0 as a W3C Recommendation - [[Diese Seite übersetzen](#)]

(This press release is available in French, **Japanese**, and German.) ... The Platform for **Privacy Preferences** Project (P3P) 1.0, developed by W3C, ...
www.w3.org/2002/04/p3p-pressrelease - 8k - [Im Cache](#) - [Ähnliche Seiten](#)

[[Weitere Ergebnisse von www.w3.org](#)]

Official Organisations

Google Scholar

Redo the above query as: Quoted author name Word matching

Beliebige Zeit

Seit 2019

Seit 2018

Seit 2015

Zeitraum wählen...

Nach Relevanz sortieren

Nach Datum sortieren

Beliebige Sprache

Seiten auf Deutsch

Patente einschließen

Zitate einschließen

Alert erstellen

▶
Show the calculator

Process verification

[W Cockerille, SG LeMay, R Breckner - US Patent 6,685,567, 2004 - Google Patents](#)

A disclosed gaming machine provides methods and apparatus of verifying the authenticity of gaming software stored in and executed from RAM on the gaming machine. When presenting a game on the gaming machine, a master gaming controller may dynamically ...

 99 Zitiert von: 466 Ähnliche Artikel Alle 4 Versionen 

Business process verification—finally a reality!

[MT Wynn, HMW Verbeek, Business Process - Business Process ..., 2009 - emeraldinsight.com](#)

Purpose—The purpose of this paper is to demonstrate that **process verification** has matured to a level where it can be used in practice. This paper reports on new **verification** techniques that can be used to assess the correctness of real-life models. Design/methodology ...

 99 Zitiert von: 164 Ähnliche Artikel Alle 18 Versionen 

Algebraic process verification

[JF Groote, MA Reniers, Handbook of process, algebra - Handbook of process algebra, 2001 - Elsevier](#)

This chapter addresses the question how to verify distributed and communicating systems in an effective way from an explicit **process** algebraic standpoint. This means that all calculations are based on the axioms and principles of the **process** algebras. The first step ...

 99 Zitiert von: 153 Ähnliche Artikel Alle 10 Versionen 

Confluence for process verification

[JF Groote, MPA Sellink - Theoretical computer science, 1996 - Elsevier](#)

We provide several notions for confluence in processes and we show how these relate to t-inertness, ie if then s and s' are equivalent. Using clustered linear processes we show how these notions can conveniently be used to reduce the size of state spaces and simplify the ...

 99 Zitiert von: 97 Ähnliche Artikel Alle 11 Versionen Web of Science: 27 

Verwandte Suchanfragen

[continuous process verification](#)

[fda process verification](#)

[business process verification](#)

[process verification protocol](#)

[validation process verification](#)

[pharmaceutical process verification](#)

Archives / Digital Libraries

- dl.acm.org
- ieeexplore.ieee.org
- link.springer.com
- citeseer.ist.psu.edu
- dblp.uni-trier.de/db



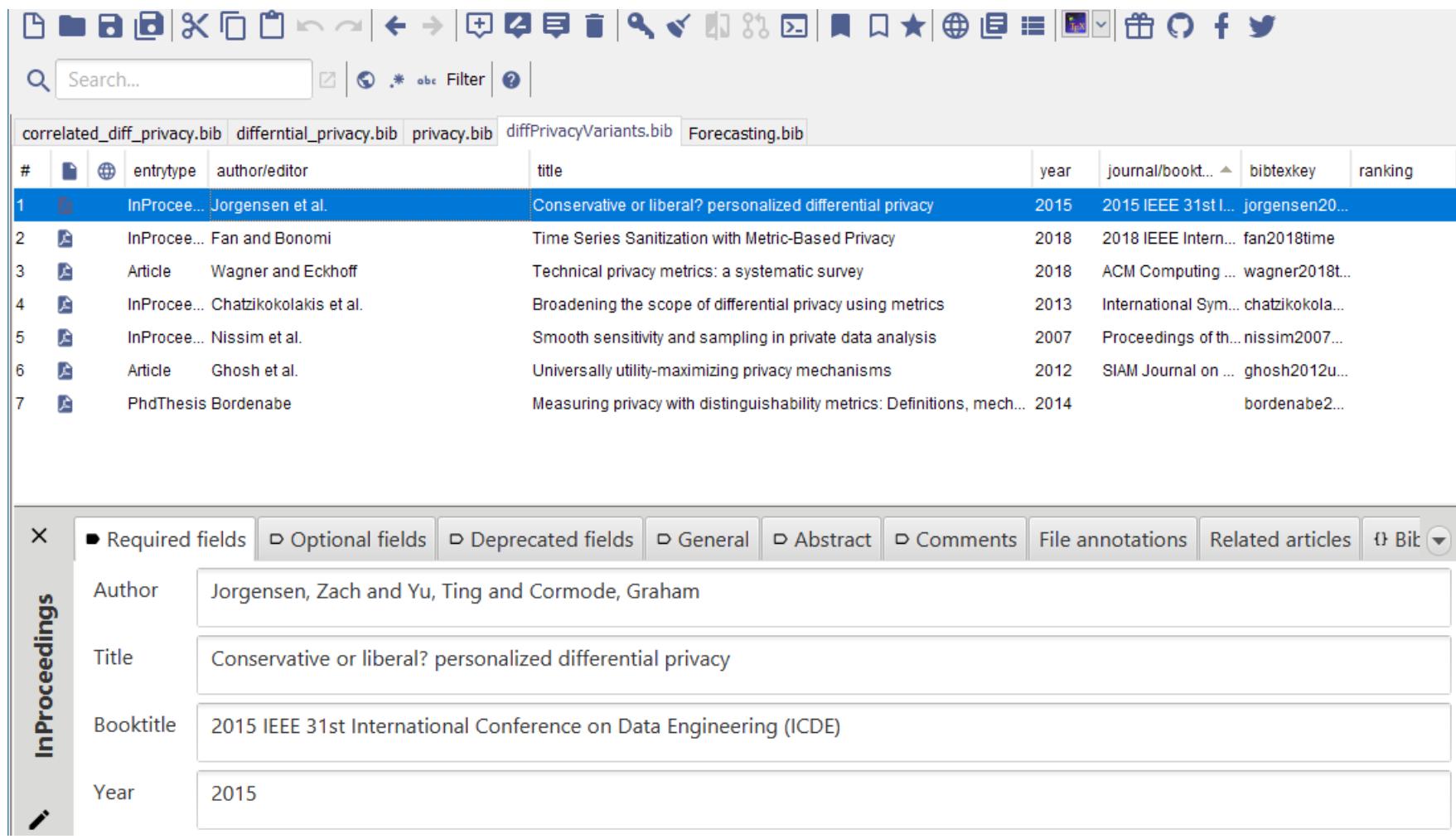
CiteSeer^x



Latex (BibTex)

```
@INPROCEEDINGS{1143123,  
author = {Carolyn A. Brodie and Clare-Marie Karat and John Karat},  
title = {An empirical study of natural language parsing of privacy policy  
rules using the SPARCLE policy workbench},  
booktitle = {SOUPS '06: Proceedings of the second symposium on Usable  
privacy  
and security},  
year = {2006},  
pages = {8--19},  
address = {New York, NY, USA},  
publisher = {ACM Press},  
doi = {http://doi.acm.org/10.1145/1143120.1143123},  
isbn = {1-59593-448-0},  
location = {Pittsburgh, Pennsylvania}  
}
```

Literature Research (JabRef)



The screenshot shows the JabRef application interface. At the top, there is a toolbar with various icons for file operations like opening, saving, and deleting, as well as search and filter functions. Below the toolbar is a search bar and a 'Filter' button. The main area displays a list of bibliographic entries in a tabular format. The columns are labeled: #, entrytype, author/editor, title, year, journal/booktitle, bibtexkey, and ranking. The first entry is highlighted. A detailed view of the selected entry ('InProceedings') is shown in a sidebar on the right, with fields for Author, Title, Booktitle, and Year.

#	entrytype	author/editor	title	year	journal/booktitle	bibtexkey	ranking
1	InProcee...	Jorgensen et al.	Conservative or liberal? personalized differential privacy	2015	2015 IEEE 31st I...	jorgensen20...	
2	InProcee...	Fan and Bonomi	Time Series Sanitization with Metric-Based Privacy	2018	2018 IEEE Intern...	fan2018time	
3	Article	Wagner and Eckhoff	Technical privacy metrics: a systematic survey	2018	ACM Computing ...	wagner2018t...	
4	InProcee...	Chatzikokolakis et al.	Broadening the scope of differential privacy using metrics	2013	International Sym...	chatzikokola...	
5	InProcee...	Nissim et al.	Smooth sensitivity and sampling in private data analysis	2007	Proceedings of th...	nissim2007...	
6	Article	Ghosh et al.	Universally utility-maximizing privacy mechanisms	2012	SIAM Journal on ...	ghosh2012u...	
7	PhdThesis	Bordenabe	Measuring privacy with distinguishability metrics: Definitions, mech...	2014		bordenabe2...	

InProceedings

- Required fields
- Optional fields
- Deprecated fields
- General
- Abstract
- Comments
- File annotations
- Related articles
- Bibtex

Author: Jorgensen, Zach and Yu, Ting and Cormode, Graham

Title: Conservative or liberal? personalized differential privacy

Booktitle: 2015 IEEE 31st International Conference on Data Engineering (ICDE)

Year: 2015