

## The relevance of impact: bibliometric-enhanced legal information retrieval

Wiggers, G.

#### Citation

Wiggers, G. (2023, March 8). The relevance of impact: bibliometric-enhanced legal information retrieval. SIKS Dissertation Series. Retrieved from https://hdl.handle.net/1887/3570499

Version: Publisher's Version

License: License agreement concerning inclusion of doctoral thesis

in the Institutional Repository of the University of Leiden

Downloaded from: <a href="https://hdl.handle.net/1887/3570499">https://hdl.handle.net/1887/3570499</a>

**Note:** To cite this publication please use the final published version (if applicable).

# Appendices

178 APPENDICES

## Appendix A

# Composition of search results

Documents and positions as retrieved from Leiden Law School data set.

For the hierarchy level of the court, the newness of the document, and the authority of the source a three-point scale is used. For all other factors the presence or absence of the factor in the result is shown.

#### A.1 Example query 1

Query: 'Tarieven deskundigenonderzoek' Translated: 'Fees expert witnesses' Total number of results: 4945

#### Question 1:

Option 1: Recency (1), Legal hierarchy (3) Option 2: Recency (2), Legal hierarchy (2)

#### Question 2:

Option 1: Title relevance (y), Recency (3) Option 2: Title relevance (n), Recency (1)

#### Question 3:

Option 1: Legal hierarchy (1), Bibliographical relevance (n) Option 2: Legal hierarchy (2), Bibliographical relevance (y)

#### Question 4:

Option 1: Source authority (1, Asser, T&C), Title relevance (n) Option 2: Source authority (3, blog, news), Title relevance (y)

#### Question 5:

Option 1: Source authority (1, Asser, T&C), Document type (n) Option 2: Source authority (2, mid), Document type (y)

#### Question 6:

Option 1: Source authority (2, mid), Authority author (n)

Option 2: Source authority (3, blog, news), Authority author (y)

#### Question 7:

Option 1: Document type (y), Bibliographical relevance (n) Option 2: Document type (n), Bibliographical relevance (y)

#### A.2 Example query 2

Query: 'vernietiging overeenkomst terugwerkende kracht' Translated: 'voidable contract retroactive effect'

Total number of result: 1325

#### Question 1:

Option 1: Recency (2), Annotated (n) Option 2: Recency (3), Annotated (y)

#### Question 2:

Option 1: Source authority (2, mid), Authority author (n)

181

Option 2: Source authority (3, blog, news), Authority author (y)

#### Question 3:

Option 1: Legal hierarchy (1), Annotated (n) Option 2: Legal hierarchy (3), Annotated (y)

#### Question 4:

Option 1: Authority author (y), Recency (3) Option 2: Authority author (n), Recency (1)

## Appendix B

## Queries and Seed Documents

Table B.1: Queries that we selected to sample documents for our dataset, and the IDs of the corresponding documents.

Query	DocID
Cancun	12923916
ECLI:NL:HR:2014:948	12981736
JAR 2014/298	14290648
Zalco	12871782
Berzona	13580788
ECLI:NL:HR:2014:3351	14223358
ECLI:NL:HR:2014:3077	14145097
Coface/Intergamma	12827114
NJ 2014/268	13238467
NJ 2014/62	12701453
Bescheidenheid en moed	14151738
Informatieverstrekking aan derden in het licht van goed	13002758
werkgeverschap: is zwijgen de norm?	
Preventieve hechtenis in Veen	12987162
de andere kant van de ZSM-medaille	13330606
TRA 2014/75	13800385

TAP 2014/1	12654375
hoe verder met de klachtplicht	12538900
Klaarheid over het Clearing House	14003488
We zijn geen padvinders: een verkennend onderzoek naar de	14121997
criminele carriëres van leden van een procent motorclubs	l
schikken in het nieuwe ontslagrecht	13697909
Enkele aspecten van cao-recht	12654376
Het nieuwe jeugdstelsel en de jeugdbescherming	14013961
wat is er mis met een vrijspraak	14331724
Houdt de WWZ voldoende rekening met de contractuele	14124128
grondslag van het cao-recht?	l
WFR 2014/1067	13705093
WFR 2014/1168	13835404
Waarheidsvinding in de jeugdzorg	12926733
NJB 2014/2056	14177758
De roekeloze automobilist	12702866
TRA 2014/76	13800386
Daar gaan we weer? Het concurrentiebeding revisited	13211319
De Vrijgestelde beleggingsinstelling	14309602
NJB 2014/1139	13235698
is de staat aansprakelijk voor klimaatverandering	12685430
de procedure na cassatie en verwijzing	14165599
het geheim van raadkamer	12987652
ArbeidsRecht 2014/53	14124136
Curator en overwaardearrangement	22171998
NTB 2014/3	12707423
Naar een vervanging van de unus-testisregel van artikel 342	13241348
Sv	ı
Partneralimentatie in de praktijk: is maatwerk mogelijk?	14226701
Rangwisseling pandrecht door eigenlijke achterstelling	13627420
TFO 2014/134.1	13400193
Arbeidsrecht 2014/21	12882340
Arbeidsrecht en onderwijs	12660424

Cessie- en verpandingsverboden: nieuw arrest, nieuwe prob-	13361780
lemen	
De civielrechtelijke aansprakelijkheid voor schade veroorza-	14111819
akt door een autonome auto	
FIP 2014/360	14340903
Het doel van garanties bij bedrijfsovernames: informatie of	13570943
risico	
TAP 2014/4	12654373
WFR 2014/1384	14154576
heeft het bw een politieke kleur	12658261

## Appendix C

## Seed Documents and Data

Table C.1: Results: the usage and citations for the 52 analyzed documents. 'N-S' refers to non-scholarly/non-scholars and 'Schol.' refers to scholarly/scholars. The first 42 lines are journal articles, the 10 lines below are legal cases.

DocumentID	Classification	Schol.	Final Classifi-	Schol.	N-S	Usage	Usage
	on Document	Af-	cation	Cita-	Cita-	Schol.	$N-S^1$
	Type	filia-		tions	tions		
		tions					
14151738	Non-scholarly	0	Non-scholarly	1	5	9	24
12987162	Scholarly	1	Scholarly	1	2	138	17
13330606	Scholarly	1	Scholarly	1	8	13	20
13800385	Non-scholarly	0	Non-scholarly	0	20	60	91
12654375	Non-scholarly	0	Non-scholarly	9	136	164	73
12538900	Scholarly	0	Non-scholarly	4	38	58	50
12654376	Non-scholarly	0	Non-scholarly	0	5	101	114
14013961	Non-scholarly	0	Non-scholarly	0	26	89	23
13705093	Non-scholarly	0	Non-scholarly	0	19	2	17
13835404	Non-scholarly	0	Non-scholarly	0	3	34	6
12926733	Scholarly	1	Scholarly	1	13	77	13
14177758	Scholarly	1	Scholarly	1	15	116	88
12702866	Non-scholarly	1	Non-scholarly	8	16	484	45
13800386	Non-scholarly	0	Non-scholarly	0	16	33	64
13211319	Non-scholarly	0	Non-scholarly	0	14	241	168
14309602	Non-scholarly	0	Non-scholarly	0	49	75	37
13235698	Non-scholarly	0	Non-scholarly	0	2	18	10
12685430	Scholarly	0	Non-scholarly	7	18	49	17

14165599	Non-scholarly	0	Non-scholarly	0	14	4	5
12707423	Scholarly	1	Scholarly	5	12	159	49
14226701	Non-scholarly	0	Non-scholarly	0	2	8	13
13627420	Scholarly	0	Non-scholarly	9	51	64	283
13400193	Non-scholarly	0	Non-scholarly	2	57	63	118
13361780	Scholarly	1	Scholarly	2	8	48	35
14340903	Non-scholarly	0	Non-scholarly	1	13	34	18
12654373	Non-scholarly	0	Non-scholarly	1	13	54	32
14154576	Non-scholarly	0	Non-scholarly	0	11	62	5
12658261	Scholarly	1	Scholarly	1	1	12	5
13002758	Non-scholarly	0	Non-scholarly	0	0	165	72
14003488	Scholarly	1	Scholarly	0	0	28	9
14121997	Scholarly	1	Scholarly	0	0	41	94
13697909	Scholarly	1	Scholarly	0	0	67	88
14331724	Scholarly	2	Scholarly	0	0	164	16
14124128	Non-scholarly	0	Non-scholarly	0	0	66	69
12987652	Non-scholarly	0	Non-scholarly	0	0	3	26
14124136	Non-scholarly	0	Non-scholarly	0	0	73	295
22171998	Non-scholarly	0	Non-scholarly	0	0	16	11
13241348	Scholarly	1	Scholarly	0	0	157	31
12882340	Non-scholarly	0	Non-scholarly	0	0	64	20
12660424	Non-scholarly	0	Non-scholarly	0	0	86	36
14111819	Non-scholarly	0	Non-scholarly	0	0	108	18
13570943	Scholarly	1	Scholarly	0	0	42	95
12981736	Non-scholarly	0	Non-scholarly	9	134	143	42
14290648	Non-scholarly	0	Non-scholarly	1	65	99	48
12871782	Non-scholarly	0	Non-scholarly	1	49	20	108
13580788	Non-scholarly	0	Non-scholarly	2	10	18	7
14223358	Non-scholarly	0	Non-scholarly	0	17	4	7
14145097	Non-scholarly	0	Non-scholarly	3	179	48	28
12827114	Non-scholarly	0	Non-scholarly	60	554	177	164
13238467	Non-scholarly	0	Non-scholarly	11	158	276	34
12701453	Non-scholarly	0	Non-scholarly	5	28	54	17
14281373	Non-scholarly	0	Non-scholarly	4	1155	164	362

## Appendix D

# Baseline and degraded ranking

This table shows the the difference between the baseline ranking and the degraded ranking. Each row in the table represents one query. Each ranking shown was 10 documents. Each number in the column corresponds with the number of documents for that query that was ranked higher or lower in the degraded model, documents that were not present in the degraded model but replaced by another document, and the number of documents that remained in the same position.

QueryID	Moved Up	Moved Down	Document Replaced	Same Position
1	1	2	2	5
2	3	4	1	2
3	1	6	2	1
4	1	4	3	2
5	0	4	6	0
6	0	2	8	0
7	0	2	6	2
8	2	2	1	5
9	3	4	1	2
10	2	3	3	2

11	2	3	4	1
12	4	2	2	2
13	2	3	4	1
14	1	1	1	7
15	1	4	4	1
16	1	2	5	2
17	0	5	4	1
18	1	4	3	2
19	1	3	1	5
20	3	3	1	3
21	1	3	2	4
22	3	3	1	3
23	4	3	1	2 5
24	0	1	4	
25	1	1	2	6
26	1	2	3	4
27	0	7	2	1
28	2	1	2	5
29	1	4	3	2
30	3	2	3	2
31	3	2	3	2
32	0	3	3	4
33	3	4	3	0
34	1	4	2	3
35	2	3	3	2
36	0	7	3	0
37	2	0	2	6
38	0	0	10	0
39	2	1	3	4
40	1	6	3	0
41	2	3	4	1
42	0	6	4	0
43	0	6	2	2 2
44	0	2	6	2

45	0	0	10	0	
46	1	0	9	0	
47	3	3	2	2	
48	3	0	2	5	
49	0	5	3	2	
50	2	1	1	6	
51	0	2	2	6	
52	5	1	3	1	
53	3	2	2	3	
54	1	3	5	1	
55	2	5	2	1	

Table D.1: The number of the documents from the top-10 that changed position in the degraded ranking as compared to the baseline ranking.

## Appendix E

## Example of Survey Question

ECLI:NL:GHAMS:2019:1693 - Gerechtshof Amsterdam - 10-5-2019 - Hoger beroep - Strafrecht Overtreding gebiedsverbod. Vrijspraakverweer; onvoldoende duidelijk welke straten onder het verboo	d vieler	n. <b>=</b>	0	<b>A</b>	\
Gst. 2018/125 - Met noot - Rooij van, M. e.a Raad van State - 28-3-2018					
Toepasselijkheid onschuldpresumptie gebiedsverbod art. 172a Gemeentewet. (Amsterdam)					
ECLI:NL:RVS:2018:1043					\
Vindplaatsen	Ī		O	$\Rightarrow$	
AB 2019/141 - Met noot - Brouwer, J.G. e.a Rechtbank Midden-Nederland - 24-5-2018					
Doodsbedreiging ernstige verstoring openbare orde; gebiedsverbod rondom woonwagen.					,
ECLI:NL:RBMNE:2018:2287 VIND Bestuursrecht 2018 Vindplaatsen	Ē		O	$\Rightarrow$	
ECLI:NL:RBLIM:2018:9320 - Rechtbank Limburg - 3-10-2018					
Vovo hangende bezwaar. Verweerder heeft eerder een gebiedsverbod aan verzoeker opgelegd op grode Gemeentewet. De voorzieningenrechter heeft het vorige besluit geschorst, omdat dit een deugdeli ontbeerde. Hierna h []				a van	`
Shocarde. Herra II []	Ē		O	$\Rightarrow$	
ECLI:NL:RBLIM:2018:8273 - Rechtbank Limburg - 31-8-2018 - Voorlopige voorziening - Bestuursre	cht				
Vovo hangende bezwaar. Verweerder heeft verzoeker een gebiedsverbod op grond van artikel 172a va opgelegd voor twee gebieden in Heerlen, omdat hij structureel overlast heeft veroorzaakt en de open verstoord. Het oplegge []	an de C			et	`
Vindplaatsen	Ē		O	$\Rightarrow$	
Verbintenissenrecht. Onrechtmatige overheidsdaad. Nalaten adequaat optreden tegen strafbare feite slachtoffer zijn geworden en die hen tot verhuizing hebben gedwongen. Veiligheidsgarantie. De vorde afgewezen.					,
AR 2018/5887 JA 2019/6 PS Updates 2018/947 Vindplaatsen	Ē		O	<b>⇔</b>	
ECLI:NL:RVS:2018:2112 - Raad van State - 27-6-2018 - Hoger beroep - Bestuursrecht					
Bij besluit van 13 april 2016 heeft de burgemeester aan [appellant] een gebiedsverbod opgelegd voor	de du	ur var	n 3 ma	anden.	
VIND Bestuursrecht 2018 Vindplaatsen	Ħ		O	$\Rightarrow$	
ECLI:NL:GHAMS:2018:3267 - Gerechtshof Amsterdam - 6-9-2018 - Hoger beroep - Strafrecht					
Opzettelijk handelen in strijd met het in artikel 2 onder C van de Opiumwet gegeven verbod.diefstal d	loor tw	ee of	meer		
verenigde personen. opzettelijk niet voldoen aan gegeven bevel.	Ē		Q	$\Rightarrow$	
<b>Gst. 2012/67 - Met noot - Berkouwer, E.C. e.a Rechtbank Amsterdam - 3-4-2012</b> Zorgvuldige dossieropbouw is essentieel voor de onderbouwing van een art. 172a Gemw-bevel en de	rechte	erlijke	toets.		
AB 2012/174					
Vindplaatsen	Ī		O	$\Rightarrow$	
ECLI:NL:GHAMS:2018:3386 - Gerechtshof Amsterdam - 2-7-2018 - Hoger beroep - Strafrecht					
Overtreding gebiedsverboden, wederspannigheid en diefstal. Geldige dagvaarding. Hulpverleningska	der da	t in ee	n and	ere	
strafzaak via bijzonder voorwaarden is geïndiceerd voortzetten.	Ξ		o	$\Rightarrow$	

### Appendix F

## Curriculum Vitae

Gineke Wiggers was born in Hilversum, the Netherlands, in 1988. From 2006 to 2009 she studied european law with a minor in Dutch law at Maastricht University, and in 2011 she obtained a master's degree in Dutch law from the same university. Her master's thesis was entitled The Potential Influence of the Google Book Settlement on Dutch Copyright Holders.

After graduating from university she applied for a PhD, and learned how not to write a research proposal. She has worked as a legal assistant, publishing assistant, customer service agent and business analyst. From her position as business analyst at Legal Intelligence she came up with a new and improved research proposal and submitted it for a PhD in law and data science at Leiden Law School, Leiden University. She started her PhD in 2017, conducting research at eLaw and the data science research program, whilst she continued to work at Legal Intelligence.

Her work has been published in Legal Information Management, proceedings of the European Conference on Information Retrieval, the BIR workshops and the Nederlands Juristenblad.

### Appendix G

## Acknowledgements

I would like to thank my supervisors, Gerrit-Jan Zwenne and Suzan Verberne, for their support. Aside from all their valuable feedback, they have provided me with two insights that have helped me get this done: (1) the best theses are the ones that are done, and (2) the end product of a PhD is a researcher, not a thesis.

I want to thank the eLaw family for supporting me. Everyone at eLaw is incredibly kind and motivated, making it an amazing place to work. I especially want to thank Pieter for providing me with good coffee and Jenneke for all the moral support.

The Data Science Research Program is an amazing group of PhD students. I feel truly blessed to have been able to work alongside a group of such smart, talented and fun people. I have thoroughly enjoyed the foosball, pub-quizzes, nachos and murder mystery parties. I have learned more about archeology, deep-vein thrombosis, sign language, whiskey and t-SNE maps than I ever imagined. I have also learned programming in Python, and thanks to Wouter now know a little about statistics. Of which I, as an LL.M., am quite proud.

Roel van den Burg has been of tremendous value in this research. He helped me with the second survey and wrote an incredible master thesis about legal IR. I would also like to thank Arjen de Vries for his valuable insights. Alan Hanbury, my ECIR doctoral consortium mentor helped me realise that I needed to go back to the basics with regards to evaluation methods. I want to thank Marc van Opijnen for providing feedback on my very first paper. The BIR, Jurix and legal AIIA communities have been welcoming and inspiring. I look forward to in-person meetings again.

This thesis would not have been possible without the support and data of Legal Intelligence. I particularly want to thank Laurens and Roderick for encouraging to apply, Pieter and Tjerk for their help through the process, and Sjoerd and Stephanie for their endless cheerleading.

Wouter van Loon not only helped me with the statistics in this research, but has also been an endless supporter. For me, he is the best thing I gained from this PhD. I look forward to 'walking with dr. Wouter and dr. Wiggers'.

Last, but certainly not least, I want to thank my family and friends. For their encouragement and support, but also for occasionally reminding me how lucky I am to be able to do this. Your reminders that I am loved, regardless of my title, mean the world to me. This page does not have enough space to tell you how grateful I am to have you in my life.

This thesis is dedicated to my grandmothers Grietje Wiggers-Supèr and Bertie de Hartog-Flinterman. I stand not only on the shoulders of giants [91], but have also been upheld by the strongest women I know.

## SIKS dissertation series

# Overview of theses in the SIKS dissertation series since 2016

2016	01	Syed Saiden Abbas (RUN), Recognition of Shapes by Humans and Machines
	02	Michiel Christiaan Meulendijk (UU), Optimizing medication reviews through
		decision support: prescribing a better pill to swallow
	03	Maya Sappelli (RUN), Knowledge Work in Context: User Centered Knowl-
		edge Worker Support
	04	Laurens Rietveld (VU), Publishing and Consuming Linked Data
	05	Evgeny Sherkhonov (UVA), Expanded Acyclic Queries: Containment and an
		Application in Explaining Missing Answers
	06	Michel Wilson (TUD), Robust scheduling in an uncertain environment
	07	Jeroen de Man (VU), Measuring and modeling negative emotions for virtual
		training
	08	Matje van de Camp (TiU), A Link to the Past: Constructing Historical Social
		Networks from Unstructured Data
	09	Archana Nottamkandath (VU), Trusting Crowdsourced Information on Cul-
		tural Artefacts
	10	George Karafotias (VUA), Parameter Control for Evolutionary Algorithms
	11	Anne Schuth (UVA), Search Engines that Learn from Their Users
	12	Max Knobbout (UU), Logics for Modelling and Verifying Normative Multi-
		Agent Systems
	13	Nana Baah Gyan (VU), The Web, Speech Technologies and Rural Develop-
		ment in West Africa - An ICT4D Approach
	14	Ravi Khadka (UU), Revisiting Legacy Software System Modernization
	15	Steffen Michels (RUN), Hybrid Probabilistic Logics - Theoretical Aspects,
		Algorithms and Experiments
	16	Guangliang Li (UVA), Socially Intelligent Autonomous Agents that Learn
		from Human Reward
	17	Berend Weel (VU), Towards Embodied Evolution of Robot Organisms
	18	Albert Meroño Peñuela (VU), Refining Statistical Data on the Web
	19	Julia Efremova (Tu/e), Mining Social Structures from Genealogical Data
		. , ,,

- 20 Daan Odijk (UVA), Context & Semantics in News & Web Search
- 21 Alejandro Moreno Célleri (UT), From Traditional to Interactive Playspaces: Automatic Analysis of Player Behavior in the Interactive Tag Playground
- 22 Grace Lewis (VU), Software Architecture Strategies for Cyber-Foraging Systems
- 23 Fei Cai (UVA), Query Auto Completion in Information Retrieval
- 24 Brend Wanders (UT), Repurposing and Probabilistic Integration of Data; An Iterative and data model independent approach
- 25 Julia Kiseleva (TU/e), Using Contextual Information to Understand Searching and Browsing Behavior
- Dilhan Thilakarathne (VU), In or Out of Control: Exploring Computational Models to Study the Role of Human Awareness and Control in Behavioural Choices, with Applications in Aviation and Energy Management Domains
- 27 Wen Li (TUD), Understanding Geo-spatial Information on Social Media
- 28 Mingxin Zhang (TUD), Large-scale Agent-based Social Simulation A study on epidemic prediction and control
- 29 Nicolas Höning (TUD), Peak reduction in decentralised electricity systems -Markets and prices for flexible planning
- 30 Ruud Mattheij (UvT), The Eyes Have It
- 31 Mohammad Khelghati (UT), Deep web content monitoring
- 32 Eelco Vriezekolk (UT), Assessing Telecommunication Service Availability Risks for Crisis Organisations
- 33 Peter Bloem (UVA), Single Sample Statistics, exercises in learning from just one example
- 34 Dennis Schunselaar (TUE), Configurable Process Trees: Elicitation, Analysis, and Enactment
- 35 Zhaochun Ren (UVA), Monitoring Social Media: Summarization, Classification and Recommendation
- 36 Daphne Karreman (UT), Beyond R2D2: The design of nonverbal interaction behavior optimized for robot-specific morphologies
- 37 Giovanni Sileno (UvA), Aligning Law and Action a conceptual and computational inquiry
- 38 Andrea Minuto (UT), Materials that Matter Smart Materials meet Art & Interaction Design
- 39 Merijn Bruijnes (UT), Believable Suspect Agents; Response and Interpersonal Style Selection for an Artificial Suspect
- 40 Christian Detweiler (TUD), Accounting for Values in Design
- 41 Thomas King (TUD), Governing Governance: A Formal Framework for Analysing Institutional Design and Enactment Governance
- 42 Spyros Martzoukos (UVA), Combinatorial and Compositional Aspects of Bilingual Aligned Corpora
- 43 Saskia Koldijk (RUN), Context-Aware Support for Stress Self-Management: From Theory to Practice
- 44 Thibault Sellam (UVA), Automatic Assistants for Database Exploration
- 45 Bram van de Laar (UT), Experiencing Brain-Computer Interface Control
- 46 Jorge Gallego Perez (UT), Robots to Make you Happy
- 47 Christina Weber (UL), Real-time foresight Preparedness for dynamic innovation networks

	48 49	Tanja Buttler (TUD), Collecting Lessons Learned Gleb Polevoy (TUD), Participation and Interaction in Projects. A Game-
	50	Theoretic Analysis Yan Wang (UVT), The Bridge of Dreams: Towards a Method for Operational Performance Alignment in IT-enabled Service Supply Chains
2017	01	Jan-Jaap Oerlemans (UL), Investigating Cybercrime
	02	Sjoerd Timmer (UU), Designing and Understanding Forensic Bayesian Net-
		works using Argumentation
	03	Daniël Harold Telgen (UU), Grid Manufacturing; A Cyber-Physical Approach
	0.4	with Autonomous Products and Reconfigurable Manufacturing Machines
	04	Mrunal Gawade (CWI), Multi-core Parallelism in a Column-store
	05 06	Mahdieh Shadi (UVA), Collaboration Behavior Damir Vandic (EUR), Intelligent Information Systems for Web Product
	00	Search
	07	Roel Bertens (UU), Insight in Information: from Abstract to Anomaly
	08	Rob Konijn (VU), Detecting Interesting Differences:Data Mining in Health
	00	Insurance Data using Outlier Detection and Subgroup Discovery
	09	Dong Nguyen (UT), Text as Social and Cultural Data: A Computational
		Perspective on Variation in Text
	10	Robby van Delden (UT), (Steering) Interactive Play Behavior
	11	Florian Kunneman (RUN), Modelling patterns of time and emotion in Twitter
		#anticipointment
	12	Sander Leemans (TUE), Robust Process Mining with Guarantees
	13	Gijs Huisman (UT), Social Touch Technology - Extending the reach of social
	1.4	touch through haptic technology
	14	Shoshannah Tekofsky (UvT), You Are Who You Play You Are: Modelling
	15	Player Traits from Video Game Behavior Peter Berck (RUN), Memory-Based Text Correction
	16	Aleksandr Chuklin (UVA), Understanding and Modeling Users of Modern
	10	Search Engines
	17	Daniel Dimov (UL), Crowdsourced Online Dispute Resolution
	18	Ridho Reinanda (UVA), Entity Associations for Search
	19	Jeroen Vuurens (UT), Proximity of Terms, Texts and Semantic Vectors in
		Information Retrieval
	20	Mohammadbashir Sedighi (TUD), Fostering Engagement in Knowledge Shar-
		ing: The Role of Perceived Benefits, Costs and Visibility
	21	Jeroen Linssen (UT), Meta Matters in Interactive Storytelling and Serious
	99	Gaming (A Play on Worlds)
	22	Sara Magliacane (VU), Logics for causal inference under uncertainty
	23 24	David Graus (UVA), Entities of Interest — Discovery in Digital Traces Chang Wang (TUD), Use of Affordances for Efficient Robot Learning
	24 25	Veruska Zamborlini (VU), Knowledge Representation for Clinical Guidelines,
	20	with applications to Multimorbidity Analysis and Literature Search
	26	Merel Jung (UT), Socially intelligent robots that understand and respond to
		human touch
	27	Michiel Joosse (UT), Investigating Positioning and Gaze Behaviors of Social
		Robots: People's Preferences, Perceptions and Behaviors

08

09

	28	John Klein (VU), Architecture Practices for Complex Contexts
	29	Adel Alhuraibi (UvT), From IT-BusinessStrategic Alignment to Performance:
		A Moderated Mediation Model of Social Innovation, and Enterprise Gover-
		nance of IT"
	30	Wilma Latuny (UvT), The Power of Facial Expressions
	31	Ben Ruijl (UL), Advances in computational methods for QFT calculations
	32	Thaer Samar (RUN), Access to and Retrievability of Content in Web Archives
	33	Brigit van Loggem (OU), Towards a Design Rationale for Software Documen-
		tation: A Model of Computer-Mediated Activity
	34	Maren Scheffel (OU), The Evaluation Framework for Learning Analytics
	35	Martine de Vos (VU), Interpreting natural science spreadsheets
	36	Yuanhao Guo (UL), Shape Analysis for Phenotype Characterisation from
		High-throughput Imaging
	37	Alejandro Montes Garcia (TUE), WiBAF: A Within Browser Adaptation
		Framework that Enables Control over Privacy
	38	Alex Kayal (TUD), Normative Social Applications
	39	Sara Ahmadi (RUN), Exploiting properties of the human auditory system
		and compressive sensing methods to increase noise robustness in ASR
	40	Altaf Hussain Abro (VUA), Steer your Mind: Computational Exploration
		of Human Control in Relation to Emotions, Desires and Social Support For
		applications in human-aware support systems
	41	Adnan Manzoor (VUA), Minding a Healthy Lifestyle: An Exploration of
		Mental Processes and a Smart Environment to Provide Support for a Healthy
		Lifestyle
	42	Elena Sokolova (RUN), Causal discovery from mixed and missing data with
		applications on ADHD datasets
	43	Maaike de Boer (RUN), Semantic Mapping in Video Retrieval
	44	Garm Lucassen (UU), Understanding User Stories - Computational Linguis-
		tics in Agile Requirements Engineering
	45	Bas Testerink (UU), Decentralized Runtime Norm Enforcement
	46	Jan Schneider (OU), Sensor-based Learning Support
	47	Jie Yang (TUD), Crowd Knowledge Creation Acceleration
	48	Angel Suarez (OU), Collaborative inquiry-based learning
2018	01	Han van der Aa (VUA), Comparing and Aligning Process Representations
2010	02	Felix Mannhardt (TUE), Multi-perspective Process Mining
	03	Steven Bosems (UT), Causal Models For Well-Being: Knowledge Modeling,
	05	Model-Driven Development of Context-Aware Applications, and Behavior
		Prediction
	04	Jordan Janeiro (TUD), Flexible Coordination Support for Diagnosis Teams
	-	in Data-Centric Engineering Tasks
	05	Hugo Huurdeman (UVA), Supporting the Complex Dynamics of the Infor-
		mation Seeking Process
	06	Dan Ionita (UT), Model-Driven Information Security Risk Assessment of
		Socio-Technical Systems
	07	Jieting Luo (UU), A formal account of opportunism in multi-agent systems
	08	Rick Smotsors (RIIN) Advances in Model Learning for Software Systems

Rick Smetsers (RUN), Advances in Model Learning for Software Systems

Xu Xie (TUD), Data Assimilation in Discrete Event Simulations

- Julienka Mollee (VUA), Moving forward: supporting physical activity behavior change through intelligent technology
- 11 Mahdi Sargolzaei (UVA), Enabling Framework for Service-oriented Collaborative Networks
- 12 Xixi Lu (TUE), Using behavioral context in process mining
- 13 Seyed Amin Tabatabaei (VUA), Computing a Sustainable Future
- 14 Bart Joosten (UVT), Detecting Social Signals with Spatiotemporal Gabor Filters
- Naser Davarzani (UM), Biomarker discovery in heart failure
- Jaebok Kim (UT), Automatic recognition of engagement and emotion in a group of children
- 17 Jianpeng Zhang (TUE), On Graph Sample Clustering
- 18 Henriette Nakad (UL), De Notaris en Private Rechtspraak
- 19 Minh Duc Pham (VUA), Emergent relational schemas for RDF
- 20 Manxia Liu (RUN), Time and Bayesian Networks
- 21 Aad Slootmaker (OUN), EMERGO: a generic platform for authoring and playing scenario-based serious games
- 22 Eric Fernandes de Mello Araujo (VUA), Contagious: Modeling the Spread of Behaviours, Perceptions and Emotions in Social Networks
- 23 Kim Schouten (EUR), Semantics-driven Aspect-Based Sentiment Analysis
- 24 Jered Vroon (UT), Responsive Social Positioning Behaviour for Semi-Autonomous Telepresence Robots
- 25 Riste Gligorov (VUA), Serious Games in Audio-Visual Collections
- 26 Roelof Anne Jelle de Vries (UT), Theory-Based and Tailor-Made: Motivational Messages for Behavior Change Technology
- 27 Maikel Leemans (TUE), Hierarchical Process Mining for Scalable Software Analysis
- 28 Christian Willemse (UT), Social Touch Technologies: How they feel and how they make you feel
- 29 Yu Gu (UVT), Emotion Recognition from Mandarin Speech
- Wouter Beek, The "K" in "semantic web" stands for "knowledge": scaling semantics to the web
- 2019 01 Rob van Eijk (UL), Web privacy measurement in real-time bidding systems.
  A graph-based approach to RTB system classification
  - 02 Emmanuelle Beauxis Aussalet (CWI, UU), Statistics and Visualizations for Assessing Class Size Uncertainty
  - 03 Eduardo Gonzalez Lopez de Murillas (TUE), Process Mining on Databases: Extracting Event Data from Real Life Data Sources
  - 04 Ridho Rahmadi (RUN), Finding stable causal structures from clinical data
  - 05 Sebastiaan van Zelst (TUE), Process Mining with Streaming Data
  - Of Chris Dijkshoorn (VU), Nichesourcing for Improving Access to Linked Cultural Heritage Datasets
  - 07 Soude Fazeli (TUD), Recommender Systems in Social Learning Platforms
  - 08 Frits de Nijs (TUD), Resource-constrained Multi-agent Markov Decision Pro-
  - 99 Fahimeh Alizadeh Moghaddam (UVA), Self-adaptation for energy efficiency in software systems

- 10 Qing Chuan Ye (EUR), Multi-objective Optimization Methods for Allocation and Prediction
- 11 Yue Zhao (TUD), Learning Analytics Technology to Understand Learner Behavioral Engagement in MOOCs
- 12 Jacqueline Heinerman (VU), Better Together
- 13 Guanliang Chen (TUD), MOOC Analytics: Learner Modeling and Content Generation
- Daniel Davis (TUD), Large-Scale Learning Analytics: Modeling Learner Behavior & Improving Learning Outcomes in Massive Open Online Courses
- Erwin Walraven (TUD), Planning under Uncertainty in Constrained and Partially Observable Environments
- Guangming Li (TUE), Process Mining based on Object-Centric Behavioral Constraint (OCBC) Models
- 17 Ali Hurriyetoglu (RUN), Extracting actionable information from microtexts
- 18 Gerard Wagenaar (UU), Artefacts in Agile Team Communication
- 19 Vincent Koeman (TUD), Tools for Developing Cognitive Agents
- 20 Chide Groenouwe (UU), Fostering technically augmented human collective intelligence
- 21 Cong Liu (TUE), Software Data Analytics: Architectural Model Discovery and Design Pattern Detection
- Martin van den Berg (VU), Improving IT Decisions with Enterprise Architecture
- 23 Qin Liu (TUD), Intelligent Control Systems: Learning, Interpreting, Verification
- 24 Anca Dumitrache (VU), Truth in Disagreement Crowdsourcing Labeled Data for Natural Language Processing
- 25 Emiel van Miltenburg (VU), Pragmatic factors in (automatic) image description
- 26 Prince Singh (UT), An Integration Platform for Synchromodal Transport
- 27 Alessandra Antonaci (OUN), The Gamification Design Process applied to (Massive) Open Online Courses
- 28 Esther Kuindersma (UL), Cleared for take-off: Game-based learning to prepare airline pilots for critical situations
- 29 Daniel Formolo (VU), Using virtual agents for simulation and training of social skills in safety-critical circumstances
- 30 Vahid Yazdanpanah (UT), Multiagent Industrial Symbiosis Systems
- 31 Milan Jelisavcic (VU), Alive and Kicking: Baby Steps in Robotics
- 32 Chiara Sironi (UM), Monte-Carlo Tree Search for Artificial General Intelligence in Games
- 33 Anil Yaman (TUE), Evolution of Biologically Inspired Learning in Artificial Neural Networks
- 34 Negar Ahmadi (TUE), EEG Microstate and Functional Brain Network Features for Classification of Epilepsy and PNES
- 35 Lisa Facey-Shaw (OUN), Gamification with digital badges in learning programming
- 36 Kevin Ackermans (OUN), Designing Video-Enhanced Rubrics to Master Complex Skills
- 37 Jian Fang (TUD), Database Acceleration on FPGAs

	38	Akos Kadar (OUN), Learning visually grounded and multilingual representations $$
2020	01	Armon Toubman (UL), Calculated Moves: Generating Air Combat Behaviour
	02	Marcos de Paula Bueno (UL), Unraveling Temporal Processes using Probabilistic Graphical Models
	03	Mostafa Deghani (UvA), Learning with Imperfect Supervision for Language Understanding
	04	Maarten van Gompel (RUN), Context as Linguistic Bridges
	05	Yulong Pei (TUE), On local and global structure mining
	06	Preethu Rose Anish (UT), Stimulation Architectural Thinking during Requirements Elicitation - An Approach and Tool Support
	07	Wim van der Vegt (OUN), Towards a software architecture for reusable game components
	08	Ali Mirsoleimani (UL),Structured Parallel Programming for Monte Carlo Tree Search
	09	Myriam Traub (UU), Measuring Tool Bias and Improving Data Quality for Digital Humanities Research
	10	Alifah Syamsiyah (TUE), In-database Preprocessing for Process Mining
	11	Sepideh Mesbah (TUD), Semantic-Enhanced Training Data Augmentation- Methods for Long-Tail Entity Recognition Models
	12	Ward van Breda (VU), Predictive Modeling in E-Mental Health: Exploring Applicability in Personalised Depression Treatment
	13	Marco Virgolin (CWI), Design and Application of Gene-pool Optimal Mixing Evolutionary Algorithms for Genetic Programming
	14 15	Mark Raasveldt (CWI/UL), Integrating Analytics with Relational Databases Konstantinos Georgiadis (OUN), Smart CAT: Machine Learning for Config-
	1.0	urable Assessments in Serious Games
	16 17	Ilona Wilmont (RUN), Cognitive Aspects of Conceptual Modelling Daniele Di Mitri (OUN), The Multimodal Tutor: Adaptive Feedback from Multimodal Experiences
	18	Georgios Methenitis (TUD), Agent Interactions & Mechanisms in Markets with Uncertainties: Electricity Markets in Renewable Energy Systems
	19	Guido van Capelleveen (UT), Industrial Symbiosis Recommender Systems
	20	Albert Hankel (VU), Embedding Green ICT Maturity in Organisations
	21	Karine da Silva Miras de Araujo (VU), Where is the robot?: Life as it could be
	22	Maryam Masoud Khamis (RUN), Understanding complex systems implementation through a modeling approach: the case of e-government in Zanzibar
	23	Rianne Conijn (UT), The Keys to Writing: A writing analytics approach to studying writing processes using keystroke logging
	24	Lenin da Nobrega Medeiros (VUA/RUN), How are you feeling, human? Towards emotionally supportive chatbots
	25	Xin Du (TUE), The Uncertainty in Exceptional Model Mining
	26	Krzysztof Leszek Sadowski (UU), GAMBIT: Genetic Algorithm for Model-Based mixed-Integer op Timization

Ekaterina Muravyeva (TUD), Personal data and informed consent in an ed-

27

ucational context

		ucational context
	28	Bibeg Limbu (TUD), Multimodal interaction for deliberate practice: Training
		complex skills with augmented reality
	29	Ioan Gabriel Bucur (RUN), Being Bayesian about Causal Inference
	30	Bob Zadok Blok (UL), Creatief, Creatieve, Creatiefst
	31	Gongjin Lan (VU), Learning better – From Baby to Better
	32	Jason Rhuggenaath (TUE), Revenue management in online markets: pricing
		and online advertising
	33	Rick Gilsing (TUE), Supporting service-dominant business model evaluation
		in the context of business model innovation
	34	Anna Bon (MU), Intervention or Collaboration? Redesigning Information
		and Communication Technologies for Development
	35	Siamak Farshidi (UU), Multi-Criteria Decision-Making in Software Produc-
		tion
0001	0.1	
2021	01	Francisco Xavier Dos Santos Fonseca (TUD), Location-based Games for Social
	0.0	Interaction in Public Space
	02	Rijk Mercuur (TUD), Simulating Human Routines:Integrating Social Practice
		Theory in Agent-Based Models
	03	Seyyed Hadi Hashemi (UVA), Modeling Users Interacting with Smart Devices
	04	Ioana Jivet (OU), The Dashboard That Loved Me: Designing adaptive learn-
		ing analytics for self-regulated learning
	05	Davide Dell'Anna (UU), Data-Driven Supervision of Autonomous Systems
	06	Daniel Davison (UT), "Hey robot, what do you think?" How children learn
		with a social robot
	07	Armel Lefebvre (UU), Research data management for open science
	08	Nardie Fanchamps (OU), The Influence of Sense-Reason-Act Programming
		on Computational Thinking
	09	Cristina Zaga (UT), The Design of Robothings. Non-Anthropomorphic and
		Non-Verbal Robots to Promote Children's Collaboration Through Play
	10	Quinten Meertens (UvA), Misclassification Bias in Statistical Learning
	11	Anne van Rossum (UL), Nonparametric Bayesian Methods in Robotic Vision
	12	Lei Pi (UL), External Knowledge Absorption in Chinese SMEs
	13	Bob R. Schadenberg (UT), Robots for Autistic Children: Understanding and
		Facilitating Predictability for Engagement in Learning
	14	Negin Samaeemofrad (UL), Business Incubators: The Impact of Their Sup-
		port
	15	Onat Ege Adali (TU/e), Transformation of Value Propositions into Resource
		Re-Configurations through the Business Services Paradigm
	16	Esam A.H. Ghaleb (UM), BIMODAL EMOTION RECOGNITION FROM
		AUDIO-VISUAL CÚES
	17	Dario Dotti (UM), Human Behavior Understanding from motion and bodily
		cues using deep neural networks
	18	Remi Wieten (UU), Bridging the Gap Between Informal Sense-Making Tools
		and Formal Systems - Facilitating the Construction of Bayesian Networks and
		Argumentation Frameworks

19

17

games and gamification

		Toolse vertice (10), Themselvara Toolse Book Identification and
	20	Management
	20	Masoud Mansoury (TU/e), Understanding and Mitigating Multi-Sided Ex-
	24	posure Bias in Recommender Systems
	21	Pedro Thiago Timbó Holanda (CWI), Progressive Indexes
	22	Sihang Qiu (TUD), Conversational Crowdsourcing
	23	Hugo Manuel Proença (LIACS), Robust rules for prediction and description
	24	Kaijie Zhu (TUE), On Efficient Temporal Subgraph Query Processing
	25	Eoin Martino Grua (VUA), The Future of E-Health is Mobile: Combining AI
		and Self-Adaptation to Create Adaptive E-Health Mobile Applications
	26	Benno Kruit (CWI & VUA), Reading the Grid: Extending Knowledge Bases
		from Human-readable Tables
	27	Jelte van Waterschoot (UT), Personalized and Personal Conversations: De-
		signing Agents Who Want to Connect With You
	28	Christoph Selig (UL), Understanding the Heterogeneity of Corporate En-
		trepreneurship Programs
2022		
2022	1	Judith van Stegeren (UT), Flavor text generation for role-playing video games
	2	Paulo da Costa (TU/e), Data-driven Prognostics and Logistics Optimisation:
		A Deep Learning Journey
	3	Ali el Hassouni (VUA), A Model A Day Keeps The Doctor Away: Reinforce-
		ment Learning For Personalized Healthcare
	4	Ünal Aksu (UU), A Cross-Organizational Process Mining Framework
	5	Shiwei Liu (TU/e), Sparse Neural Network Training with In-Time Over-
		Parameterization
	6	Reza Refaei Afshar (TU/e), Machine Learning for Ad Publishers in Real Time
		Bidding
	7	Sambit Praharaj (OU), Measuring the Unmeasurable? Towards Automatic
		Co-located Collaboration Analytics
	8	Maikel L. van Eck (TU/e), Process Mining for Smart Product Design
	9	Oana Andreea Inel (VUA), Understanding Events: A Diversity-driven
		Human-Machine Approach
	10	Felipe Moraes Gomes (TUD), Examining the Effectiveness of Collaborative
		Search Engines
	11	Mirjam de Haas (UT), Staying engaged in child-robot interaction, a quanti-
		tative approach to studying preschoolers' engagement with robots and tasks
		during second-language tutoring
	12	Guanyi Chen (UU), Computational Generation of Chinese Noun Phrases
	13	Xander Wilcke (VUA), Machine Learning on Multimodal Knowledge Graphs:
		Opportunities, Challenges, and Methods for Learning on Real-World Hetero-
		geneous and Spatially-Oriented Knowledge
	14	Michiel Overeem (UU), Evolution of Low-Code Platforms
	15	Jelmer Jan Koorn (UU), Work in Process: Unearthing Meaning using Process
		Mining
	16	Pieter Gijsbers (TU/e), Systems for AutoML Research
	17	I ame was don Lubba (VIIA) Emmananian sulpanable manle with serious

Laura van der Lubbe (VUA), Empowering vulnerable people with serious

Roberto Verdecchia (VU), Architectural Technical Debt: Identification and

18	Paris Mavromoustakos Blom (TiU), Player Affect Modelling and Video Gam
	Personalisation

- 19 Bilge Yigit Ozkan (UU), Cybersecurity Maturity Assessment and Standardisation
- 20 Fakhra Jabeen (VUA), Dark Side of the Digital Media Computational Analysis of Negative Human Behaviors on Social Media
- 21 Seethu Mariyam Christopher (UM), Intelligent Toys for Physical and Cognitive Assessments
- 22 Alexandra Sierra Rativa (TiU), Virtual Character Design and its potential to foster Empathy, Immersion, and Collaboration Skills in Video Games and Virtual Reality Simulations
- 23 Ilir Kola (TUD), Enabling Social Situation Awareness in Support Agents
- 24 Samaneh Heidari (UU), Agents with Social Norms and Values A framework for agent based social simulations with social norms and personal values
- 25 Anna L.D. Latour (LU), Optimal decision-making under constraints and uncertainty
- Anne Dirkson (LU), Knowledge Discovery from Patient Forums: Gaining novel medical insights from patient experiences
- 27 Christos Athanasiadis (UM), Emotion-aware cross-modal domain adaptation in video sequences
- Onuralp Ulusoy (UU), Privacy in Collaborative Systems
- 29 Jan Kolkmeier (UT), From Head Transform to Mind Transplant: Social Interactions in Mixed Reality