



The 20th IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology

Melbourne, Australia, 14-17 December 2021
A Hybrid Conference with Online and Offline Modes



WI-IAT 2021 CONFERENCE PROGRAM



Contents

Welcome Message	3
Organizing Committee	6
Conference Theme and Topics	7
Main Conference Theme	7
Areas and Topics	7
WI 20Y Turing Award Laureate Keynotes	8
Leslie Valiant	8
Joseph Sifakis	9
WI 20Y Keynotes	10
Tom M. Mitchell	10
Frank van Harmelen	11
WI-IAT'21 Invited Keynotes	12
Bryan Low	12
Athena Vakali	13
Xin Geng	14
Workshop and Special Session Technical Program	15
Main Conference Technical Program	22
Main Conference Sessions and Presentations	28
Wednesday, 15 December 2021	28
Thursday, 16 December 2021	31
Friday, 17 December 2021	34
Zoom Login Credentials and Free-access Live-streams	37
Zoom Login Credentials	37
Free-access Live-stream for Keynote Speeches, Opening & Closing Ceremony, WI 20Y Special Session	37
Sponsors	38

Welcome Message

The 2021 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT'21) provides a premier international forum for researchers and practitioners from diverse fields to present results from original research, as well as the exchange and dissemination of innovative and practical development experiences on Web intelligence and intelligent agent technology research and applications. WI-IAT conferences enable scientists, engineers and educators to present and share the latest WI-IAT technologies, and discuss the development of future intelligent systems for complex applications. The first international conference of Web Intelligence and Intelligent Agent Technology (WI-IAT'01) was held in Maebashi, Japan, 2001. Then, it was followed by WI-IAT'03 in Halifax, Canada, WI-IAT'04 in Beijing, China, WI-IAT'05 in Compiègne, France, WI-IAT'06 in Hong Kong, WI-IAT'07 in Silicon Valley, USA, WI-IAT'08 in Sydney, Australia, WI-IAT'09 in Milano, Italy, WI-IAT'10 in Toronto, Canada, WI-IAT'11 in Lyon, France, WI-IAT'12 in Macau, China, WI-IAT'13 in Atlanta, USA, WI-IAT'14 in Warsaw, Poland, and WI-IAT'15 in Singapore. After this period, in 2016, WI-IAT conferences were merged into a single brand with redefined and vitalized aims and topics, resulting in WI'16 in Omaha, USA, WI'17 in Leipzig, Germany, WI'18 in Santiago de Chile, and WI'19 in Thessaloniki, Greece. However, in recognition of the strong connection between Web Intelligence and Intelligent Agent Technology, the classic brand of WI-IAT resumed in 2020. After a successful online WI-IAT'20 during the global pandemic, WI-IAT'21 is held in Melbourne, Australia, as a hybrid conference with both online and offline modes, to celebrate its 20th anniversary.

WI-IAT aims to achieve a multi-disciplinary balance between research advances in theories and methods usually associated with collective intelligence, data science, human-centric computing, knowledge management, network science, autonomous agents and multi-agent systems. It is committed to addressing research that both deepens the understanding of computational, logical, cognitive, physical, and social foundations of the future Web, and enables the development and application of intelligent technologies. WI-IAT'21 features high-quality, original research papers and real-world applications in all theoretical and technological areas that comprise the field of Web Intelligence and Intelligent Agent Technology. WI-IAT'21 also grants a broad forum where academics, professionals and industry personnel can exchange their ideas, findings and strategies that utilize the power of human ingenuity and man-made networks to create a better world, more specifically, exploring how advanced intelligence is impacting fields such as the Web of People, the Web of Data, the Web of Things, the Web of Trust, the Web of Agents, and emerging Web in health and smart living in the 5G Era. The theme of WI-IAT'21 is “**Web Intelligence = AI in the Connected World**”.

As the 20th anniversary of the conference, WI-IAT'21 hosts a special event, the WI 20Y Anniversary Special Session, to celebrate. Special features in this event include four WI 20Y keynotes:

- Leslie Valiant, Turing Award laureate, Member of the United States National Academy of Sciences, Fellow of the Association for the Advancement of Artificial Intelligence, Harvard University, USA: “*How to Augment Learning with Reasoning*”
- Joseph Sifakis, Turing Award laureate, Member of the French Academy of Sciences, Member of the French National Academy of Engineering, University of Grenoble, France: “*Why is it so*”

hard to make self-driving cars? (Trustworthy autonomous systems)”

- Tom M. Mitchell, Member of the United States National Academy of Engineering, Fellow of the American Association for the Advancement of Science, Fellow the Association for the Advancement of Artificial Intelligence, Carnegie Mellon University, USA: “*Can We Replace Programming Languages by Natural Instruction?*”
- Frank van Harmelen, Member of the Dutch Royal Academy of Sciences, Member of the Royal Holland Society of Sciences and Humanities, Fellow of the European Association for Artificial Intelligence, Vrije Universiteit Amsterdam, the Netherlands: “*Modular design patterns for systems that learn and reason*”

This also includes an invited talk delivered by the recipients of the “WI 20Y Most Influential Paper Award” for the following WI-IAT paper:

- Sitaram Asur and Bernardo A. Huberman, “*Predicting the Future with Social Media*”, IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology, 2010, pp. 492–499. (doi: 10.1109/WI-IAT.2010)

At the time of this article’s draft prior to the conference opening, the paper has attracted 3042 citations on Google Scholar and 1092 on Scopus, and the citation numbers are increasing constantly.

In addition to the WI 20Y keynotes, we are also deeply honored to have following highly distinguished speakers from the field of “AI in the Connected World” delivering a keynote speech at WI-IAT’21:

- Bryan Low, National University of Singapore, Singapore: “*Trusted data sharing – incentivizing collaboration and rights to be forgotten in machine learning*”
- Athena Vakali, Aristotle University of Thessaloniki, Greece: “*Online social networks bot detection services and technologies: How can social bots be detected in today’s online mistrusted platforms?*”
- Xin Geng, Southeast University, China: “*Unleash the Power of Label Space: Label Enhancement for Label Distribution Learning*”

We thank all keynotes and invited speakers for their contribution to the success of the conference, and their willingness to share their brilliant expertise and wisdom with our participants.

Overall, the WI-IAT’21 conference received 206 paper submissions with 667 authors from 43 countries across the world. After a rigorous peer review process undertaken by the Program Committee members and additional reviewers, 57 top quality papers are included in the proceedings as regular papers, marking an acceptance rate of 27.6%. Also included in the proceedings are 38 short papers with semi-top research merit. Alongside the main conference, there are jointly 12 workshops and special sessions, which include many pioneered and exploratory works in the companion proceedings. We truly congratulate the authors of these papers for such a great achievement. We also sincerely thank all the authors of non-accepted papers for their contributions to WI-IAT’21, and wish to express our gratitude to all the reviewers who provided valuable feedback.

It is impossible to organize a first-class conference without the support and expertise of many outstanding researchers, leaders, volunteers, and sponsors. We acknowledge the time and effort dedicated by the members of the WI-IAT’21 Organizing Committee and Program Committee. They assured the success and academic merit of the conference. We would like to thank the keynote speakers, invited speakers, and workshop and special session organizers, who selflessly contributed their time, knowledge, and expertise to WI-IAT’21 and helped make the WI-IAT’21 Technical Program interesting and beneficial. We would also like to thank the WI-IAT Steering Committee Co-chairs,

Ning Zhong and Jiming Liu, whose guidance was essential for the success of the conference. Our gratitude also goes to Juzhen Dong and Hongzhi Kuai, who always dealt with issues in a timely and patient manner, no matter how late and how often they arose. We also thank the sponsors of WI-IAT'21 such as the IEEE Computer Society Technical Committee on Intelligent Informatics (TCII), Web Intelligence Consortium (WIC), ACM-SIGAI, Oxford University, the University of Queensland, Deakin University, Southeast University, Nanjing University of Finance & Economics, Peking Union Medical College, China, IOS Press, PIESAT International Information Technology Limited, and Tao Technology for their trust and support. Last but not least, we cannot extend enough thanks to the authors who contributed to the WI-IAT'21 conference. Without them, WI-IAT '21 wouldn't be possible.

We wish you many rewarding experiences at WI-IAT'21, a hybrid conference with both online and offline modes!

Yours sincerely.

WI-IAT 2021 Organizing Committee
Melbourne and Cyber, December 2021

Organizing Committee

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Australia

RAINER UNLAND
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JIE CAO
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and Economics, China

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Australia

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Italy

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Victoria University of
Wellington, New Zealand

JIAN CAO
Shanghai Jiaotong University,
China

KE DENG
RMIT University,
Australia

Conference Theme and Topics

Main Conference Theme

The theme of the WI-IAT '21 is
“WEB INTELLIGENCE = AI IN THE CONNECTED WORLD”.

Areas and Topics

- Track 1: Web of People
- Track 2: Web of Trust
- Track 3: Web of Things
- Track 4: Web of Data
- Track 5: Web of Agents
- Special Track: Emerging Web in Health and Smart Living

WI 20Y Turing Award Laureate Keynotes

Leslie Valiant

*Turing Award Laureate, Member of the United States National Academy of Sciences,
Fellow of the Association for the Advancement of Artificial Intelligence
Harvard University, USA*

HOW TO AUGMENT LEARNING WITH REASONING?



Abstract: Learning is a cognitive phenomenon that has proved amenable both to theoretical analysis and exploitation as a technology. However, not all of cognition can be accounted for directly by learning. The question we ask here is whether one can build on the success of machine learning to address the broader goals of artificial intelligence. We regard reasoning as the major component of cognition that needs to be added. We suggest that the central challenge therefore is to unify the formulation of these two phenomena, learning and reasoning, into a single framework with a common semantics. In such a framework one would aim to learn rules with the same success that predicates can be learned by means of machine learning, and, at the same time, to reason with the rules with guarantees analogous to those of standard logic. We discuss how Robust Logic fulfils the role of such a theoretical framework. We also discuss the challenges of testing this experimentally on a significant scale, for tasks where one hopes to exceed the performance offered by learning alone.

Short Bio: Leslie Valiant was educated at King's College, Cambridge; Imperial College, London; and at Warwick University where he received his Ph.D. in computer science in 1974. He is currently T. Jefferson Coolidge Professor of Computer Science and Applied Mathematics in the School of Engineering and Applied Sciences at Harvard University, where he has taught since 1982. Before coming to Harvard he had taught at Carnegie Mellon University, Leeds University, and the University of Edinburgh. His work has ranged over several areas of theoretical computer science, particularly complexity theory, learning, and parallel computation. He also has interests in computational neuroscience, evolution and artificial intelligence and is the author of two books, *Circuits of the Mind*, and *Probably Approximately Correct*. He received the Nevanlinna Prize at the International Congress of Mathematicians in 1986, the Knuth Award in 1997, the European Association for Theoretical Computer Science EATCS Award in 2008, and the 2010 A. M. Turing Award. He is a Fellow of the Royal Society (London) and a member of the National Academy of Sciences (USA).

Time: Melbourne Time (UTC/GMT +11) 0900-0950, Wednesday, 15 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/q50Wr1Dqmpc>
- Link 2: <https://meeting.tencent.com/l/nv4V9VOKtWwH>

Joseph Sifakis

*Turing Award Laureate, Member of the French Academy of Sciences, Member of the French National Academy of Engineering
University of Grenoble, France*

WHY IS IT SO HARD TO MAKE SELF-DRIVING CARS? (TRUSTWORTHY AUTONOMOUS SYSTEMS)



Abstract: Why is self-driving so hard? Despite the enthusiastic involvement of big technological companies and the massive investment of many billions of dollars, all the optimistic predictions about self-driving cars “being around the corner” went utterly wrong. I argue that these difficulties emblematically illustrate the challenges raised by the vision for trustworthy autonomous systems. These are critical systems intended to replace human operators in complex organizations, very different from other intelligent systems such as game-playing robots or intelligent personal assistants. I discuss complexity limitations inherent to autonomic behavior but also to integration in complex cyber-physical and human environments. I argue that existing critical systems engineering techniques fall short of meeting the complexity challenge. I also argue that emerging end-to-end AI-enabled solutions currently developed by industry,

fail to provide the required strong trustworthiness guarantees. I advocate a hybrid design approach combining model-based and data-based techniques and seeking tradeoffs between performance and trustworthiness. I also discuss the validation problem emphasizing the need for rigorous simulation and testing techniques allowing technically sound safety evaluation. I conclude that building trustworthy autonomous systems goes far beyond the current AI vision. To reach this vision, we need a new scientific foundation enriching and extending traditional systems engineering with data-based techniques.

Short Bio: Prof. Joseph Sifakis is Emeritus Senior CNRS Director at Verimag. His current research interests cover fundamental and applied aspects of autonomous system design. He is the founder of the Verimag laboratory in Grenoble, which he directed for 13 years. He has been a full professor at EPFL for the period 2011-2016. In 2007, he received the Turing Award for his contribution to the theory and application of model checking. Joseph Sifakis is a member of the French Academy of Sciences, a member of the French National Academy of Engineering, a member of Academia Europea, a member of the American Academy of Arts and Sciences, a member of the National Academy of Engineering and a member of the Chinese Academy of Sciences.

Time: Melbourne Time (UTC/GMT +11) 1700-1750, Wednesday, 15 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/q50Wr1Dqmpc>
- Link 2: <https://meeting.tencent.com/j/nv4V9V0KtWwH>

WI 20Y Keynotes

Tom M. Mitchell

*Member of the United States National Academy of Engineering, Fellow of the American Association for the Advancement of Science, Fellow the Association for the Advancement of Artificial Intelligence
Carnegie Mellon University, USA*

CAN WE REPLACE PROGRAMMING LANGUAGES BY NATURAL INSTRUCTION?

Abstract: Now that computers are finally able to have simple conversations, it is time to explore the potential for replacing programming languages with natural language instruction. For example, less than 1% of phone users can program their phone to do new things for them, but if this line of research succeeds we might change that to 99%. This talk will describe our recent research exploring how we might enable phone users to teach their phones to perform new commands, using natural language interaction together with demonstrations. This



line of research represents a paradigm of "conversational machine learning" that complements current data-intensive statistical approaches. If successful, it has implications for many types of computer interfaces, from giving users more control over their smart phones, to a providing a new generation of teachable web browsers.

This talk covers joint work with Igor Labutov, Forough Arabshahi, Brad Meyers, Shashank Srivastava, Toby Li, Jennifer Lee, Antoine Bosselut, and Yeijin Choi.

Short Bio: Tom M. Mitchell is the Founders University Professor at Carnegie Mellon University, where he created the world's first Machine Learning Department. His research includes machine learning approaches to natural language understanding, and brain imaging studies of natural language understanding in humans. Mitchell is an elected member of the U.S. National Academy of Engineering and the American Academy of Arts and Sciences, and a Fellow and Past President of the Association for the Advancement of Artificial Intelligence (AAAI). He is interested in societal impacts of computer science, recently co-chaired a U.S. National Academies study on "Information Technology, Automation, and the Workforce," and has recently testified to several Congressional forums on the impacts of AI on society.

Time: Melbourne Time (UTC/GMT +11) 0900-0950, Thursday, 16 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/-dM9a1hbiNA>
- Link 2: <https://meeting.tencent.com/l/HCyW9B616rjx>

Frank van Harmelen

*Member of the Dutch Royal Academy of Sciences, Member of the Royal Holland Society of Sciences and Humanities, Fellow of the European Association for Artificial Intelligence
Vrije Universiteit Amsterdam, the Netherlands*

MODULAR DESIGN PATTERNS FOR SYSTEMS THAT LEARN AND REASON



Abstract: The combination of data-driven techniques from machine learning with symbolic techniques from knowledge representation is recognised as one of the grand challenges of modern AI. We propose a set of compositional design patterns to describe a large variety of systems that combine statistical techniques from machine learning with symbolic techniques from knowledge representation. As in other areas of computer science (knowledge engineering, software engineering, ontology engineering, process mining and others), such design patterns help to systematize the literature, clarify which combinations of techniques serve which purposes, and encourage re-use of software components. We have validated our set of compositional design patterns against a large body of recent literature.

Short Bio: Frank van Harmelen has a PhD in Artificial Intelligence from Edinburgh University, and has been professor of AI at the Vrije Universiteit Amsterdam since 2001, where he leads the research group on Knowledge Representation. He was one of the designers of the knowledge representation language OWL, which is now in use by companies such as Google, the BBC, New York Times, Amazon, Uber, Airbnb, Elsevier and Springer Nature among others. He co-edited the standard reference work in his field (The Handbook of Knowledge Rep-

resentation), and received the Semantic Web 10-year impact award for his work on the Sesame RDF triple store. He is a Fellow of the European Association for Artificial Intelligence, Member of the Dutch Royal Academy of Sciences (KNAW), of the Royal Holland Society of Sciences and Humanities (KHWM) and of the Academia Europaea, and is adjunct professor at Wuhan University and Wuhan University of Science and Technology in China.

Time: Melbourne Time (UTC/GMT +11) 1710-1800, Friday, 17 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/ZiaMlc0IBYY>
- Link 2: <https://meeting.tencent.com/l/VRoSwBu80frc>

WI-IAT'21 Invited Keynotes

Bryan Low

National University of Singapore, Singapore

TRUSTED DATA SHARING – INCENTIVIZING COLLABORATION AND RIGHTS TO BE FORGOTTEN IN MACHINE LEARNING



Abstract: In this talk, Dr. Bryan Low will present his preliminary research efforts in trusted data sharing. Specifically, he will discuss how we can perform data valuation, incentivize multiple parties with data to collaborate in building higher-quality models, and unlearn a trained machine learning model from data to be erased (e.g. personal data, malicious data) for compliance with regulations such as the Personal Data Protection Act, General Data Protection Regulation, and the future of personal data ownership.

Short Bio: Dr. Bryan Low is an Associate Professor of Computer Science at the National University of Singapore and the Deputy Director of AI Research at AI Singapore. He obtained the B.Sc. (Hons.) and M.Sc. degrees in Computer Science from National University of Singapore, Singapore, in 2001 and 2002, respectively, and the Ph.D. degree in Electrical and Computer Engineering from Carnegie Mellon University, Pittsburgh, Pennsylvania, in 2009. His research interests include probabilistic & automated machine learning, planning under uncertainty, and multi-agent/robot systems.

Dr. Low is the recipient of the (1) Andrew P. Sage Best Transactions Paper Award for the best paper published in all 3 of the IEEE Transactions on Systems, Man, and Cybernetics - Parts A, B, and C in 2006; (2) National University of Singapore Overseas Graduate Scholarship for Ph.D. studies in Carnegie Mellon University (CMU) in 2004-2009; (3) Singapore Computer Society Prize for Best M.Sc. Thesis in School of Computing, National University of Singapore in 2003; and (4) Faculty Teaching Excellence Award in School of Computing, National University of Singapore in 2017-2018.

Dr. Low has served as a World Economic Forum's Global Future Councils Fellow for the Council on the Future of Artificial Intelligence and Robotics from Sep 2016 to Jun 2018 and an IEEE Robotics & Automation Society (RAS) Distinguished Lecturer for the IEEE RAS Technical Committee on Multi-Robot Systems in Mar 2019. He has served as an organizing chair for the IEEE RAS Summer School on Multi-Robot Systems in Jun 2016 and the AI Summer Schools in Jul 2019 and Aug 2020. Dr. Low has also served as associate editors, area chairs and program committee members, and reviewers for premier AI (specifically, multiagent systems, AI planning, robotics, machine learning) conferences: IJCAI, AAAI, ECAI, AAMAS, ICAPS, RSS, IROS, ICRA, CoRL, NeurIPS, ICML, AISTATS, ICLR and journals: TKDE, JMLR, JAIR, MLJ, TNNLS, T-ASE, IJRR, T-RO, AURO, JFR, TOSN, JAAMAS. He was the top 5% reviewer for ICML 2019 and top 33% reviewer for ICML 2020.

Time: Melbourne Time (UTC/GMT +11) 1300-1350, Wednesday, 15 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/q50Wr1Dqmpc>
- Link 2: <https://meeting.tencent.com/j/nv4V9V0KtWwH>

Athena Vakali

Aristotle University of Thessaloniki, Greece

ONLINE SOCIAL NETWORKS BOT DETECTION SERVICES AND TECHNOLOGIES: HOW CAN SOCIAL BOTS BE DETECTED IN TODAY'S ONLINE MISTRUSTED PLATFORMS?



Abstract: Popular Online Social Networks platforms offer a fertile ground for open communication among humans, however, they also attract many bots and automated accounts "disguised" as human users. Typically, such accounts favor malicious activities such as phishing, public opinion manipulation and hate speech spreading, to name a few. Although several Artificial Intelligence (AI) bot detection methods have been implemented, the justification of bot classification and characterization remains quite opaque and AI decisions lack in ethical responsibility. Most of these approaches operate with AI black-boxed algorithms and their efficiency is often questionable.

Prof. Vakali will reveal crucial research outcomes in the battle against social bots "in the wild". Social bots detection under interpretable, responsible, and AI methods will be showcased, to open ideas and dialogues for effective online disinformation services. In this talk we will further explore indicative services, such as "Bot-Detective", a web service that takes into account both the efficient detection of bot users and the interpretability of the results. Main topics are : i) novel explainable bot-detection approaches, to offer interpretable, responsible, and AI driven bot identification in Twitter,

ii) publicly available bot detection Web service examples which integrates an explainable ML framework along with users feedback functionality under an effective crowdsourcing mechanism; iii) availability of annotated dataset by exploiting Twitter's rules and existing tools.

Short Bio: Athena Vakali is a Professor at the School of Informatics, Aristotle University, Greece, where she leads the Laboratory on Data and Web science (Datalab <https://datalab.csd.auth.gr/>). She holds a PhD degree in Informatics (Aristotle University), a MSc degree in Computer Science (Purdue University, USA), and a BSc degree in Mathematics. Her current research interests include Data Science topics with emphasis on big data mining and analytics, Next generation Internet applications and enablers, online social networks mining, as well as on online sources data management on the cloud, the egde and decentralized settings. She has supervised 10 completed PhD theses and she has been awarded for her educational and research work which is extended with mentoring and students empowerment (ACM, ACMW). Prof. Vakali has published over than 170 papers in refereed journals and Conferences (her publications received over 8530 citations with h-index=39 according to gscholar). She is the Co-EiC of "Web Intelligence" WIC journal and she is at the editorial board of "Computers & Electrical Engineering" Journal, and ICST Transactions on Social Informatics. She has coordinated and participated in more than 30 research projects in EU FP7, H2020, international and national projects. She has served as a member in the EU Steering Committee for the EU Future Internet Assembly (2012-14) and she has been appointed as Director of the Graduate Program in Informatics, Aristotle University (2014-15). She has co-chaired major Conferences Program Committees such as : PC co-chair at the ACM/IEEE Web Intelligence Conference 2019, the EU Network of Excellence 2nd Internet Science Conference (EINS 2015), 15th Web Information Systems Engineering (WISE 2014),etc. More info at: <https://datalab.csd.auth.gr/avakali/>.

Time: Melbourne Time (UTC/GMT +11) 1600-1650, Wednesday, 15 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/q50WrlDqmpc>
- Link 2: <https://meeting.tencent.com/l/nv4V9V0KtWwH>

Xin Geng

Southeast University, China

UNLEASH THE POWER OF LABEL SPACE: LABEL ENHANCEMENT FOR LABEL DISTRIBUTION LEARNING



Abstract: In the existing machine learning literature, the labels of the training examples are usually just used in the calculation of loss. Most sophisticated operations are actually conducted on the instances, such as feature extraction, feature selection, manifold embedding, dimensionality reduction, etc. Researchers take obviously more efforts in the feature space than in the label space, which is not strange since labels are traditionally represented by logical values, i.e., 1 if the label is relevant to the instance and 0 otherwise. However, if we can somehow transform the logical label vectors into real-valued label vectors, then we can expect much more profound analysis in the label space.

Label distribution learning (LDL) is a recently proposed machine learning paradigm, where each instance is labeled by a real-valued label vector called label distribution. Each element in the label distribution indicates the description degree of the corresponding label to the instance. Considering most existing data sets are annotated by logical labels, we need a way to transform logical labels into label distributions, which is called label enhancement. Label enhancement could unleash the power of label space: many analytic operations meant for the feature space are now applicable to the label space.

Short Bio: Xin Geng is currently a professor and the dean of School of Computer Science and Engineering at Southeast University, China. He is an awardee of the National Science Fund for Distinguished Young Scholars. He received the B.Sc. (2001) and M.Sc. (2004) degrees in computer science from Nanjing University, China, and the Ph.D. (2008) degree in computer science from Deakin University, Australia. His research interests include machine learning, pattern recognition, and computer vision. He has published over 100 refereed papers in these areas, including those published in prestigious journals and top international conferences. He has been an Associate Editor of IEEE T-MM, FCS and MFC, a Steering Committee Member of PRICAI, a Program Committee Chair for conferences such as PRICAI'18, VALSE'13, etc., an Area Chair for conferences such as CVPR'21, ACM MM'18, ICPR'20, and a Senior Program Committee Member for conferences such as IJCAI, AAAI, ECAI, etc. He is a Distinguished Fellow of IETI and a Senior Member of IEEE.

Time: Melbourne Time (UTC/GMT +11) 1300-1350, Friday, 17 December 2021

Zoom 1: 974 366 3655

Free-access Live-stream

- Link 1: <https://youtu.be/ZiaMlc0IBYY>
- Link 2: <https://meeting.tencent.com/j/VRoSwBu80frc>

Workshop and Special Session Technical Program

WORKSHOP AND SPECIAL SESSION PROGRAM AT A GLANCE

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Tuesday, 14 December 2021					
		Zoom 1	Zoom 2	Zoom 3	Zoom 4	Zoom 5	
0900-1000	0600-0700	Special Track on Social Computing	Spatial temporal data management and visualization for food and strategic reserves	SMA4H: Social Media Analytics for Health intelligence (SMA4H): how artificial intelligence transforms healthcare	Spatial Track on Computational Complexity		
1000-1100	0700-0800			XPERT4CQA: First International Workshop on Expert Recommendation for Community Question Answering			
1100-1200	0800-0900						
1200-1300	0900-1000						
1300-1400	1000-1100		NLPOE2021: 14th Natural Language Processing and Ontology Engineering	DASM21: International Workshop on Data Analytics on Social Media	WImBI21: Web Intelligence meets Brain Informatics		AI4SG: International Workshop on AI for Social Good in the Connected World
1400-1500	1100-1200		IDP: 10th International Workshop on Intelligent Data Processing				
1500-1600	1200-1300						
1600-1700	1300-1400						
1700-1800	1400-1500						
1800-1900	1500-1600				ABCSS2021: The 6th International Workshop on Application of Big Data for Computational Social Science		
1900-2000	1600-1700						
2000-2100	1700-1800						
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Thursday, 16 December 2021					
		Zoom 1					
1815-2200	1515-1900	ACER: International Workshop on Affective Computing and Emotion					

WORKSHOP AND SPECIAL SESSIONS TECHNICAL PROGRAM

Tuesday, 14 December 2021			
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Special Track on Social Computing (https://sites.google.com/view/wi-iat2021sc/)
			Zoom Link Reference: Zoom 1: 974 366 3655 Chair: Feng Xia (Federation University Australia)
0900-0905	0600-0605	5 mins	Opening
0905-0945	0605-0645	40 mins	Keynote Talk I Networks and Narratives: Deriving Actionable Insights through Social Computing Nitin Agarwal (University of Arkansas at Little Rock, USA)
0950-1030	0650-0730	40 mins	Keynote Talk II Understanding innovation through social computing Hyejin Youn (Northwestern University, USA)
1030-1045	0730-0745	15 mins	Coffee Break
1045-1125	0745-0825	40 mins	Keynote Talk III Social-Behavioral Graph Data Augmentation Meng Jiang (University of Notre Dame, USA)
1130-1230	0830-0930	60 mins	WI215--Mobile Crowdsensing with Imagery Tasks Justas Dautaras and Mihhail Matskin
			WI269--Medical Inter-Specialty Referral Networks: A Graph-Based Analysis of Germany-Wide Claims Data Tatiana Ermakova, Benjamin Fabian, Michael Erhart, Thomas Czihal, and Dominik von Stillfried
			S03202--Heterogeneous Graph Learning for Explainable Recommendation over Academic Networks Xiangtai Chen, Tao Tang, Jing Ren, Ivan Lee, Honglong Chen, and Feng Xia
1230-1300	0930-1000	60 mins	Lunch Break
1300-1340	1000-1040	40 mins	Keynote Talk IV From Personal Big Data to Personalized Intelligence Jianhua Ma (Hosei University, Japan)
1345-1425	1045-1125	40 mins	Keynote Talk V Faster, Sooner, Cheaper: Can social media reflect real-world phenomena? Suppawong Tuarob (Mahidol University, Thailand)
1430-1445	1130-1145	15 mins	Coffee Break
1445-1525	1145-1225	40 mins	Keynote Talk VI Collaboratively building knowledge graphs on the Web Armin Haller (Australian National University, Australia)
1530-1610	1230-1310	40 mins	Keynote Talk VII VRank: A New Algorithm to Compute the Influence of Users and Posts in Online Social Networks Arindam Pal (Data61, CSIRO, Australia)
1615-1630	1315-1330	15 mins	Coffee Break
1630-1750	1330-1450	80 mins	S03203--KIDNet: A Knowledge-Aware Neural Network Model for Academic Performance Prediction Tao Tang, Jie Hou, Teng Guo, Xiaomei Bai, Xue Tian, and Azadeh Noori Hoshyar
			S03204--Network Completion with Auto-regressive Graph Generative Model Shiyu Han, Jiaying Liu, Bo Xu, Lianhua Chi, and Ching-Hsien Hsu
			WI1311--Matching Social Issues to Technologies for Civic Tech by Association Rule Mining using Weighted Causal Confidence Masato Kikuchi, Shun Shiramatsu, Ryota Kozakai, and Tadachika Ozono
			S03201--A Computational Agent Model for Temporal Dynamic Analysis in Virtual Community Cohesion Azizi Ab Aziz, Nor Iadah Yusop, Zahurin Mat Aji, and Zulkhairi Md Dahalin
1750-1800	1450-1500	10 mins	Closing

Tuesday, 14 December 2021			
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Spatial temporal data management and visualization for food and strategic reserves
			Zoom Link Reference: Zoom 2: 819 052 0425 Chair: Bo Mao
		20 mins	Yansheng Qu, Xingfang Cheng, Yunxiao Wang, Hua Sheng, Wenbin Zhang, Lu Hou, Jian Meng, and Xie Wang S02201--User and Service Classification in Power Grid Management System based on Random Forest

0900-1000	0600-0700	20 mins	Ming Li, Xingwang Han, Hua Huang, Jinchao Ni, Bo Cui, Hui Cheng, Mingfeng Liu, and Xie Wang S02202--Improved LSTM Spatial-temporal Prediction Method for Power Grid IoT Analysis
		20 mins	Ning Li, Xue Liu, Ziyang Liu, Lin Mao, Lina Zhao, and Xie Wang S02203--Anomaly Detection in Power Grid IoT System based on Isolated Forest
1000-1020	0700-0720	20 mins	Coffee Break
1020-1100	0720-0800	20 mins	Guanqun Yang, Qiang Ma, Meng Liu, Qiang Zhangju, Hao Xu, and Xiaolu Chen S02204--The Unified Authority Platform based on High Performance Blockchain
		20 mins	Bingchan Li, Hongtao Ma, and Bo Mao S02205--Multi-user Online Three-Dimensional Marine Oil Spill Crisis Response System

Tuesday, 14 December 2021

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	SMA4H: Social Media Analytics for Health intelligence (SMA4H): how artificial intelligence transforms healthcare
			Zoom Link Reference: Zoom 3: 9109287030 Chairs: Carmela & Agostino Forestiero
0900-1000	0600-0700	20 mins	Che-Yu Chang and Shelley Zhang S09201--Analyzing the Association between Stroke and Chronic Diseases with Data Mining
		20 mins	Aryana Collins Jackson, Elisabetta Bevacqua, Pierre De Loor, and Ronan Querrec WI262--A Computational Interaction Model for a Virtual Medical Assistant Using Situational Leadership
		20 mins	Saulo Mendes de Melo, André Lima Férrer de Almeida, Lívia Almada Cruz, and Ticiana Linhares Coelho da Silva WI326--A Chat Recommender System for COVID-19 Support based in Textual Sentence Embeddings
			XPERT4CQA: First International Workshop on Expert Recommendation for Community Question Answering Chair: Riccardo Ortale
1000-1020	0700-0720	20 mins	Aman Lamichhane, Rupesh Bardewa, Komaljeet Kaur, and Nandini Sidnal S10201--Recommendation System

Tuesday, 14 December 2021

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Special Track on Spatial Track on Computational Complexity
			Zoom Link Reference: Zoom 4: 533 781 6805 Chair: Jing He
0900-1020	0600-0720	20 mins	Keynote speech 1: Prof. Xinghuo Yu
		20 mins	Keynote speech 2: Prof. Phoebe Chen
		20 mins	Keynote speech 3: Prof. Javen Qinfeng Shi
		20 mins	Keynote speech 4: Prof. Shiyang Huang
1020-1040	0720-0740	20 mins	Coffee Break
1040-1140	0740-0840	20 mins	Yuanyuan Wu, Chi-Hung Chi, Effective Personalized Taxonomy Pruning for Identification of Relevant Knowledge Domain for Knowledge Support of User
		20 mins	Qiwei Kong, Linear Adjusting Programming in Factor Space
		20 mins	Mengjiao Guo, A Subgraph Isomorphism-based Attack Towards Social Networks

Tuesday, 14 December 2021

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	NLPOE2021: 14th Natural Language Processing and Ontology Engineering
			Zoom Link Reference: Zoom 2: 819 052 0425 Chair: Yang Zhou
1300-1420	1000-1120	20 mins	Li Liu and Xuebo Li S06202 - Bibliometric Analysis of TCM Knowledge Engineering Based on CNKI
		20 mins	Li Liu and Xuebo Li S06203 - Research and Construction of Classical Formulas Knowledge Graph Based on Ontology 13:40 -- 14:00 Ying Zhou, Yang Zhou, Juntong Dai, and Xun Qin
		20 mins	Corpus Annotation Research on Ancient Chinese Materia Medica Oriented to the System of Textual Knowledge Graph of Ancient Chinese Medical Literatures—Taking Shen Nong Ben Jing Jiao Zhu as An Example Qingxu Wang, Rui Chen, and HuaJun He
		20 mins	S06209 - Study on the Personalized Recommendation Technology of Meteorological Network Course Resources

Tuesday, 14 December 2021			
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	DASM21: International Workshop on Data Analytics on Social Media
			Zoom Link Reference: Zoom 3: 9109287030 Chair: Yue Xu
1300-1400	1000-1100	20 mins	Flore Vancompernelle Vromman and François Fouss S07202--Filter bubbles created by collaborative filtering algorithms themselves, fact or fiction?
		20 mins	Carson Leung WI386--A web intelligent solution to support recommendations from the web
		20 mins	Shuyan Liu and Yue Chen WI224--Comparison of Variant Principle Component Analysis Using New RNN-based Framework for Stock Prediction

Tuesday, 14 December 2021			
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	WimBI21: Web Intelligence meets Brain Informatics
			Zoom Link Reference: Zoom 4: 533 781 6805 Chair: Jiabin Huang
1300-1330		30 mins	Opening Addressed by Ning Zhong
1330-1400		30 mins	Invited Talk: Data-Brain Driven General Intelligence Model with Smart Health Applications, by Hongzhi Kuai
1400-1520	1100-1220	20 mins	Jianzhuo Yan, Qingcai Gao, Jianhui Chen, and Yongchuan Yu S14205--A Water Quality Prediction Model Based on Knowledge-enhanced Deep Adversarial Network
		20 mins	Mengzhen Wang, Jianhui Chen, and Shaofu Lin S14206--Medication Recommendation Based on a Knowledge-enhanced Pre-training Model
		20 mins	Lianfang Ma, Jianhui Chen, and Ning Zhong S14207--Analyzing Neural Correlates Between Number Series and Letter Series Induction Based on Data-Brain Driven Integration Evidence
		20 mins	Haiyan Zhou, Zezhou Zhao, Ziheng Gao, Lei Feng S14208--Identification of Depression Subtypes Based on EEG and Machine Learning

Tuesday, 14 December 2021			
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	AI4SG: International Workshop on AI for Social Good in the Connected World
			Zoom Link Reference: Zoom 5: 559 326 8361 Chair: Yang Liu
1300-1400	1000-1100	20 mins	Lizhong Yao and Tiantian He S15201--Fuzzy Community Detection with Multi-View Correlated Topics
		20 mins	Zhuanghu Lv, Jing Li, Dafeng Liu, Yue Peng, and Benyun Shi S15202--STANN: Spatio-Temporal Attention-based Neural Network for Epidemic Prediction
		20 mins	Hao Xu, Fan Zhang, Zhanwei Du, and Li Tao S15203--Insight into the mobility patterns under the COVID-19: A time-sequence based approach

Tuesday, 14 December 2021			
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	IDP: 10th International Workshop on Intelligent Data Processing
			Zoom Link Reference: Zoom 2: 819 052 0425 Session Co-Chairs: Paolo Mengoni, Kristen Yuanxi Li & Haolan Zhang
1500-1600	1200-1300	20 mins	Yuhan Gu and Zhenbiao He, S08202--Consumer research based on the consumption of IP virtual derivatives.
		20 mins	Jing Bao, S08207--Playbour in the digital games:A case study of Fantasy Westward Journey.

		20 mins	Chun Yin Tsui and Paolo Mengoni, S08203--A Case Study of Clustering and Visualization With Clickstream Data Using UX2Vec.
1600-1640	1300-1340	20 mins	Mingzhen Ding, Ziyi Liu, Guohui Xu, Shudong Ding, and Hao Lan Zhang, S08204--EEG Spatial Analysis based on Brain thermogram Image Recognition.
		20 mins	Yan Liu, Zhihui Zhang, Baiying Xing, Jing Yuan, Haolan Zhang, and Chunyu Feng, S08208--An enhanced ARIMA model for EEG classification.
1640-1740	1340-1440	20 mins	S08201--A Method for Recognizing and Counting Residual Bait of Penaeus Vannamei Based on Deep Learning
		20 mins	Jie Wang, Huaiwei Cong, Xin Wei, Baolian Qi, Jinpeng Li, and Ting Cai, S08205--X-ray Image Blind Denoising in Hybrid Noise Based on Convolutional Neural Networks. Paper ID:
		20 mins	Xinbo Ren, Haiyuan Wu, Toshiyuki Imai, Yuxia Zhao, and Takashi Kubo, S08206--Semantic Segmentation of Atherosclerosis in Superficial Layer of IVOCT Images Using Deep Learning.
1740-1745	1440-1445	5 mins	Workshop Closing Remark (Paolo Mengoni)

Tuesday, 14 December 2021

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	ABCSS2021: The 6th International Workshop on Application of Big Data for Computational Social Science Zoom Link Reference: Zoom 3: 9109287030
1755-1800	1455-1500	5 mins	Workshop Opening (Fujio Toriumi)
1800-1920	1500-1620	20 mins	Shunsuke Hatadani S05205--Proposal for a Mathematical Model of the Hit Phenomenon Using Cumulative Values of Data
		20 mins	Amit Gill, Maddegedara Lalith, Yoshiki Ogawa, Hideyuki Otani, Tsuyoshi Ichimura, Kohei Fujita, Filippo Gatti, and Muneo Hori S05207--Seamless Simulations of Earthquake Disasters and Economy at 1:1 scale Utilizing Big-data
		20 mins	Kenta Tsukatsune, Tatsuya Konishi, Yuto Mizutani, Mori Kurokawa, Shuichiro Haruta, and Tomoaki Saito S05209--Does Activeness Originate in Individuals or Groups? Analysis of the Interrelationships between Network Indices and Posts Using Multilevel Cross-Lagged Model
		20 mins	Atsushi Ueshima and Hiroki Takikawa S05201--Analyzing Vaccination Priority Judgments for 132 Occupations Using Word Vector Models
1920-1940	1620-1640	20 mins	Coffee Break
1940-2100	1640-1800	20 mins	Kunihiro Miyazaki, Takayuki Uchiba, Kenji Tanaka, and Kazutoshi Sasahara S05203--Characterizing the Anti-Vaxxers's Reply Behavior on Social Media
		20 mins	Johannes Schneider, Gramoz Sejjijaj, and Jan vom Brocke S05204--COVID-19 Vaccine Discussion: Evidence from Twitter data using Text Mining
		20 mins	Takuro Okada, Fujio Toriumi, and Maki Sakamoto S05208--A Study on Emotional Analysis Focusing on Onomatopoeia Used on SNS for the COVID-19
		20 mins	entaro Ueda, Kodai Sasaki, Hirohiko Suwa, Yuki Ogawa, Eiichi Umehara, Tatsuo Yamashita, Kota Tsubouchi, and Keiichi Yasumoto S05212--Prediction of Nikkei VI increase for reducing investment risk using Yahoo! JAPAN stock BBS
2100-2105	1800-1805	5 mins	Workshop Closing and Remark (Akira Ishii)

Thursday, 16 December 2021

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	ACER: International Workshop on Affective Computing and Emotion (Zoom Link reference: Zoom 1: 974 366 3655) Organizing Chair: Valentina Franzoni
1815-1825	1515-1524	10 mins	welcome to authors and public, roll call for presences, Giulio Biondi from Italy (GMT+1 8.15-8.25)
1830-1850	1530-1550	20 mins	Niccolò Di Marco from Italy (GMT+1 8.30-8.50) Valentina Franzoni, Niccolò Di Marco, Giulio Biondi, and Alfredo Milani S12203--How Virtual Reality Influenced Emotional Well-being Worldwide During theCovid-19 Pandemics

1855-1935	1555-1635	40 mins	Keynote, Valentina Franzoni (University of Perugia, Italy, GMT+1 8.55-9.35) Emotional Semantics in Artificial Intelligence
1940-2000	1640-1700	20 mins	Alfredo Milani from Italy (GMT+1 9.40-10.00) Valentina Franzoni, Alina Elena Baia, Giulio Biondi, and Alfredo Milani S12205--Producing Artificial Male Voices with Maternal Features for Relaxation
2005-2035	1705-1735	30 mins	Keynote, Prof. Jordi Vallverdú (Autonomous University of Barcelona, Spain, GMT+1 10.05-10.35) Multimodal Senses Integration Answering to Pain (and other Emotional) Events in HRI Scenarios
2040-2150	1740-1850	20 mins	FangFang Zhu-Zhou from Spain (GMT+1 .10.40-11.00) Fangfang Zhu-Zhou, Roberto Gil-Pita, Joaquín García-Gómez, and Manuel Rosa-Zurera
		20 mins	Iliia Zaitsev, Netherlands (GMT+1 11.05-11.25) S12202--Affect-Predictive Models: Predicting Emotional Responses Directly to Stimuli
		20 mins	Akash Pawar, India (GMT+5.30 16.00-16.20) S12201--Personality Correlates, Emotional Intelligence among Late Indian Adolescents with Internet Addiction
2155-2200	1855-1900	5 mins	Workshop closing remarks and greetings, Giulio Biondi from Italy (GMT+1 11.55-12.00)

Main Conference Technical Program

WI-IAT 2021 MAIN CONFERENCE TECHNICAL PROGRAM AT A GLANCE

Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Wednesday, 15 December 2021		
0845-0900	0545-0600	15 mins	Opening ceremony (Zoom 1, YouTube & Tencent)		
0900-0950	0600-0650	50 mins	WI 20Y Turing Award Laureate Keynote: Leslie Valiant (Boston time: 5-6pm, 14 Dec) (Zoom 1, YouTube & Tencent)		
0950-1000	0650-0700	10 mins	Coffee break		
1000-1200	0700-0900	120 mins	WEB OF PEOPLE 1 (Zoom 1)	WEB OF AGENTS 1 (Zoom 2)	WEB OF DATA 1 (Zoom 3)
1200-1300	0900-1000	60 mins	Lunch time		
1300-1350	1000-1050	50 mins	Invited Keynote: Bryan Low (Singapore time: 10-11am, 15 Dec) (Zoom 1, YouTube & Tencent)		
1350-1400	1050-1100	10 mins	Coffee break		
1400-1550	1100-1250	110 mins	WEB OF PEOPLE 2 (Zoom 1)	WEB OF DATA 2 (Zoom 2)	WEB OF DATA 3 (Zoom 3)
1550-1600	1250-1300	10 mins	Coffee break		
1600-1650	1300-1350	50 mins	Invited Keynote: Athena Vakali (Thessaloniki time: 7-8am, 15 Dec) (Zoom 1, YouTube & Tencent)		
1650-1700	1350-1400	10 mins	Coffee break		
WI 20Y Anniversary Special Session					
1700-1750	1400-1450	50 mins	WI 20Y Turing Award Laureate Keynote: Joseph Sifakis (Paris time: 7-8am, 15 Dec) (Zoom 1, YouTube & Tencent)		
1750-1805	1450-1505	15 mins	WI 20Y Awards (Zoom 1, YouTube & Tencent)		
1805-1820	1505-1520	15 mins	WI 20Y Most Influential Paper Award & Invited Talk (Zoom 1, YouTube & Tencent)		
1820-1830	1520-1530	10 mins	WI 20Y Remarks (Zoom 1, YouTube & Tencent)		
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Thursday, 16 December 2021		
0900-0950	0600-0650	50 mins	WI 20Y Keynote: Tom Mitchell (Pittsburgh time: 5-6pm, 15 Dec) (Zoom 1, YouTube & Tencent)		
0950-1000	0650-0700	10 mins	Coffee break		
1000-1100	0700-0800	60 mins	WEB OF DATA 4 (Zoom 1)	WEB OF THINGS (Zoom 2)	WEB OF AGENTS 2 (Zoom 3)
1100-1500	0800-1200	240 mins	WI 20Y Anniversary and WI-IAT 2021 Banquet (offline mode)		
1500-1630	1200-1330	90 mins	WEB OF DATA 5 (Zoom 1)	SPECIAL TRACK: EMERGING WEB IN HEALTH AND SMART LIVING (Zoom 2)	WEB OF AGENTS 3 (Zoom 3)
1630-1640	1330-1340	10 mins	Coffee break		
1640-1820	1340-1520	100 mins	WEB OF DATA 6 (Zoom 1)	WEB OF TRUST (Zoom 2)	WEB OF PEOPLE 3 (Zoom 3)
Melbourne Time UTC/GMT +11	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Friday, 17 December 2021		
0900-1020	0600-0720	80 mins	WEB OF PEOPLE 4 (Zoom 1)	WEB OF DATA 7 (Zoom 2)	
1020-1030	0720-0730	10 mins	Coffee break		
1030-1200	0730-0900	90 mins	WEB OF PEOPLE 5 (Zoom 1)	WEB OF DATA 8 (Zoom 2)	
1200-1300	0900-1000	60 mins	Lunch time		
1300-1350	1000-1050	50 mins	Invited Keynote: Xin Geng (Beijing Time: 10-11am, 17 Dec) (Zoom 1, YouTube & Tencent)		
1350-1400	1050-1100	10 mins	Coffee break		
1400-1520	1100-1220	80 mins	WEB OF AGENTS 3 (Zoom 1)	WEB OF DATA 9 (Zoom 2)	
1520-1530	1220-1230	10 mins	Coffee break		
1530-1700	1230-1400	90 mins	WEB OF PEOPLE 6 (Zoom 1)	WEB OF DATA 10 (Zoom 2)	
1700-1710	1400-1410	10 mins	Coffee break		
1710-1800	1410-1500	50 mins	WI 20Y Keynote: Frank van Harmelen (Amsterdam 7-8am, 17 Dec) (Zoom 1, YouTube & Tencent)		
1800-1830	1500-1530	30 mins	Closing Ceremony: Best Paper Awards Ceremony and WI-IAT 2022 Announcement (Zoom 1, YouTube & Tencent)		

WI-IAT 2021 MAIN CONFERENCE TECHNICAL PROGRAM

Melbourne Time	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Wednesday, 15 December 2021		
0845-0900	0545-0600	15 mins	Opening ceremony Chair: Jing He Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWr1Dqmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH		
0900-0950	0600-0650	50 mins	WI 20Y Turing Award Laureate Keynote: How to Augment Learning with Reasoning, by Leslie Valiant (Boston time: 5pm, 14 Dec) Chair: Jing He Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWr1Dqmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH		
0950-1000	0650-0700	10 mins	Coffee break		
1000-1200	0700-0900	120 mins	Session A: WEB OF PEOPLE 1 Chair: Juan D. Velásquez (Zoom 1: 974 366 3655)	Session B: WEB OF AGENTS 1 Chair: Hemant Purohit (Zoom 2: 819 052 0425)	Session C: WEB OF DATA 1 Chair: Marek Reformat (Zoom 3: 910 928 7030)
			WI214 "Emotion-based Modeling of Mental Disorders on Social Media" Xiaobo Guo, Yaojia Sun, and Soroush Vosoughi	WI210 "Multi-Agent Pickup and Delivery with Task Deadlines" Xiaohu Wu, Yihao Liu, Xueyan Tang, Wentong Cai, Funing Bai, Gilbert Khonstantine, and Guopeng Zhao	WI288 "Plusmine: Dynamic Active Learning with Future-proof Semi-Supervised Learning for Automatic Classification" Jan Klein, Sandjai Bhulai, Mark Hoogendoorn, and Rob Van der Mei
			WI232 "EMDKG: Improving Accuracy-Diversity Trade-Off in Recommendation with EM-based Model and Knowledge Graph Embedding" Lu Gan, Diana Nurbakova, Léa Laporte, and Sylvie Calabretto	WI218 "Learning Equilibrium Contributions in Multi-project Civic Crowdfunding" Manisha Padala, Sankarshan Damle, and Sujit Gujar	WI290 "Efficient Query Obfuscation with Keyqueries" Maik Fröbe, Eric Oliver Schmidt, and Matthias Hagen
			WI239 "Probabilistic Embedding for Collaborative Reasoning" Huanhuan Yuan, Jian Yang, Jiajin Huang, and Ning Zhong	WI220 "Local Maxima in ADCOPs via Side Payments" Yair Vaknin and Amnon Meisels	WI295 "Improving Topic Modeling Performance through N-gram Removal" Mohamad Almergi, Andrea De Mauro, Adham Kahlawi, and Valentina Poggioni
			WI211 "Analyzing the Preferences and Personal Needs of Teenage Readers to Make Book Recommendations" Sophie Gao and Yiu-Kai Ng	WI307 "Mechanism Design without Money for Fair Allocations" Manisha Padala and Sujit Gujar	WI308 "An Approach Based on Semantic Similarity to Explaining Link Predictions on Knowledge Graphs" Claudia d'Amato, Pierpaolo Masella, and Nicola Fanizzi
			WI238 "AFFORCE: Actionable Framework for Designing Crowdsourcing Experiences for Older Adults" Kinga Skorupska, Radoslaw Nielek, and Wieslaw Kopeć	WI291 "An Agent Supporting Symptom Elicitation in Physician-Patient Dialogue" Marco Lanciotti, Catherine Escazut, Céilia da Costa Pereira, Claudio Sartori, and Emanuele Galasso	WI377 "Bias detection in Wikipedia articles. A study on Polish and English Datasets." Weronika Stankiewicz, Katarzyna Baraniak, and Marcin Sydow
			WI250 "Analyzing Features of Passive Twitter's Users to Estimate Passive Twitter-User's Interests" Tessai Hayama		
1200-1300	0900-1000	60 mins	Lunch time		
1300-1350	1000-1050	50 mins	Invited Keynote: Trusted data sharing – incentivizing collaboration and rights to be forgotten in machine learning, by Bryan Low (Singapore time: 10am, 15 Dec) Chair: Yuefeng Li Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWr1Dqmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH		
1350-1400	1050-1100	10 mins	Coffee break		
1400-1550	1100-1250	110 mins	Session D: WEB OF PEOPLE 2 Chair: Bo Mao (Zoom 1: 974 366 3655)	Session E: WEB OF DATA 2 Chair: Xiaoyin Gao (Zoom 2: 819 052 0425)	Session F: WEB OF DATA 3 Chair: Hongzhi Kuai (Zoom 3: 910 928 7030)
			WI255 "A Label Extension Schema for Improved Text Emotion Classification" Zongxi Li, Xianming Li, Haoran Xie, Qing Li, and Xiaohui Tao	WI222 "Linked Data Ground Truth for Quantitative and Qualitative Evaluation of Explanations for Relational Graph Convolutional Network Link Prediction on Knowledge Graphs" Nicholas Halliwell, Fabien Gandon, and Freddy Lecue	WI309 "Neural text generation for query expansion in information retrieval" Vincent Claveau
			WI285 "Analysis of Leading Communities Contributing to arXiv Information Distribution on Twitter" Kyosuke Shimada, Kazuhiro Kazama, Mitsuo Yoshida, Ikki Ohmukai, and Sho Sato	WI227 "A Learning Framework with Disposable Auxiliary Networks for Early Prediction of Product Success" Chih-Ting Yeh, Zhe-Li Lin, Sheng-Chieh Lin, Jing-Kai Lou, Ming-Feng Tsai, and Chuan-Ju Wang	WI322 "On the Impact of Dataset Size: A Twitter Classification Case Study" Thi Huyen Nguyen, Hoang H. Nguyen, Zahra Ahmadi, Tuan-Anh Hoang, and Thanh-Nam Doan
			WI289 "Cross-Domain Attentive Sequential Recommendations based on General and Current User Preferences (CD-ASR)" Nawaf Alharbi and Doina Caragea	WI380 "Assessing the use of attention weights to interpret BERT-based stance classification" Carlos Abel Córdova Sáenz and Karin Becker	WI324 "CADPP: An Effective Approach to Recommend Attentive and Diverse Long-tail Items" Shuai Tang and Xiaofeng Zhang
			WI333 "Study of Context-based Personalized Recommendations for Points of Interest" Gaetano Manzo, Davide Calvaresi, Jean-Paul Calbimonte, Esteem Okoro, and Michael Schumacher	WI242 "Sequential Patterns for Spatio-Temporal Traffic Prediction" Feda Almuhsen, Nicolas Durand, Leonardo Brenner, and Mohamed Quafafou	WI341 "How to Churn Deep Contextual Models?" Mohammad Hasan
WI342 "Improvement of User's Attitude toward Decision-Making Task by Multimodal Implicit Expressions of Agent's Subjective Attitude" Yoshimasa Ohmoto, Mineya Kasada, and Toyoaki Nishida	WI248 "Credible Text Summarization in Social Media" Francesco Amedeo Emanuele Talarico and Marco Viviani				
1550-1600	1250-1300	10 mins	Coffee break		
1600-1650	1300-1350	50 mins	Invited Keynote: Online social networks bot detection services and technologies: How can social bots be detected in today's online mistrusted platforms? By Athena Vakali (Thessaloniki time: 7am, 15 Dec) Chair: Xiaohui Tao Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWr1Dqmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH		
1650-1700	1350-1400	10 mins	Coffee break		

Legend
Event
Keynote Speech 45+5 mins
Regular presentation 20+5 mins
Short presentation 12+3 mins

WI 20Y Anniversary Special Session			
1700-1750	1400-1450	50 mins	WI 20Y Turing Award Laureate Keynote: Why is it so hard to make self-driving cars? (Trustworthy autonomous systems), by Joseph Sifakis (Paris time: 7am, 15 Dec) Chair: Gabriella Pasi Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWrldQmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH
1750-1805	1450-1505	15 mins	WIC WI 20Y Awards Chair: Ning Zhong Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWrldQmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH
1805-1820	1505-1520	15 mins	WI 20Y Most Influential Paper Award & Invited Talk Chair: Yuefeng Li Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWrldQmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH
1820-1830	1520-1530	10 mins	WI 20Y Anniversary Remarks Chair: Ning Zhong Zoom 1: 974 366 3655 Link 1: https://youtu.be/q5OWrldQmpc Link 2: https://meeting.tencent.com/j/nv4V9VOKtWwH

Thursday, 16 December 2021					
Melbourne Time	BJ/HK/SG/TW Time UTC/GMT +8	Duration			
0900-0950	0600-0650	50 mins	WI 20Y Keynote: Can We Replace Programming Languages by Natural Instruction? By Tom Mitchell (Pittsburgh time: 5pm, 15 Dec) Chair: Xiaohui Tao Zoom 1: 974 366 3655 Link 1: https://youtu.be/-dM9a1hbINA Link 2: https://meeting.tencent.com/j/HcyW986l6rjx		
0950-1000	0650-0700	10 mins	Coffee break		
1000-1100	0700-0800	60 mins	Session G: WEB OF DATA 4 Chair: Mahdi Hashemi (Zoom 1: 974 366 3655)	Session H: WEB OF THINGS Chair: Fang Wang (Zoom 2: 819 052 0425)	Session I: WEB OF AGENTS 2 Chair: Yuheng Jia (Zoom 3: 910 928 7030)
			WI372 "Using Grammar-Based Genetic Programming for Mining Subsumption Axioms Involving Complex Class Expressions" Remi Felin and Andrea G. B. Tettamanzi	WI216 "From CIC-IDS2017 to LYCOS-IDS2017: A corrected dataset for better performance" Arnaud ROSAY, Florent CARLIER, Eloïse CHEVAL, and Pascal LEROUX	WI221 "Bargaining Chips: Coordinating One-to-Many Concurrent Composite Negotiations" Tim Baarslag, Tijmen Elfrink, Faria Nassiri Mofakham, Thimjo Koça, Michael Kaisers, and Reyhan Aydoğan
			WI230 "Quantifying Urban Safety Perception on Street View Images" Felipe Moreno, Bahram Lavi, and Jorge Poco	WI267 "A Framework for Internet Connectivity Risk Assessment Based on Graph Models" Tatiana Ermakova, Benjamin Fabian, David Alexander Fradin, and Sebastian Gross	WI320 "A personalized agent-based chatbot for nutritional coaching" Davide Calvaresi, Stefan Eggenschwiler, Jean-Paul Calbimonte, Gaetano Manzo, and Michael Schumacher
1100-1500	0800-1200	240 mins	WI 20Y Anniversary and WI-IAT 2021 Banquet (offline mode)		
			Session J: WEB OF DATA 5 Chair: Manas Gaur (Zoom 1: 974 366 3655)	Session K: SPECIAL TRACK: EMERGING WEB IN HEALTH AND SMART LIVING Chair: James Wang (Zoom 2: 819 052 0425)	Session L: WEB OF AGENTS 3 Chair: Yue Xu (Zoom 3: 910 928 7030)
1500-1630	1200-1330	90 mins	WI235 "Counterfactual Contextual Multi-Armed Bandit to Diagnose Post-Harvest Diseases of Apple" Gabriele Sottocornola, Fabio Stella, and Markus Zanker	WI204 "Self Sovereign Identity and User Control for Privacy-Preserving Contact Tracing" Wenting Song, Razieh Nokhbeh Zaeem, David Liao, Kai Chih Chang, Michael R. Lamison, Manah M. Khalil, and K. Suzanne Barber	WI229 "Comparing Decentralized Algorithms for Dynamic Task Sharing among Agents with Limited Resources" Hisashi Hayashi
			WI241 "A Framework of Duplicate Detection from Online Job Postings" Yanchang Zhao, Haohui Chen, and Claire Mason	WI283 "Disease Classification on Admission and on Discharge with Residual CNN-Transformer" Yu-Ting Lin, Sheng-Lun Wei, Hen-Hsen Huang, Hui-Chih Wang, and Hsin-Hsi Chen	WI226 "Redistribution in Public Project Problems via Neural Networks" Guanhua Wang, Wuli Zuo, and Mingyu Guo
			WI397 "Tri-skill variant Simplex and strongly polynomial-time algorithm for linear programming" Wang Pei-zhuang, He Jing, and Kong Qi-wei	WI385 "STRETCH: Stress and Behavior Modeling with Tensor Decomposition of Heterogeneous Data" Chunpai Wang, Shaghayegh Sahebi, and Helma Torkamaan	WI364 "Balancing Team Membership and Independent Activity for Robots in Dangerous Domains" Seth Fiawoo and John Anderson
			WI281 "Product Information Browsing Support System Using Analytic Hierarchy Process" Weijian Li, Masato Kikuchi, and Tadachika Ozono		
1630-1640	1330-1340	10 mins	Coffee break		
			Session M: WEB OF DATA 6 Chair: Muhammad Abulaish (Zoom 1: 974 366 3655)	Session N: WEB OF TRUST Chair: Wen Zhang (Zoom 2: 819 052 0425)	Session O: WEB OF PEOPLE 3 Chair: Hao Chen (Zoom 3: 910 928 7030)

Legend
Event
Keynote Speech 45+5 mins
Regular presentation 20+5 mins
Short presentation 12+3 mins

1640-1820	1340-1520	100 mins	WI387 "A Text Generation Model that Maintains the Order of Words, Topics, and Parts of Speech via Their Embedding Representations and Neural Language Models" Noriaki Kawamae	WI217 "Blockchain-Based Self-Sovereign Identity: Survey, Requirements, Use-Cases, and Comparative Study" Razieh Nokhbeh Zaeem, Kai Chih Chang, Teng-Chieh Huang, David Liaw, Wenting Song, Aditya Tyagi, Manah Khalil, Michael Lamison, Siddharth Pandey, and K. Suzanne Barber	WI362 "Addressing Scalability Issues in Semantics Driven Recommender Systems" Mounir M. Bendouch, Flavius Frasinca, and Tarmo Robal
			WI389 "Evolving Multi-view Autoencoders for Text Classification" Tuan Ha and Xiaoying Gao	WI265 "Fake News Detection via Biased User Profiles in Social Networking Sites" Ryoya Furukawa, Daiki Ito, Yuta Takata, Hiroshi Kumagai, Masaki Kamizono, Yoshiaki Shirashi, and Masakatu Morii	WI382 "A Teacher-Student Approach to Cross-Domain Transfer Learning with Multi-level Attention" Ying-Jhe Tang and Hen-Hsen Huang
			WI360 "Recommending Multiple Positive Citations for Manuscript via Content-Dependent Modeling and Multi-Positive Triplet" Yang Zhang and Qiang Ma	WI275 "Segmentation-based Phishing URL Detection" Eint Sandi Aung and Hayato Yamana	WI277 "Online Classroom Evaluation System Based on Multi-Reaction Estimation" Yanyi PENG, Masato Kikuchi, and Tadachika Ozono
			WI395 "Relation Extraction with Sentence Simplification Process and Entity Information" Mohammad Sahand Parniani and Marek Z. Reformat	WI310 "Taking Another Look at the Use of Bloom Filters in Bitcoin" George Vlahavas, Kostas Karasavvas, and Athena Vakali	WI297 "Operationalizing Rule-Based Socio-Ethical Behaviour in IoT Collectives: a Policy Management Approach" Amna Batool, Seng W. Loke, Niroshinie Fernando, and Jonathan Kua
			WI335 "Visualization of POI Competitiveness Using Extracted Kyoto Map Tiles from Social Media Response Since COVID-19" Huaze Xie, Da Li, Yuanyuan Wang, and Yukiko Kawai	WI330 "Applying Benford's Law as an Efficient and Low-cost Solution for Verifying the Authenticity of Students' Video Streams in Learning Management Systems" Argyris Constantinides, Christodoulos Constantinides, Marios Belk, Christos Fidas, and Andreas Pitsillides	WI304 "Context-dependent Features Fusion with BERT for Evaluating Multi-Turn Customer-Helpdesk Dialogues" Siu Hin NG, Yen-Chun Huang, Sheng-Jie Lin, and Yung-Chun Chang
					WI274 "Do you trust the experts on Twitter?: Successful correction of COVID-19-related misinformation" Dongwoo Lim, Fujio Toriumi, and Mitsuo Yoshida

Melbourne Time	BJ/HK/SG/TW Time UTC/GMT +8	Duration	Friday, 17 December 2021	
0900-1020	0600-0720	80 mins	Session P: WEB OF PEOPLE 4 Chair: Marek Reformat (Zoom 1: 974 366 3655)	Session Q: WEB OF DATA 7 Chair: Joanna Isabelle Olszewska (Zoom 2: 819 052 0425)
			WI312 "Online Home Appliance Review Analysis Via Adversarial Reptile" Tai Jung Kan and Chia-Hui Chang	WI244 "Towards Better Evidence Extraction Methods for Fact-Checking Systems" Pedro Azevedo, Gil Rocha, Diego Esteves, and Henrique Lopes Cardoso
			WI319 "'I'll be back': Examining Restored Accounts On Twitter" Arnav Kapoor, Rishi Raj Jain, Avinash Prabhu, Tanvi Karandikar, and Ponnurangam Kumaraguru	WI247 "Climbing Route Difficulty Grade Prediction and Explanation" Marina Andric, Iustina Ivanova, and Francesco Ricci
			WI363 "Fine-Tuning for Cross-Domain Aspect-Based Sentiment Classification" Stefan van Berkum, Sophia van Megen, Max Savelkoul, Pim Weterman, and Flavius Frasinca	WI348 "Enhance while protecting: privacy preserving image filtering" Diego Arcelli, Alina Elena Baia, Alfredo Milani, and Valentina Poggioni
			WI379 "Interpretable Mining of Influential Patterns from Sparse Web" Carson Leung, Connor Hryhoruk, and Yibin Zhang	WI352 "Recycling Numeracy Data Augmentation with Symbolic Verification for Math Word Problem Solving" Tien-Yi Jen, Hen-Hsen Huang, and Hsin-Hsi Chen
1020-1030	0720-0730	10 mins	Coffee break	
1030-1200	0730-0900	90 mins	Session R: WEB OF PEOPLE 5 Chair: Xiaohui Tao (Zoom 1: 974 366 3655)	Session S: WEB OF DATA 8 Chair: Peng Zhang (Zoom 2: 819 052 0425)
			WI245 "Diverse Reviewer Suggestion for Extending Conference Program Committees" Christin Katharina Kreutz, Krisztian Balog, and Ralf Schenkel	WI268 "TTNet: Tabular Transfer Network for Few samples Prediction" Zhao Li, Donghui Ding, Xuanwu Liu, Peng Zhang, Youxi Wu, and Lingzhou Ma
			WI251 "Automatic Generation of Event Ontology from Social Network and Mobile Positioning Data" Landy Rajaonarivo, Tsunenor Mine, and Yutaka Arakawa	WI270 "Unsupervised Tree Extraction in Embedding Spaces for Taxonomy Induction" François Torregrossa, Robin Allesiardo, Vincent Claveau, and Guillaume Gravier
			WI252 "Long-term Characterization of Political Communications on Social Media" Lucas Santos de Oliveira, Marcelo Santos Amaral, and Pedro O. S. Vaz-de-Melo	WI273 "Combining Machine Learning With Inductive Logic Learning To Detect Deviations From Daily Routines in Ambient Intelligent Environments" Benjamin Duppe, Michael Meiser, Alexander Anisimov, André Antakli, Muhammad Muaz, and Ingo Zinnikus
			WI318 "Extraction and Analysis of Regionally Specific Behavioral Facilitation Information in the Event of a Large-scale Disaster" Futo Yamamoto, Yu Suzuki, and Akiyo Nadamoto	WI365 "Analysis of the Effect of the Number of Bidders and Bidding Process on the End Price in a B2B Online Auction" Kohei Hatamoto, Soichiro Yokoyama, Tomohisa Yamashita, and Hidenori Kawamura
1200-1300	0900-1000	60 mins	Lunch time	
1300-1350	1000-1050	50 mins	Invited Keynote: Unleash the Power of Label Space: Label Enhancement for Label Distribution Learning, by Xin Geng (Beijing time: 10am) Chair: Hemant Purohit Zoom 1: 974 366 3655 Link 1: https://youtu.be/ZiaMlcOIBYY Link 2: https://meeting.tencent.com/j/VR0SwB80frc	
1350-1400	1050-1100	10 mins	Coffee break	

Legend
Event
Keynote Speech 45+5 mins
Regular presentation 20+5 mins
Short presentation 12+3 mins

1400-1520	1100-1220	80 mins	Session T: WEB OF AGENTS 3 Chair: Xujuan Zhou (Zoom 1: 974 366 3655)	Session U: WEB OF DATA 9 Chair: Yang Gao (Zoom 2: 819 052 0425)
			WI243 "Differentially Private Multi-Agent Constraint Optimization" Sankarshan Damle, Aleksei Triastcyn, Boi Faltings, and Sujit Gujar	WI261 "Event Causal Relationship Retrieval" Yasunobu Sumikawa
			WI263 "Blockchain-based Practical Multi-agent Secure Comparison and its Application in Auctions" Sankarshan Damle, Boi Faltings, and Sujit Gujar	WI264 "Multi-Task Neural Sequence Labeling for Zero-shot Cross-Lingual Boilerplate Removal" Yu-Hao Wu and Chia-Hui Chang
			WI219 "Q-SMASH: Q-Learning-based Self-Adaptation of Human-Centered Internet of Things" Hamed Rahimi, Iago Felipe Trentin, Fano Ramparany, and Olivier Boissier	WI356 "CURIOCITY Framework: Managing Heterogeneous Cultural Heritage Data" Alexander Pinto-De la Gala, Yudith Cardinale, and Irvin Dongo
1520-1530	1220-1230	10 mins	Coffee break	
1530-1700	1230-1400	90 mins	Session V: WEB OF PEOPLE 6 Chair: Yi Zhou (Zoom 1: 974 366 3655)	Session W: WEB OF DATA 10 Chair: Guangyan Huang (Zoom 2: 819 052 0425)
			WI294 "Sentiment Analysis Tool to Detect Digital Transformation Stress" Ewa Makowska-Tlomak, Radoslaw Nielek, Kinga Skorupska, Julia Paluch, and Wieslaw Kopec	WI278 "Clustering-based Location Authority Deep Model in the Next Point-of-Interest Recommendation" Tianxing Wang, Can Wang, Hui Tian, Alan Wee-Chung Liew, and Yunwei Zhao
			WI299 "Efficient Representation of Interaction Patterns with Hyperbolic Hierarchical Clustering for Classification of Users on Twitter" Tanvi Karandikar, Avinash Prabhu, Avinash Tulasi, Arun Balaji Buduru, and Ponnurangam Kumaraguru	WI279 "Quantum Reinforcement Learning Applied to Board Games" Miguel Teixeira, Ana Paula Rocha, and Antonio J.M. Castro
			WI305 "Effective Candidate Selection and Interpretable Interest Extraction for Follower Prediction on Social Media" Seiji Maekawa, Santi Saeyor, Takeshi Sakaki, and Makoto Onizuka	WI282 "Gated Character-aware Convolutional Neural Network for Effective Automated Essay Scoring" HuanYu Bai, Zhilin Huang, Anran Hao, and Siu Cheung Hui
			WI347 "Generalized Negative Sampling for Implicit Feedback in Recommendation" Yuki Yamanaka and Kazunari Sugiyama	WI374 "Novel Views on Novels: Embedding Multiple Facets of Long Texts" Lasse Kohlmeier, Tim Repke, and Ralf Krestel
1700-1710	1400-1410	10 mins	Coffee break	
1710-1800	1410-1500	50 mins	WI 20Y Keynote: Modular design patterns for systems that learn and reason, by Frank van Harmelen (Amsterdam 7am, 17 Dec) Chair: Rainer Unland Zoom 1: 974 366 3655 Link 1: https://youtu.be/ZiaMlcOIBYY Link 2: https://meeting.tencent.com/j/VRoSwBu8Ofrc	
1800-1830	1500-1530	30 mins	Closing Ceremony: Best Paper Awards Ceremony and WI-IAT 2022 Announcement Chair: Ning Zhong & Jiming Liu Zoom 1: 974 366 3655 Link 1: https://youtu.be/ZiaMlcOIBYY Link 2: https://meeting.tencent.com/j/VRoSwBu8Ofrc	

Main Conference Sessions and Presentations

Wednesday, 15 December 2021

SESSION A: WEB OF PEOPLE 1

Chair: **Juan D. Velásquez**

Melbourne Time (UTC/GMT +11): 1000-1200; Zoom 1: 974 366 3655

- 1000-1025** (WI214) Emotion-based Modeling of Mental Disorders on Social Media, *Xiaobo Guo, Yaojia Sun, and Soroush Vosoughi*
- 1025-1050** (WI232) EMDKG: Improving Accuracy-Diversity Trade-Off in Recommendation with EM-based Model and Knowledge Graph Embedding, *Lu Gan, Diana Nurbakova, Léa Laporte, and Sylvie Calabretto*
- 1050-1115** (WI239) Probabilistic Embedding for Collaborative Reasoning, *Huanhuan Yuan, Jian Yang, Jiajin Huang, and Ning Zhong*
- 1115-1130** (WI211) Analyzing the Preferences and Personal Needs of Teenage Readers to Make Book Recommendations, *Sophie Gao and Yiu-Kai Ng*
- 1130-1145** (WI238) AFFORCE: Actionable Framework for Designing Crowdsourcing Experiences for Older Adults, *Kinga Skorupska, Radostaw Nielek, and Wiesław Kopeć*
- 1145-1200** (WI250) Analyzing Features of Passive Twitter's Users to Estimate Passive Twitter-User's Interests, *Tessai Hayama*

SESSION B: WEB OF AGENTS 1

Chair: **Hemant Purohit**

Melbourne Time (UTC/GMT +11): 1000-1200; Zoom 2: 819 052 0425

- 1000-1025** (WI210) Multi-Agent Pickup and Delivery with Task Deadlines, *Xiaohu Wu, Yihao Liu, Xueyan Tang, Wentong Cai, Funing Bai, Gilbert Khonstantine, and Guopeng Zhao*
- 1025-1050** (WI218) Learning Equilibrium Contributions in Multi-project Civic Crowdfunding, *Manisha Padala, Sankarshan Damle, and Sujit Gujar*
- 1050-1115** (WI220) Local Maxima in ADCOPs via Side Payments, *Yair Vaknin and Amnon Meisels*
- 1115-1140** (WI307) Mechanism Design without Money for Fair Allocations, *Manisha Padala and Sujit Gujar*
- 1140-1155** (WI291) An Agent Supporting Symptom Elicitation in Physician-Patient Dialogue, *Marco Lanciotti, Catherine Escazut, Célia da Costa Pereira, Claudio Sartori, and Emanuele Galasso*

SESSION C: WEB OF DATA 1

Chair: Marek Reformat

Melbourne Time (UTC/GMT +11): 1000-1200; Zoom 3: 910 928 7030

- 1000-1025** (WI288) Plusmine: Dynamic Active Learning with Future-proof Semi-Supervised Learning for Automatic Classification, *Jan Klein, Sandjai Bhulai, Mark Hoogendoorn, and Rob Van der Mei*
- 1025-1050** (WI290) Efficient Query Obfuscation with Keyqueries, *Maik Fröbe, Eric Oliver Schmidt, and Matthias Hagen*
- 1050-1115** (WI295) Improving Topic Modeling Performance through N-gram Removal, *Mohamad Almgerbi, Andrea De Mauro, Adham Kahlawi, and Valentina Poggioni*
- 1115-1140** (WI308) An Approach Based on Semantic Similarity to Explaining Link Predictions on Knowledge Graphs, *Claudia d'Amato, Pierpaolo Masella, and Nicola Fanizzi*
- 1140-1155** (WI377) Bias detection in Wikipedia articles. A study on Polish and English Datasets, *Weronika Stankiewicz, Katarzyna Baraniak, and Marcin Sydow*

SESSION D: WEB OF PEOPLE 2

Chair: Bo Mao

Melbourne Time (UTC/GMT +11): 1400-1550; Zoom 1: 974 366 3655

- 1400-1425** (WI255) A Label Extension Schema for Improved Text Emotion Classification *Zongxi Li, Xianning Li, Haoran Xie, Qing Li, and Xiaohui Tao*
- 1400-1450** (WI285) Analysis of Leading Communities Contributing to arXiv Information Distribution on Twitter, *Kyosuke Shimada, Kazuhiro Kazama, Mitsuo Yoshida, Ikki Ohmukai, and Sho Sato*
- 1450-1515** (WI289) Cross-Domain Attentive Sequential Recommendations based on General and Current User Preferences (CD-ASR), *Nawaf Alharbi and Doina Caragea*
- 1515-1530** (WI333) Study of Context-based Personalized Recommendations for Points of Interest, *Gaetano Manzo, Davide Calvaresi, Jean-Paul Calbimonte, Esteem Okoro, and Michael Schumacher*
- 1530-1545** (WI342) Improvement of User's Attitude toward Decision-Making Task by Multimodal Implicit Expressions of Agent's Subjective Attitude, *Yoshimasa Ohmoto, Mineya Kaseda, and Toyoaki Nishida*

SESSION E: WEB OF DATA 2

Chair: Xiaoyign Gao

Melbourne Time (UTC/GMT +11): 1400-1550; Zoom 2: 819 052 0425

- 1400-1425** (WI222) Linked Data Ground Truth for Quantitative and Qualitative Evaluation of Explanations for Relational Graph Convolutional Network Link Prediction on Knowledge Graphs, *Nicholas Halliwell, Fabien Gandon, and Freddy Lecue*
- 1400-1450** (WI227) A Learning Framework with Disposable Auxiliary Networks for Early Prediction of Product Success, *Chih-Ting Yeh, Zhe-Li Lin, Sheng-Chieh Lin, Jing-Kai Lou, Ming-Feng Tsai, and Chuan-Ju Wang*
- 1450-1515** (WI380) Assessing the use of attention weights to interpret BERT-based stance classification, *Carlos Abel Córdoba Sáenz and Karin Becker*
- 1515-1530** (WI242) Sequential Patterns for Spatio-Temporal Traffic Prediction, *Feda Almuhsen, Nicolas Durand, Leonardo Brenner, and Mohamed Quafafou*
- 1530-1545** (WI248) Credible Text Summarization in Social Media, *Francesco Amedeo Emanuele Talarico and Marco Viviani*

SESSION F: WEB OF DATA 3

Chair: Hongzhi Kuai

Melbourne Time (UTC/GMT +11): 1400-1550; Zoom 3: 910 928 7030

- 1400-1425** (WI309) Neural text generation for query expansion in information retrieval, *Vincent Claveau*
- 1400-1450** (WI322) On the Impact of Dataset Size: A Twitter Classification Case Study, *Thi Huyen Nguyen, Hoang H. Nguyen, Zahra Ahmadi, Tuan-Anh Hoang, and Thanh-Nam Doan*
- 1450-1515** (WI324) CADPP: An Effective Approach to Recommend Attentive and Diverse Long-tail Items, *Shuai Tang and Xiaofeng Zhang*
- 1515-1540** (WI341) How to Churn Deep Contextual Models?, *Mohammad Hasan*

Thursday, 16 December 2021

SESSION G: WEB OF DATA 4

Chair: Mahdi Hashemi

Melbourne Time (UTC/GMT +11): 1000-1100; Zoom 1: 974 366 3655

- 1000-1025** (WI372) Using Grammar-Based Genetic Programming for Mining Subsumption Axioms Involving Complex Class Expressions, *Remi Felin and Andrea G. B. Tettamanzi*
- 1025-1040** (WI230) Quantifying Urban Safety Perception on Street View Images, *Felipe Moreno, Bahram Lavi, and Jorge Poco*
- 1040-1055** (WI271) A systematic approach to identify the information captured by Knowledge Graph Embeddings, *Antonia Ettorre, Anna Bobasheva, Catherine Faron, and Franck Michel*

SESSION H: WEB OF THINGS

Chair: Fang Wang

Melbourne Time (UTC/GMT +11): 1000-1100; Zoom 2: 819 052 0425

- 1000-1015** (WI216) From CIC-IDS2017 to LYCOS-IDS2017: A corrected dataset for better performance, *Arnaud ROSAY, Florent CARLIER, Eloïse CHEVAL, and Pascal LEROUX*
- 1015-1030** (WI267) A Framework for Internet Connectivity Risk Assessment Based on Graph Models, *Tatiana Ermakova, Benjamin Fabian, David Alexander Fradin, and Sebastian Gross*
- 1030-1045** (WI334) VOISMA: Indoor Location Identification for Voice-based Smart Home, *Mahda Noura and Martin Gaedke*

SESSION I: WEB OF AGENTS 2

Chair: Yuheng Jia

Melbourne Time (UTC/GMT +11): 1000-1100; Zoom 3: 910 928 7030

- 1000-1025** (WI221) Bargaining Chips: Coordinating One-to-Many Concurrent Composite Negotiations, *Tim Baarslag, Tijmen Elfrink, Faria Nassiri Mofakham, Thimjo Koça, Michael Kaisers, and Reyhan Aydogan*
- 1025-1040** (WI320) A personalized agent-based chatbot for nutritional coaching, *Davide Calvaresi, Stefan Eggenschwiler, Jean-Paul Calbimonte, Gaetano Manzo, and Michael Schumacher*
- 1040-1055** (WI315) Course Allocation with Friendships as an Asymmetric Distributed Constraint Optimization Problem, *Ilya Khakhiashvili, Tal Grinshpoun, and Lihí Dery*

SESSION J: WEB OF DATA 5

Chair: Manas Gaur

Melbourne Time (UTC/GMT +11): 1500-1630; Zoom 1: 974 366 3655

- 1500-1525** (WI235) Counterfactual Contextual Multi-Armed Bandit to Diagnose Post-Harvest Diseases of Apple, *Gabriele Sottocornola, Fabio Stella, and Markus Zanker*
- 1525-1550** (WI241) A Framework of Duplicate Detection from Online Job Postings, *Yanchang Zhao, Haohui Chen, and Claire Mason*

1550-1615 (WI397) Tri-skill variant Simplex and strongly polynomial-time algorithm for linear programming, *Wang Pei-zhuang, He Jing, and Kong Qi-wei*

1615-1630 (WI281) Product Information Browsing Support System Using Analytic Hierarchy Process, *Weijian Li, Masato Kikuchi, and Tadachika Ozono*

SESSION K: SPECIAL TRACK: EMERGING WEB IN HEALTH AND SMART LIVING

Chair: James Wang

Melbourne Time (UTC/GMT +11): 1500-1630; Zoom 2: 819 052 0425

1500-1525 (WI204) Self Sovereign Identity and User Control for Privacy-Preserving Contact Tracing, *Went-ing Song, Raziieh Nokhbeh Zaeem, David Liao, Kai Chih Chang, Michael R. Lamison, Manah M. Khalil, and K. Suzanne Barber*

1525-1550 (WI283) Disease Classification on Admission and on Discharge with Residual CNN-Transformer, *Yu-Ting Lin, Sheng-Lun Wei, Hen-Hsen Huang, Hui-Chih Wang, and Hsin-Hsi Chen*

1550-1615 (WI385) STRETCH: Stress and Behavior Modeling with Tensor Decomposition of Heterogeneous Data, *Chunpai Wang, Shaghayegh Sahebi, and Helma Torkamaan*

SESSION L: WEB OF AGENTS 3

Chair: Yue Xu

Melbourne Time (UTC/GMT +11): 1500-1630; Zoom 3: 910 928 7030

1500-1525 (WI229) Comparing Decentralized Algorithms for Dynamic Task Sharing among Agents with Limited Resources, *Hisashi Hayashi*

1525-1550 (WI226) Redistribution in Public Project Problems via Neural Networks, *Guanhua Wang, Wuli Zuo, and Mingyu Guo*

1550-1615 (WI364) Balancing Team Membership and Independent Activity for Robots in Dangerous Domains, *Seth Fiawoo and John Anderson*

SESSION M: WEB OF DATA 6

Chair: Muhammad Abulaish

Melbourne Time (UTC/GMT +11): 1640-1820; Zoom 1: 974 366 3655

1640-1705 (WI387) A Text Generation Model that Maintains the Order of Words, Topics, and Parts of Speech via Their Embedding Representations and Neural Language Models, *Noriaki Kawamae*

1705-1730 (WI389) Evolving Multi-view Autoencoders for Text Classification, *Tuan Ha and Xiaoying Gao*

1730-1745 (WI360) Recommending Multiple Positive Citations for Manuscript via Content-Dependent Modeling and Multi-Positive Triplet, *Yang Zhang and Qiang Ma*

1745-1800 (WI395) Relation Extraction with Sentence Simplification Process and Entity Information, *Mohammad Sahand Parniani and Marek Z. Reformat*

1800-1815 (WI335) Visualization of POI Competitiveness Using Extracted Kyoto Map Tiles from Social Media Response Since COVID-19, *Huaze Xie, Da Li, Yuan Yuan Wang, and Yukiko Kawai*

SESSION N: WEB OF TRUST

Chair: Wen Zhang

Melbourne Time (UTC/GMT +11): 1640-1820; Zoom 2: 819 052 0425

- 1640-1705** (WI217) Blockchain-Based Self-Sovereign Identity: Survey, Requirements, Use-Cases, and Comparative Study, *Razieh Nokhbeh Zaeem, Kai Chih Chang, Teng-Chieh Huang, David Liao, Wenting Song, Aditya Tyagi, Manah Khalil, Michael Lamison, Siddharth Pandey, and K. Suzanne Barber*
- 1705-1730** (WI265) Fake News Detection via Biased User Profiles in Social Networking Sites, *Ryoya Furukawa, Daiki Ito, Yuta Takata, Hiroshi Kumagai, Masaki Kamizono, Yoshiaki Shiraishi, and Masakatu Morii*
- 1730-1745** (WI275) Segmentation-based Phishing URL Detection, *Eint Sandi Aung and Hayato Yamana*
- 1745-1800** (WI310) Taking Another Look at the Use of Bloom Filters in Bitcoin, *George Vlahavas, Kostas Karasavvas, and Athena Vakali*
- 1800-1815** (WI330) Applying Benford's Law as an Efficient and Low-cost Solution for Verifying the Authenticity of Students' Video Streams in Learning Management Systems, *Argyris Constantinides, Christodoulos Constantinides, Marios Belk, Christos Fidas, and Andreas Pitsillides*

SESSION O: WEB OF PEOPLE 3

Chair: Hao Chen

Melbourne Time (UTC/GMT +11): 1640-1820; Zoom 3: 910 928 7030

- 1640-1705** (WI362) Addressing Scalability Issues in Semantics-Driven Recommender Systems, *Mounir M. Bendouch, Flavius Frasinca, and Tarmo Robal*
- 1705-1720** (WI382) A Teacher-Student Approach to Cross-Domain Transfer Learning with Multi-level Attention, *Ying-Jhe Tang and Hen-Hsen Huang*
- 1720-1735** (WI277) Online Classroom Evaluation System Based on Multi-Reaction Estimation, *Yanyi PENG, Masato Kikuchi, and Tadachika Ozono*
- 1735-1750** (WI297) Operationalizing Rule-Based Socio-Ethical Behaviour in IoT Collectives: a Policy Management Approach, *Amna Batool, Seng W.Loke, Niroshinie Fernando, and Jonathan Kua*
- 1750-1805** (WI304) Context-dependent Features Fusion with BERT for Evaluating Multi-Turn Customer-Helpdesk Dialogues, *Siu Hin NG, Yen-Chun Huang, Sheng-Jie Lin, and Yung-Chun Chang*
- 1805-1820** (WI274) Do you trust the experts on Twitter?: Successful correction of COVID-19-related misinformation, *Dongwoo Lim, Fujio Toriumi, and Mitsuo Yoshida*

Friday, 17 December 2021

SESSION P: WEB OF PEOPLE 4

Chair: Marek Reformat

Melbourne Time (UTC/GMT +11): 0900-1020; Zoom 1: 974 366 3655

- 0900-0925** (WI312) Online Home Appliance Review Analysis Via Adversarial Reptile, *Tai Jung Kan and Chia-Hui Chang*
- 0925-0950** (WI319) “I’ll be back”: Examining Restored Accounts On Twitter, *Arnav Kapoor, Rishi Raj Jain, Avinash Prabhu, Tanvi Karandikar, and Ponnurangam Kumaraguru*
- 0950-1005** (WI363) Fine-Tuning for Cross-Domain Aspect-Based Sentiment Classification, *Stefan van Berkum, Sophia van Megen, Max Savelkoul, Pim Weterman, and Flavius Frasinca*
- 1005-1020** (WI379) Interpretable Mining of Influential Patterns from Sparse Web, *Carson Leung, Connor Hryhoruk, and Yibin Zhang*

SESSION Q: WEB OF DATA 7

Chair: Joanna Isabelle Olszewska

Melbourne Time (UTC/GMT +11): 0900-1020; Zoom 2: 819 052 0425

- 0900-0925** (WI244) Towards Better Evidence Extraction Methods for Fact-Checking Systems, *Pedro Azevedo, Gil Rocha, Diego Esteves, and Henrique Lopes Cardoso*
- 0925-0950** (WI247) Climbing Route Difficulty Grade Prediction and Explanation, *Marina Andric, Iustina Ivanova, and Francesco Ricci*
- 0950-1005** (WI348) Enhance while protecting: privacy preserving image filtering, *Diego Arcelli, Alina Elena Baia, Alfredo Milani, and Valentina Poggioni*
- 1005-1020** (WI352) Recycling Numeracy Data Augmentation with Symbolic Verification for Math Word Problem Solving, *Tien-Yi Jen, Hen-Hsen Huang, and Hsin-Hsi Chen*

SESSION R: WEB OF PEOPLE 5

Chair: Xiaohui Tao

Melbourne Time (UTC/GMT +11): 1030-1200; Zoom 1: 974 366 3655

- 1030-1055** (WI245) Diverse Reviewer Suggestion for Extending Conference Program Committees, *Christin Katharina Kreutz, Krisztian Balog, and Ralf Schenkel*
- 1055-1120** (WI251) Automatic Generation of Event Ontology from Social Network and Mobile Positioning Data, *Landy Rajaonarivo, Tsunenor Mine, and Yutaka Arakawa*
- 1120-1145** (WI252) Long-term Characterization of Political Communications on Social Media, *Lucas Santos de Oliveira, Marcelo Santos Amaral, and Pedro O. S. Vaz-de-Melo*
- 1145-1200** (WI318) Extraction and Analysis of Regionally Specific Behavioral Facilitation Information in the Event of a Large-scale Disaster, *Futo Yamamoto, Yu Suzuki, and Akiyo Nadamoto*

SESSION S: WEB OF DATA 8

Chair: Peng Zhang

Melbourne Time (UTC/GMT +11): 1030-1200; Zoom 2: 819 052 0425

- 1030-1055** (WI268) TNet: Tabular Transfer Network for Few-samples Prediction, *Zhao Li, Donghui Ding, Xuanwu Liu, Peng Zhang, Youri Wu, and Lingzhou Ma*
- 1055-1120** (WI270) Unsupervised Tree Extraction in Embedding Spaces for Taxonomy Induction, *François Torregrossa, Robin Allesiardo, Vincent Claveau, and Guillaume Gravier*
- 1120-1145** (WI273) Combining Machine Learning With Inductive Logic Learning To Detect Deviations From Daily Routines In Ambient Intelligent Environments, *Benjamin Duppe, Michael Meiser, Alexander Anisimov, André Antakli, Muhammad Muaz, and Ingo Zinnikus*
- 1145-1200** (WI365) Analysis of the Effect of the Number of Bidders and Bidding Process on the End Price in a B2B Online Auction, *Kohei Hatamoto, Soichiro Yokoyama, Tomohisa Yamashita, and Hidenori Kawamura*

SESSION T: WEB OF AGENTS 3

Chair: Xujuan Zhou

Melbourne Time (UTC/GMT +11): 1400-1520; Zoom 1: 974 366 3655

- 1400-1425** (WI243) Differentially Private Multi-Agent Constraint Optimization, *Sankarshan Damle, Aleksei Triastcyn, Boi Faltings, and Sujit Gujar*
- 1425-1450** (WI263) Blockchain-based Practical Multi-agent Secure Comparison and its Application in Auctions, *Sankarshan Damle, Boi Faltings, and Sujit Gujar*
- 1450-1505** (WI219) Q-SMASH: Q-Learning-based Self-Adaptation of Human-Centered Internet of Things, *Hamed Rahimi, Iago Felipe Trentin, Fano Ramparany, and Olivier Boissier*

SESSION U: WEB OF DATA 9

Chair: Yang Gao

Melbourne Time (UTC/GMT +11): 1400-1520; Zoom 2: 819 052 0425

- 1400-1425** (WI261) Event Causal Relationship Retrieval, *Yasunobu Sumikawa*
- 1425-1450** (WI264) Multi-Task Neural Sequence Labeling for Zero-shot Cross-Lingual Boilerplate Removal, *Yu-Hao Wu and Chia-Hui Chang*
- 1450-1505** (WI356) CURIOCITY Framework: Managing Heterogeneous Cultural Heritage Data, *Alexander Pinto-De la Gala, Yudith Cardinale, and Irvin Dongo*

SESSION V: WEB OF PEOPLE 6

Chair: Yi Zhou

Melbourne Time (UTC/GMT +11): 1530-1700; Zoom 1: 974 366 3655

- 1530-1555** (WI294) Sentiment Analysis Tool to Detect Digital Transformation Stress, *Ewa Makowska-Tłomak, Radostaw Nielek, Kinga Skorupska, Julia Paluch, and Wiesław Kopeć*
- 1555-1620** (WI299) Efficient Representation of Interaction Patterns with Hyperbolic Hierarchical Clustering for Classification of Users on Twitter, *Tanvi Karandikar, Avinash Prabhu, Avinash Tulasi, Arun Balaji Buduru, and Ponnurangam Kumaraguru*
- 1620-1645** (WI305) *Effective Candidate Selection and Interpretable Interest Extraction for Follower Prediction on Social Media* *Seiji Maekawa, Santi Saeyor, Takeshi Sakaki, and Makoto Onizuka*

1645-1700 (WI347) Generalized Negative Sampling for Implicit Feedback in Recommendation, *Yuki Yamana* and *Kazunari Sugiyama*

SESSION W: WEB OF DATA 10

Chair: Guanyuan Huang

Melbourne Time (UTC/GMT +11): 1530-1700; Zoom 2: 819 052 0425

1530-1555 (WI278) Clustering-based Location Authority Deep Model in the Next Point-of-Interest Recommendation, *Tianxing Wang, Can Wang, Hui Tian, Alan Wee-Chung Liew, and Yunwei Zhao*

1555-1620 (WI279) Quantum Reinforcement Learning Applied to Board Games, *Miguel Teixeira, Ana Paula Rocha, and Antonio J.M. Castro*

1620-1645 (WI282) Gated Character-aware Convolutional Neural Network for Effective Automated Essay Scoring, *Huanyu Bai, Zhilin Huang, Anran Hao, and Siu Cheung Hui*

1645-1700 (WI374) Novel Views on Novels: Embedding Multiple Facets of Long Texts, *Lasse Kohlmeyer, Tim Repke, and Ralf Krestel*

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16 December 2021

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