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Web and Big Data

Second International Joint Conference, APWeb-WAIM 2018
Macau, China, July 23–25, 2018
Proceedings, Part II

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Preface

This volume (LNCS 10987) and its companion volume (LNCS 10988) contain the proceedings of the second Asia-Pacific Web (APWeb) and Web-Age Information Management (WAIM) Joint Conference on Web and Big Data, called APWeb-WAIM. This joint conference aims to attract participants from different scientific communities as well as from industry, and not merely from the Asia Pacific region, but also from other continents. The objective is to enable the sharing and exchange of ideas, experiences, and results in the areas of World Wide Web and big data, thus covering Web technologies, database systems, information management, software engineering, and big data. The second APWeb-WAIM conference was held in Macau during July 23–25, 2018. As an Asia-Pacific flagship conference focusing on research, development, and applications in relation to Web information management, APWeb-WAIM builds on the successes of APWeb and WAIM: APWeb was previously held in Beijing (1998), Hong Kong (1999), Xi'an (2000), Changsha (2001), Xi'an (2003), Hangzhou (2004), Shanghai (2005), Harbin (2006), Huangshan (2007), Shenyang (2008), Suzhou (2009), Busan (2010), Beijing (2011), Kunming (2012), Sydney (2013), Changsha (2014), Guangzhou (2015), and Suzhou (2016); and WAIM was held in Shanghai (2000), Xi'an (2001), Beijing (2002), Chengdu (2003), Dalian (2004), Hangzhou (2005), Hong Kong (2006), Huangshan (2007), Zhangjiajie (2008), Suzhou (2009), Jiuzhaigou (2010), Wuhan (2011), Harbin (2012), Beidaihe (2013), Macau (2014), Qingdao (2015), and Nanchang (2016). The first joint APWeb-WAIM conference was held in Bejing (2017). With the fast development of Web-related technologies, we expect that APWeb-WAIM will become an increasingly popular forum that brings together outstanding researchers and developers in the field of the Web and big data from around the world. The high-quality program documented in these proceedings would not have been possible without the authors who chose APWeb-WAIM for disseminating their findings. Out of 168 submissions, the conference accepted 39 regular (23.21%), 31 short research papers, and six demonstrations. The contributed papers address a wide range of topics, such as text analysis, graph data processing, social networks, recommender systems, information retrieval, data streams, knowledge graph, data mining and application, query processing, machine learning, database and Web applications, big data, and blockchain. The technical program also included keynotes by Prof. Xuemin Lin (The University of New South Wales, Australia), Prof. Lei Chen (The Hong Kong University of Science and Technology, Hong Kong, SAR China), and Prof. Ninghui Li (Purdue University, USA) as well as industrial invited talks by Dr. Zhao Cao (Huawei Blockchain) and Jun Yan (YiDu Cloud). We are grateful to these distinguished scientists for their invaluable contributions to the conference program. As a joint conference, teamwork was particularly important for the success of APWeb-WAIM. We are deeply thankful to the Program Committee members and the external reviewers for lending their time and expertise to the conference. Special thanks go to the local Organizing Committee led by Prof. Zhiguo Gong.

Thanks also go to the workshop co-chairs (Leong Hou U and Haoran Xie), demo co-chairs (Zhixu Li, Zhifeng Bao, and Lisi Chen), industry co-chair (Wenyin Liu), tutorial co-chair (Jian Yang), panel chair (Kamal Karlapalem), local arrangements chair (Derek Fai Wong), and publicity co-chairs (An Liu, Feifei Li, Wen-Chih Peng, and Ladjel Bellatreche). Their efforts were essential to the success of the conference. Last but not least, we wish to express our gratitude to the treasurer (Andrew Shibo Jiang), the Webmaster (William Sio) for all the hard work, and to our sponsors who generously supported the smooth running of the conference. We hope you enjoy the exciting program of APWeb-WAIM 2018 as documented in these proceedings.

June 2018

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Keynotes

Graph Processing: Applications, Challenges, and Advances

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Abstract. Graph data are key parts of Big Data and widely used for modelling complex structured data with a broad spectrum of applications. Over the last decade, tremendous research efforts have been devoted to many fundamental problems in managing and analyzing graph data. In this talk, I will cover various applications, challenges, and recent advances. We will also look to the future of the area.

Differential Privacy in the Local Setting

Ninghui Li

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Abstract. Differential privacy has been increasingly accepted as the de facto standard for data privacy in the research community. Recently, techniques for satisfying differential privacy (DP) in the local setting, which we call LDP, have been deployed. Such techniques enable the gathering of statistics while preserving privacy of every user, without relying on trust in a single data curator. Companies such as Google, Apple, and Microsoft have deployed techniques for collecting user data while satisfying LDP. In this talk, we will discuss the state of the art of LDP. We survey recent developments for LDP, and discuss protocols for estimating frequencies of different values under LDP, and for computing marginal when each user has multiple attributes. Finally, we discuss limitations and open problems of LDP.

Big Data, AI, and HI, What is the Next?

Lei Chen

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Abstract. Recently, AI has become quite popular and attractive, not only to the academia but also to the industry. The successful stories of AI on Alpha-go and Texas hold 'em games raise significant public interests on AI. Meanwhile, human intelligence is turning out to be more sophisticated, and Big Data technology is everywhere to improve our life quality. The question we all want to ask is "what is the next?". In this talk, I will discuss about DHA, a new computing paradigm, which combines big Data, Human intelligence, and AI. First I will briefly explain the motivation of DHA. Then I will present some challenges and possible solutions to build this new paradigm.

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