Editor-in-Chief

Kai Rannenberg, Goethe University Frankfurt, Germany

Editorial Board

TC 1 – Foundations of Computer Science
Jacques Sakarovitch, Télécom ParisTech, France

TC 2 – Software: Theory and Practice
Michael Goedicke, University of Duisburg-Essen, Germany

TC 3 – Education
Arthur Tatnall, Victoria University, Melbourne, Australia

TC 5 – Information Technology Applications
Erich J. Neuhold, University of Vienna, Austria

TC 6 – Communication Systems
Aiko Pras, University of Twente, Enschede, The Netherlands

TC 7 – System Modeling and Optimization
Fredi Tröltzsch, TU Berlin, Germany

TC 8 – Information Systems
Jan Pries-Heje, Roskilde University, Denmark

TC 9 – ICT and Society
Diane Whitehouse, The Castlegate Consultancy, Malton, UK

TC 10 – Computer Systems Technology
Ricardo Reis, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

TC 11 – Security and Privacy Protection in Information Processing Systems
Steven Furnell, Plymouth University, UK

TC 12 – Artificial Intelligence
Ulrich Furbach, University of Koblenz-Landau, Germany

TC 13 – Human-Computer Interaction
Marco Winckler, University Paul Sabatier, Toulouse, France

TC 14 – Entertainment Computing
Matthias Rauterberg, Eindhoven University of Technology, The Netherlands
IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the first World Computer Congress held in Paris the previous year. A federation for societies working in information processing, IFIP’s aim is two-fold: to support information processing in the countries of its members and to encourage technology transfer to developing nations. As its mission statement clearly states:

*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP’s events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

IFIP distinguishes three types of institutional membership: Country Representative Members, Members at Large, and Associate Members. The type of organization that can apply for membership is a wide variety and includes national or international societies of individual computer scientists/ICT professionals, associations or federations of such societies, government institutions/government related organizations, national or international research institutes or consortia, universities, academies of sciences, companies, national or international associations or federations of companies.

More information about this series at http://www.springer.com/series/6102
The 11th edition of IFIPTM — the IFIP WG11.11 International Conference on Trust Management — held in Gothenburg, Sweden, continued the tradition of a venue that focuses on trust, the glue of any society. Underlying the different papers and the many discussions at the conference, was the insight that trust is not automatic and not self-evident, but that it must be nurtured and managed, regardless of whether the society we speak of is natural or artificial. Computational techniques, such as the ones addressed by IFIPTM and its community, enable services for brokering, certification, recommendation, legal enforcement, identity, and reputation management. Such services become all the more useful and important given the increasing scale and virtual nature of societies, in which the human and the artificial agent mix and interact without prejudice.

IFIPTM is a well-established conference in this field and we observe a steady number of submissions that is suitable for a small venue such as this. This year, we received 29 submissions and were able to accept eight full papers and six short papers. Some of these papers were shepherded, i.e., the reviewers offered their feedback and authors were able to address it by revising their papers before the final decision. This process was well received by both reviewers and authors and allowed us to include additional, promising work. Our 32 Program Committee members produced a total of 95 reviews and dozens of comments in a very lively and engaging decision process.

The selected papers represent the broad topical areas of the call for papers. They are structured in five thematical sessions. The papers in the area of “Information Sharing and Personal Data” address different topics of the information economy and how trust management techniques can help ensure the privacy of personal data in domains such as the Internet of Things. In “Novel Sources of Trust and Trust Information,” the authors explore where the data to base trust decisions on can come from and investigate sources as diverse as behavioral experiments, social networks, and service-level agreements. The papers in the section of “Applications of Trust” reveal novel ways to use existing trust values — including to decide when to uninstall software, detect intrusion into computer systems, or how self-trust and self-efficacy are connected in education. Interesting ways to calculate trust values are the subject of the “Trust Metrics” area. Behavioral profiling and flow models are the basis of two of the metrics, while the third focuses on mathematical properties of specific trust metrics that allow for composition of trust. Finally, the two contributions in the area “Reputation Systems” focus on how entities can report their own reputation without tampering and how reputation can improve recommender systems.

Another thematical focus of the conference was provided by the special session “Trust on the Road” that focused on trust management in vehicular networks, including vehicle-to-vehicle and vehicle-to-infrastructure communication. The special session was spearheaded by Mathias Widman of Volvo Group Telematics/WirelessCar, who spoke about the difficulties of extending vehicle trust and security. A panel discussion
including participants from Volvo Cars, Chalmers University of Technology, and the trust management community facilitated the further exploration of this up-and-coming topic.

The dichotomy of trust and security was the topic of Max Mühlhauser’s keynote. Instead of following the attempts of his predecessors to separate the fields, Max showed that they are indeed synergetic.

In addition, we are happy to include the paper accompanying the keynote by Siani Pearson, holder of the William Winsborough Commemorative Address and Award 2017, in the proceedings. The objective of the award is to publicly recognize an individual who has significantly contributed to the development of computational trust or trust management, especially achievements with an international perspective. The award is given out in memory of Professor William Winsborough, who taught at the University of Texas at San Antonio, in recognition of his leadership in the field of trust and trust management. Siani was honored for her own leading role in the area and received 2017’s award for her outstanding track record and her long-standing engagement in the community. Her paper and keynote illuminated how the fast-changing use of information technology challenges traditional notions of accountability and how the concept of accountability relates to trust.

Last but not least, we were happy to have received three contributions from young researchers who participated in the IFIPTM Graduate Symposium. There, renowned researchers and students at any stage of their graduate career discussed the research, open issues, and state of the art in the field of computational trust and trust management. The symposium featured lectures by experts in the field, exploring the theory, philosophy, and practice of trust and trust management and its application to society and science. There was ample opportunity to network with presenters and other students. Participants worked on small projects together to apply skills and knowledge and learn from each other. Tim Schürmann’s paper explored the human decision processes in socio-technical systems and how much they are guided by trust. Tosan Atele-Williams discussed how much we can trust information and what the social and cognitive foundations for information trust are. Finally, Vida Ahmadi Mehri explored requirements for trust and privacy for cloud-based marketplaces and how they compare to current definitions.

To conclude, we would like to express our thanks to everyone who contributed to the organization of IFIPTM this year. We are, of course, indebted to the entire Program Committee for their commitment and enthusiasm in all phases of the reviewing process, and for the quality and insight of their reviews. We also thank the chairs of previous IFIPTM editions for their feedback on past experiences and general advice along the way, which was extremely helpful. We also benefited from working closely with the other chairs on the committee, Simone Fischer-Hübner, Stephen Marsh, Musard Balliu, Sheikh Mahbub-Habib, and Tomas Olovsson, who provided continual and unstinting support during the entire endeavor.

April 2017

Babak Esfandiari
Jan-Philipp Steghöfer
Organization

General Chairs
Simone Fischer-Hübner Karlstad University, Sweden
Stephen Marsh University of Ontario Institute of Technology, Canada

Program Chairs
Jan-Philipp Steghöfer Chalmers | University of Gothenburg, Sweden
Babak Esfandiari Carleton University, Canada

Graduate Symposium Chairs
Stephen Marsh University of Ontario Institute of Technology, Canada
Musard Balliu Chalmers | University of Gothenburg, Sweden

Publicity Chair
Sheikh Mahbub Habib TU Darmstadt, Germany

Local Organization Chair
Jan-Philipp Steghöfer Chalmers | University of Gothenburg, Sweden

Special Track Chair
Tomas Olovsson Chalmers | University of Gothenburg, Sweden

IFIPTM 2017 Program Committee
Christian Damsgaard Jensen Technical University of Denmark, Denmark
Hui Fang Shanghai University of Finance and Economics, China
Carmen Fernández-Gago University of Malaga, Spain
Claire Vishik Intel Corporation, UK
Simone Fischer-Hübner Karlstad University, Sweden
Pierangela Samarati University of Milan, Italy
Peter Herrmann NTNU Trondheim, Norway
Shouhuai Xu University of Texas at San Antonio, USA
Gnther Pernul Universität Regensburg, Germany
Lenzini Gabriele SnT/University of Luxembourg, Luxembourg
Masakatsu Nishigaki Shizuoka University, Japan
Ehud Gudes Ben-Gurion University, Israel
jie zhang  

natasha dwyer  

zeinab noorian  

stephen marsh  

tim muller  

roslan ismail  

alan davoust  

weizhi meng  

anirban basu  

jesus luna garcia  

tanja pavleska  

sheikh mahbub habib  

david chadwick  

yuecel karabulut  

tim storer  

sara foresti  

nurit gal-oz

nanyang technological university, singapore

victoria university, australia

ryerson university, canada

uoit, canada

university of oxford, uk

tenaga national university

carleton university, canada

technical university of denmark, denmark

kddi research, japan

tu darmstadt, germany

josef stefan institute, slovenia

technische universität darmstadt, germany

university of kent, uk

oracle, usa

university of glasgow, uk

university of milan, italy

sapir academic college, israel
Contents

Information Sharing and Personal Data

Partial Commitment – “Try Before You Buy” and “Buyer’s Remorse”
for Personal Data in Big Data & Machine Learning. . . . . . . . . . . . . . . . . . . . 3
Lothar Fritsch

VIGraph – A Framework for Verifiable Information . . . . . . . . . . . . . . . . . . . . 12
Anirban Basu, Mohammad Shahriar Rahman, Rui Xu, Kazuhide Fukushima, and Shinsaku Kiyomoto

A Flexible Privacy-Preserving Framework for Singular Value
Decomposition Under Internet of Things Environment. . . . . . . . . . . . . . . . . . 21
Shuo Chen, Rongxing Lu, and Jie Zhang

Novel Sources of Trust and Trust Information

The Game of Trust: Using Behavioral Experiment as a Tool to Assess
and Collect Trust-Related Data . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 41
Diego de Siqueira Braga, Marco Niemann, Bernd Hellingrath, and Fernando Buarque de Lima Neto

Social Network Analysis for Trust Prediction . . . . . . . . . . . . . . . . . . . . . . . . . . 49
Davide Ceolin and Simone Potenza

Investigating Security Capabilities in Service Level Agreements
as Trust-Enhancing Instruments. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 57
Yudhistira Nugraha and Andrew Martin

Applications of Trust

Managing Software Uninstall with Negative Trust. . . . . . . . . . . . . . . . . . . . . 79
Giuseppe Primiero and Jaap Boender

Towards Trust-Aware Collaborative Intrusion Detection: Challenges
and Solutions . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 94
Emmanouil Vasilomanolakis, Sheikh Mahbub Habib, Pavlos Milaszewicz, Rabee Sohail Malik, and Max Mühlhäuser

Self-trust, Self-efficacy and Digital Learning. . . . . . . . . . . . . . . . . . . . . . . . 110
Natasha Dwyer and Stephen Marsh
Trust Metrics

Advanced Flow Models for Computing the Reputation of Internet Domains . . . 119
  Hussien Othman, Ehud Gudes, and Nurit Gal-Oz

Trust Trust Me (The Additivity) . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 135
  Ken Mano, Hideki Sakurada, and Yasuyuki Tsukada

Towards Statistical Trust Computation for Medical Smartphone Networks
Based on Behavioral Profiling . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 152
  Weizhi Meng and Man Ho Au

Reputation Systems

Reputation-Enhanced Recommender Systems . . . . . . . . . . . . . . . . . . . . . . . 163
  Christian Richthammer, Michael Weber, and Günther Pernul

Self-reported Verifiable Reputation with Rater Privacy . . . . . . . . . . . . . . . . . 180
  Rémi Bazin, Alexander Schaub, Omar Hasan, and Lionel Brunie

William Winsborough Commemorative Address and Award 2017

Strong Accountability and Its Contribution to Trustworthy Data Handling
in the Information Society . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 199
  Siani Pearson

IFIPTM 2017 Graduate Symposium

Information Trust . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 221
  Tosan Atele-Williams and Stephen Marsh

Privacy and Trust in Cloud-Based Marketplaces for AI and Data Resources . . 223
  Vida Ahmadi Mehri and Kurt Tutschku

Psychological Evaluation of Human Choice Behavior in Socio-Technical
Systems: A Rational Process Model Approach . . . . . . . . . . . . . . . . . . . . . . . . 226
  Tim Schürmann

Author Index . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 229