Computers, Privacy and Data Protection: an Element of Choice

Serge Gutwirth · Yves Poullet · Paul De Hert · Ronald Leenes Editors

# Computers, Privacy and Data Protection: an Element of Choice



*Editors* Serge Gutwirth Vrije Universiteit Brussel Center for Law, Science, Technology & Society Studies (LSTS) Pleinlaan 2 1050 Brussels Belgium serge.gutwirth@vub.ac.be

Prof. Paul De Hert Vrije Universiteit Brussel Center for Law, Science, Technology & Society Studies (LSTS) Pleinlaan 2 1050 Brussels Belgium paul.de.hert@vub.ac.be Prof. Yves Poullet University of Namur Research Centre for Information Technology & Law Rempart de la Vierge 5 5000 Namur Belgium yves.poullet@fundp.ac.be

Ronald Leenes Tilburg University TILT Warandelaan 2 5037 AB Tilburg Netherlands R.E.Leenes@uvt.nl

ISBN 978-94-007-0640-8 e-ISBN 97 DOI 10.1007/978-94-007-0641-5 Springer Dordrecht Heidelberg London New York

e-ISBN 978-94-007-0641-5

Library of Congress Control Number: 2011922121

© Springer Science+Business Media B.V. 2011

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

#### Preface

Privacy and data protection have never been static. On the contrary, the history of the last 40 years shows the reverse. Even if some important parts of the legislative framework - such as the EC Data Protection Directive of 1995 - have remained unaltered, new issues and challenges continue to emerge, requiring an ongoing process of interpreting their effect in terms of reach, objectives and their deeper significance. Such new issues do also trigger the elaboration of more specifically targeted legislative interventions that do not always fit seamlessly into the preexisting framework. But this is not a surprising picture, since the developments, which resort under the denominators of privacy and data protection are generating and challenging the concerns of numerous different stakeholders who effectively use their voices and power to transform those concerns into political issues. Moreover, the number of factors and actors that sensibly impact upon privacy and data protection are manifold. Indeed, the consequences of technological applications due to unprecedented storage, processing and transmission capacities and by the possibilities of miniaturisation, convergence, interoperability and ubiquity, represent powerful triggers and challenges of emerging developments, but they are not the only determining factor. The current developments in the field are also linked to many other sources of action and change, such as business models, security policies, population management, police work and law enforcement, leisure, culture, health policies, practices in the "real" and in the "virtual" world and so on. Through its large variety of issues discussed, this book indeed evidences such complex cartography of issues related to privacy and data protection.

From the first edition on, in 2007, the annual international *Computers, Privacy and Data Protection* or "CPDP"-conferences<sup>1</sup> held in Brussels have taken these dynamic and multi-faceted features of privacy and data protection seriously and have upheld those at the core of their concept and organisation. The conferences are conceived as lively and interactive meetings where academics, practitioners, policy-makers, business representatives, data protection authorities, lawyers, activists and artists come together to exchange ideas and discuss emerging and/or hot issues related to privacy and data protection. Since the program is built up around an

<sup>&</sup>lt;sup>1</sup>For more information about the CPDP-conferences: see http://www.cpdpconferences.org

important number of panels, sidetracks and side events with a high autonomy, the conference is a fertile soil for the prospering of debates and the taking form of new issues, questions and ideas, as is indeed evidenced by the rich collection of chapters that were published in the books made after the first and second editions of the conference, namely *Reinventing data protection?* (S. Gutwirth, Y. Poullet, P. De Hert, C. de Terwangne en S. Nouwt, Eds, Springer 2009) and *Data protection in a profiled word* (S. Gutwirth, Y. Poullet and P. De Hert, Eds, Springer 2010).

Like the two books we just mentioned, this book is again a sequel of a CPDPconference. It has been made in the wake of its, again successful and inspiring, third edition, which was held in Brussels, in the famous *Kaaitheater*, immediately after "Privacy Day" on the 29th and 30th January of 2010.<sup>2</sup> This edition of the conference had An element of choice as title, and the editors decided to keep it as the title of the book, because the notion of "choice" expresses the wish to individual and societal control and channel evolutions and change in a direction that matches our both individual and collective projects and dreams. For sure, and as we suggested already, the developments and changes concerning data protection and privacy are the resultant of complex interplays and articulations of pertinent, but sometimes very heterogeneous, factors and actions, in which the moments and locations of choices and decisions are diverse, disseminated and difficult to identify. Hence, our focus upon "choice" as the overarching concept of this collection of peer reviewed chapters which focus on privacy and data protection from the perspective of conceptual changes (part 1), of counterforces and drawbacks (part 2), of inventive and singular practices (part 3) and of the emergence of the transversal technological development of cloud computing (part 4), must be read as a claim, or even stronger, as a reclaim.

In the face of the developments affecting privacy and data protection, "choice" unambiguously evokes both the need to collectively take responsibility and direct those developments in a desirable direction, providing the ambit to influence and steer the course of things in a way that matches our expectations related not only toward privacy and data protection, but also more broadly, to the kind of world we are building up. This challenge is not an easy one since all "big" policy choices we might be willing to make are conditioned by a myriad of "small" decisions and bifurcations that already have set many switches changers in irreversible positions. In one or another way, all the contributions to this book do express the complexity of

<sup>&</sup>lt;sup>2</sup>The CPDP2010 was The CPDP2009 conference was organised by the Research Centre for *Law*, *Science, Technology & Society* (LSTS) at the Vrije Universiteit Brussel, the *Centre de Recherches Informatique et Droit* CRID at the University of Namur, the *Tilburg Institute for Law and Technology* at Tilburg University, the *Fraunhofer Institut für System- und Innovationsforschung* (ISI) in Karlsruhe, the *Institut National de Recherche en Informatique et en Automatique* (INRIA) in Grenoble, the Vlaams-Nederlands huis *deBuren* and the VUB *instituut voor PostAcademiche vorming* (iPAVUB). The Brussels Capital Region, the Fonds voor Wetenschappelijk Onderzoek (FWO), Microsoft, Google, the European Privacy Association, Hunton & Williams and Stibbe, further sponsored it. The conference was also supported by crucial players and stakeholders such as the *European Data Protection Supervisor*, the Dutch *College Bescherming Persoonsgegevens*, the Belgian *Commission for the protection of the private sphere* and both the Belgian Flemisch and French speaking Human Right Leagues.

Preface

the making of choices regarding to the issues of privacy and data protection which interest and concern their authors. May this book relay the interests, concerns and commitment of its authors to as many possible readers and may this, in turn, lead to the making of good choices with regards to matters we believe to be important for the future design of our societies. This is all the more relevant since the revision of the 1995 EC Data Protection Directive, the centrepiece of European data protection, is being revised as these sentences are written.

Brussels, Belgium Namur, Belgium Brussels, Belgium Tilburg, The Netherlands October 21, 2010 Serge Gutwirth Yves Poullet Paul De Hert Ronald Leenes

## Contents

Par	t I Building and Rebuilding Legal Concepts for Privacy and Data Protection	
1	The German Constitutional Court Judgment on DataRetention: Proportionality Overrides UnlimitedSurveillance (Doesn't It?)Katja de Vries, Rocco Bellanova, Paul De Hert, and Serge Gutwirth	3
2	<b>The Noise in the Archive: Oblivion in the Age of Total Recall</b> Jean-François Blanchette	25
3	Property in Personal Data: Second Life of an Old Ideain the Age of Cloud Computing, Chain Informatisation,and Ambient IntelligenceNadezhda Purtova	39
4	Right to Personal Identity: The Challenges of AmbientIntelligence and the Need for a New Legal ConceptualizationNorberto Nuno Gomes de Andrade	65
Par	t II The Dark Side: Suspicions, Distrust and Surveillance	
5	<b>Frames from the Life and Death of Jean Charles de Menezes</b> Amos Bianchi and Denis J. Roio	101
6	Regulating Privacy: Vocabularies of Motive in LegislatingRight of Access to Criminal Records in SwedenChristel Backman	111
7	Ubiquitous Computing, Privacy and Data Protection: Options and Limitations to Reconcile the Unprecedented Contradictions	139
8	EU PNR: European Flight Passengers Under GeneralSuspicion – The Envisaged European Model of AnalyzingFlight Passenger DataFranziska Boehm	171

|--|

9	Options for Securing PCs Against Phishing and Espionage: A Report from the EU-Project "Open Trusted Computing" Arnd Weber and Dirk Weber	201		
Part III Privacy Practices as Vectors of Reflection				
10	Keeping Up Appearances: Audience Segregation in SocialNetwork SitesBibi van den Berg and Ronald Leenes	211		
11	Avatars Out of Control: Gazira Babeli, Pose Balls and "Rape" in Second Life	233		
12	<b>Privacy as a Practice: Exploring the Relational and Spatial</b> <b>Dynamics of HIV-Related Information Seeking</b> Fadhila Mazanderani and Ian Brown	251		
13	<b>Rise and Phall: Lessons from the Phorm Saga</b> Paul Bernal	269		
14	<b>Disclosing or Protecting? Teenagers' Online Self-Disclosure</b> Michel Walrave and Wannes Heirman	285		
15	Why Adopting Privacy Enhancing Technologies (PETs)Takes so Much TimeJohn J. Borking	309		
Part IV Privacy and Data Protection in the Cloud				
16	Can a Cloud Be Really Secure? A Socratic Dialogue Gurpreet Dhillon and Ella Kolkowska	345		
17	<b>Privacy Regulations for Cloud Computing: Compliance</b> <b>and Implementation in Theory and Practice</b> Joep Ruiter and Martijn Warnier	361		
18	<b>Data Protection in the Clouds</b>	377		
19	<b>Privacy-Preserving Data Mining from Outsourced Databases</b> Fosca Giannotti, Laks V.S. Lakshmanan, Anna Monreale, Dino Pedreschi, and Hui (Wendy) Wang	411		
20	Access Control in Cloud-on-Grid Systems: The <i>PerfCloud</i> Case Study	427		
21	Security and Privacy in the Clouds: A Bird's Eye View Wolter Pieters	445		

х

### Contributors

**Christel Backman** Department of Sociology, University of Gothenburg, SE 405 30, Gothenburg, Sweden, christel.backman@sociology.gu.se

**Rocco Bellanova** Center for Law, Science, Technology and Society Studies (LSTS), Vrije Universiteit Brussel, Pleinlaan 2, 1050, Brussels, Belgium, rocco.bellanova@vub.ac.be

**Paul Bernal** Information Technology Law, University of East Anglia, Norwich, UK; London School of Economics and Political Science, London, UK, p.a.bernal@lse.ac.uk

**Amos Bianchi** Nuova Accademia di Belle Arti (NABA), Coordinamento Istituto Master e Bienni, Via Darwin 20, 20143 Milano, Italy, amos.bianchi@naba.it

**Jean-François Blanchette** Department of Information Studies, UCLA, Los Angeles, United States, blanchette@ucla.edu

**Franziska Boehm** University of Luxembourg, Luxembourg, franziska.boehm@uni.lu

**John J. Borking** Borking Consultancy, Wassenaar, The Netherlands, jborking@xs4all.nl

**Ian Brown** Oxford Internet Institute, The University of Oxford, Oxford, UK, ian.brown@oii.ox.ac.uk

**Johann Čas** Institute of Technology Assessment, Austrian Academy of Sciences, A-1030, Vienna, Austria, jcas@oeaw.ac.at

Valentina Casola Dipartimento di Informatica e Sistemistica, Università degli studi di Napoli Federico II, Napoli, Italy, casolav@unina.it

**Norberto Nuno Gomes de Andrade** Department of Law, European University Institute, Florence, Italy, norberto.andrade@eui.eu

**Paul De Hert** Center for Law, Science, Technology and Society Studies (LSTS), Vrije Universiteit Brussel, Pleinlaan 2, 1050, Brussels, Belgium, paul.de.hert@vub.ac.be

**Katja de Vries** Center for Law, Science, Technology and Society Studies (LSTS), Vrije Universiteit Brussel, Pleinlaan 2, 1050, Brussels, Belgium, edevries@vub.ac.be

**Gurpreet Dhillon** Virginia Commonwealth University, Richmond, VA, 23284-2512, USA, gdhillon@vcu.edu

**Claire Gayrel** Research Centre on IT and Law (CRID), University of Namur, Namur, Belgium, claire.gayrel@fundp.ac.be

**Jacques Gérard** Research Centre on IT and Law (CRID), University of Namur, Namur, Belgium, jacques.gerard@fundp.ac.be

Fosca Giannotti ISTI-CNR, Pisa, Italy, fosca.giannotti@isti.cnr.it

**Serge Gutwirth** Center for Law, Science, Technology and Society Studies (LSTS), Vrije Universiteit Brussel, Pleinlaan 2, 1050, Brussels, Belgium, serge.gutwirth@vub.ac.be

**Wannes Heirman** Department of Communication Studies, Research Group MIOS, University of Antwerp, Antwerpen, Belgium, Wannes.Heirman@ua.ac.be

Ella Kolkowska Orebro University, Orebro, Sweden, ella.kolkowska@oru.se

Laks V.S. Lakshmanan University of British Columbia, Vancouver, BC, Canada, laks@cs.ubc.ca

**Ronald Leenes** Tilburg Institute for Law, Technology and Society (TILT), Tilburg University, Tilburg, The Netherlands, R.E.Leenes@uvt.nl

**Raffaele Lettiero** Dipartimento di Ingegneria dell'Informazione, Seconda Università di Napoli, Naples, Italy, lettiero@gmail.com

**Fadhila Mazanderani** Oxford Internet Institute, The University of Oxford, Oxford, UK, mazanderani@gmail.com

**Jean-Philippe Moiny** Research Centre on IT and Law (CRID), University of Namur, Namur, Belgium, jean-philippe.moiny@fundp.ac.be

Anna Monreale University of Pisa, Pisa, Italy, annam@di.unipi.it

Dino Pedreschi University of Pisa, Pisa, Italy, pedre@di.unipi.it

**Wolter Pieters** University of Twente, Enschede, The Netherlands, w.pieters@utwente.nl

**Yves Poullet** Research Centre on IT and Law (CRID), University of Namur, Namur, Belgium, yves.poullet@fundp.ac.be

**Nadezhda Purtova** 2513BS Torenstraat 12, den Haag, The Netherlands, npurtova@yahoo.com

**Massimiliano Rak** Dipartimento di Ingegneria dell'Informazione, Seconda Università di Napoli, Naples, Italy, massimiliano.rak@unina2.it

#### Contributors

**Denis J. Roio** Dyne.org Foundation, Nederlands Instituut voor Mediakunst, Keizersgracht 264, 1016 EV Amsterdam, The Netherlands, jaromil@dyne.org

**Joep Ruiter** Faculty of Sciences, VU University Amsterdam, The Netherlands, jrr260@few.vu.nl

**Bibi van den Berg** Tilburg Institute for Law, Technology and Society (TILT), Tilburg University, Tilburg, The Netherlands, bibi.vandenberg@uvt.nl

Jean-Marc Van Gyseghem Research Centre on IT and Law (CRID), University of Namur, Namur, Belgium, jean-marc.vangyseghem@fundp.ac.be

**Umberto Villano** Dipartimento di Ingegneria, Università del Sannio, Benevento, Italy, villano@unisannio.it

**Michel Walrave** Department of Communication Studies, Research Group MIOS, University of Antwerp, Sint Jacobstraat 2, BE 2000, Antwerpen, Belgium, michel.walrave@ua.ac.be

Hui (Wendy) Wang Stevens Institute of Technology, Hoboken, NJ, USA, hwang@cs.stevens.edu

**Martijn Warnier** Faculty of Technology, Policy and Management Delft University of Technology, M.E.Warnier@tudelft.nl

**Arnd Weber** Institute for Technology Assessment and Systems Analysis, Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, D-76344 Eggenstein-Leopoldshafen, Germany, arnd.weber@kit.edu

**Dirk Weber** Institute for Technology Assessment and Systems Analysis, Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, D-76344 Eggenstein-Leopoldshafen, Germany, daw@dawitcon.de

#### **About the Authors**

**Norberto Nuno Gomes de Andrade** is a legal researcher and PhD candidate at the Law Department of the European University Institute (EUI, Italy). He graduated in Law at the Faculty of Law of the University of Lisbon, and he holds a Master of Arts in International Relations and European Studies from Central European University (CEU, Hungary), as well as a Master of Research from the European University Institute. He has previously worked as a legal expert at the External Relations Department of the Portuguese Regulatory Authority for Communications (ANACOM, Portugal). His research interests are focused on law and technology (including biotechnology, neuroscience, artificial intelligence, genetics and genomics, digital environments, ambient intelligence), data protection and privacy law, intellectual property, philosophy of law and legal theory. In 2009 he co-edited and published "Law and Technology: Looking into the Future – Selected Essays".

**Christel Backman** (LL.M, BSc in Sociology) is currently completing her doctoral thesis 'Criminal Records: Law and Practice in Sweden' at the Department of Sociology, University of Gothenburg. The thesis examines the use of criminal background checks in hiring and the regulation of employer access to criminal history data from a socio-legal perspective. Christel Backman is a member of the Management Committee of COST Action IS0807 Living in Surveillance Society, and coordinator of Working Group 4 'Public Policy and the Regulation of Surveillance' in the same Action.

**Rocco Bellanova** holds a Research Master in political science and international relations (IEP-Paris) and graduated in international relations (University of Bologna). He has been visiting student at the University of Montreal and at the IEP in Lyon. After a trainee-experience at the European Parliament in the field of Justice and Home Affairs, he is currently doing his PhD on data protection applied to security and surveillance measures at both the Facultés universitaires Saint-Louis (FUSL) and the Vrije Universiteit Brussel (VUB). At FUSL, he also works as assistant in international relations, political science and contemporary political issues ("liberties and securities"). He collaborates in the organization of the Computers, Privacy and Data Protection (CPDP) conferences (2009, 2010 & 2011). In line with his research interests, Rocco is focusing on the powers and politics of data protection; as well as on the evolutions and intertwining of surveillance and security.

**Paul Bernal**'s background is very varied. His initial degree was in mathematics at the University of Cambridge, before he trained and worked as a Chartered Accountant with Coopers & Lybrand (now PWC), qualifying in 1990. His subsequent work included working for Reuters, doing pioneering work in the internet in the early 1990s, including setting up and running the UK's first online real-time education system for children. In the 2000s, Paul was the financed director at a leading charity dealing with mental health and criminal justice, before returning to academia, completing a Masters in Human Rights at the LSE. He is currently in the process of completing his PhD at the LSE, under Professor Conor Gearty and Mr Andrew Murray, working in the field of human rights on the Internet, funded by a Doctoral Grant from the Arts and Humanities Research Council.

**Amos Bianchi** (1975) is coordinator of postgraduate programmes at NABA (Nuova Accademia di Belle Arti Milano, www.naba.it). At the same institution, he has been Assistant Professor of Theory and Method of Mass Media, and he is currently Lecturer of Research Methods. He is a Ph.D. researcher of the University of Plymouth, Planetary Collegium, at the M-Node, based in Milan.

**Jean-François Blanchette** is an Assistant Professor in Department of Information Studies, University of California, Los Angeles. He received a B.Sc. and a M.Sc. in Computer Science from the Université de Montréal in 1995 and 1997, and a Ph.D. in Social Studies of Science from Rensselaer Polytechnic Institute in 2002. Between 1999 and 2001, he was an invited researcher at the CNRS in Paris, where he investigated the definition of a new legal framework for recognizing the evidential value of electronic documents, including those produced by notaries, baillifs and judges. Between 2002 and 2004, he was a Post-Doctoral Fellow with the InterPARES project at the University of British Columbia. Professor Blanchette teaches in the area of electronic records management, digital preservation, social dimensions of computing, and systems design. His current research focuses on developing a theoretical framework for analysing the materiality of computing, and its implications for long-term preservation of digital objects.

**Franziska Boehm** is a research assistant at the University of Luxembourg where she is also preparing her PhD thesis in European data protection law. After the *Licence en Droit* in 2003 (University of Nice, France) and the German state exam in law in 2006, she specialized in European data protection law and obtained a Master in this field in 2007 (University of Gießen, Germany). Her research focuses on the data protection rights of individuals, in particular in a law enforcement context.

**John J. Borking** (1945), (Dutch Laws - University of Leyden 1973) (Dutch Nationality) is Director of Borking Consultancy, an one man SME consultancy firm on privacy protection and (e)-ADR. He was from January 1, 1994 till January 1,

2006 Privacy Commissioner and Board member and associate board member of the Dutch Data Protection Authority (CBP) in The Hague (The Netherlands) (www.cbpweb.nl), He is (e-) arbitrator / mediator of the Dutch Foundation for Alternative Dispute Resolution for ICT (SGOA) (www.sgoa.org). He is also since 2000 board member of the Netherlands Lottery and Gaming Control Board (www.toezichtkansspelen.nl/) is appointed as an expert on new IC technologies for the lotteries and gaming market and interactive gaming (casinos on-line). Since 1999 he is member and chair of the working party on data protection of CEN /ISSS WP/DPP in Brussels (www.cenorm.be.) He has been general manager of COSSO, the Dutch Trade Association for Information & Communication Technology Providers, Supervisory board member of Børsen Netherlands B.V (a publisher of newspapers and management books) and senior legal counsel and company secretary for Xerox Corp. in The Netherlands, France and UK (1974–1986).

**Ian Brown** is a senior research fellow at the Oxford Internet Institute, the University of Oxford. Dr. Brown's research is focused on public policy issues around information and the Internet, particularly privacy and copyright. He also works in the more technical fields of communications security and healthcare informatics. Since 1998 Dr Brown has variously been a trustee of Privacy International, the Open Rights Group and the Foundation for Information Policy Research and an adviser to Greenpeace, the Refugee Children's Consortium, Amnesty International and Creative Commons UK. He is a Fellow of the Royal Society of Arts, the International University of Japan and the British Computer Society, and a senior member of the ACM. He is currently the Principal Investigator of the Privacy Value Networks and Towards a Future Internet projects.

**Johann Čas** holds a degree in Communications Engineering from a Higher Technical College and a degree in economics from the University of Graz. He is a researcher at the Institute of Technology Assessment of the Austrian Academy of Sciences since 1988. He has worked on several aspects of the Information Society and on societal impacts of Information and Communication Technologies. Past foci of research include technological development programs, impact on employment and regional development, information systems for policy makers, regulatory issues of new telecommunication technologies and privacy. He has also been giving lectures on technologies and privacy in the information society, privacy enhancing technologies and their deployment within Ambient Intelligence, security technologies and health related applications. He was the coordinator of the PRISE EU-Project (http://prise.oeaw.ac.at/), which applied a participatory research approach to develop guidelines and criteria for privacy enhancing security technologies.

Valentina Casola is an assistant professor at the University of Naples Federico II. She received the Laurea degree in Electronic Engineering cum laude from the University of Naples in 2001 and she received her PhD in Electronic and Computer Engineering from the Second University of Naples in 2004. Her research activities are both theoretical and experimental and are focused on security methodologies to design and evaluate distributed and secure infrastructures.

Paul De Hert is an international human rights expert. The bulk of his work is devoted, but not limited, to criminal law and technology & privacy law. At Brussels, Paul De Hert holds the chair of "Criminal Law", "International and European Criminal Law" and "Historical introduction to eight major constitutional systems". In the past he has held the chair of "Human Rights", "Legal theory" and "Constitutional criminal law". He is Director of the VUB-Research group on Fundamental Rights and Constitutionalism (FRC), Director of the Department of Interdisciplinary Studies of Law (Metajuridics) and core member of the internationally well-accepted VUB-Research group Law Science Technology & Society (LSTS) (see: www.vub.ac.be/LSTS). At Tilburg he holds a position as an associatedprofessor in the internationally renowned Institute of Law and Technology at the Tilburg University (http://www.tilburguniversity.nl/faculties/frw/departments/tilt/ profile/). He is member of the editorial boards of several national and international scientific journals such as the Inter-American and European Human Rights Journal (Intersentia), Criminal Law & Philosophy (Springer). He is co-editor in chief of the Supranational Criminal Law Series (Intersentia) and of the New Journal of European Criminal law (Intersentia).

**Katja de Vries** is a PhD researcher in the interdisciplinary group on Law, Science, Technology and Society (LSTS) at the Vrije Universiteit Brussel (VUB) working on profiling technologies and data protection. She has degrees in Law, Psychology and Philosophy. De Vries has studied at Universiteit Leiden, SciencesPo in Paris and at Oxford University.

**Gurpreet Dhillon** is Professor of Information Systems at Virginia Commonwealth University, USA and a Guest Professor at ISEG, Universidade Téchnica De Lisboa, Portugal. He holds a Ph.D. from the London School of Economics and Political Science, UK. Gurpreet has authored seven books including *Principles of Information Systems Security: text and cases* (John Wiley, 2007) and over 100 research manuscripts. He is also the Editor-in-Chief of the *Journal of Information System Security*. Gurpreet's research has been featured in various academic and commercial publications and his expert comments have appeared in the *New York Times, USA Today, Business Week, NBC News*, among others. www.dhillon.us.com

**Claire Gayrel** graduated in European Law and political sciences. She worked a period for the European Regional Development Found (ERDF) in French Guyana, before joining the CRID in September 2008. Her research currently focuses on transborder data flows and the protection of personal data in the Justice, Liberty and Security area of the European Union.

**Jacques Gérard** received his Degree in Physics from the University of Namur (FUNDP) in 1986 and his Master of Computer Science from the University of Namur in 1988. Since September 1989, he is working at the Research Centre on IT & Law (CRID – Law Faculty of the University of Namur, FUNDP, Belgium) where he developed researches in legal expert systems. He teaches the fundamentals of computing to law students and explains computer concepts to legal researchers of the Centre.

**Fosca Giannotti** is a senior researcher at the Information Science and Technology Institute of the National Research Council at Pisa, Italy, where she leads the Knowledge Discovery and Data Mining Laboratory – KDD LAB – a joint research initiative with the University of Pisa, one of the earliest European research groups specifically targeted at data mining and knowledge discovery. Her recent research interests include data mining query languages, mining spatio-temporal and mobility data, privacy preserving data mining, and complex network analysis. She has been the coordinator of various European-wide research projects, including GeoPKDD: Geographic Privacy-aware Knowledge Discovery and Delivery. She is the author of more than one hundred publications and served as PC chair and PC member in the main conferences on Databases and Data Mining. She is the co-editor of the book "Mobility, Data Mining and Privacy", Springer, 2008.

**Serge Gutwirth** is a professor of human rights, legal theory, comparative law and legal research at the Faculty of Law and Criminology of the Vrije Universiteit Brussel.(VUB), where he studied law, criminology and also obtained a postgraduate degree in technology and science studies. Gutwirth founded and still chairs the VUB-research group *Law Science Technology & Society* (http://www.vub.ac.be/LSTS). He publishes widely in Dutch French and English. Amongst his recent co-edited publications are *Safeguards in a world of ambient intelligence* (Springer, 2008), *Profiling the European citizen* (Springer 2008), *Reinventing data protection?* (Springer 2009) and *Data protection in a profiled world* (Springer, 2010). Currently, Serge Gutwirth is particularly interested both in technical legal issues raised by technology (particularly in the field of data protection and privacy) and in more generic issues related to the articulation of law, sciences, technologies and societies.

**Wannes Heirman** is teaching assistant at the department of Communication Studies of the University of Antwerp. After obtaining his master's degree in Communication Sciences (University of Antwerp, 2006), he started doing research work for the research team MIOS. In the period 2008–2009 he worked together with other MIOS-colleagues on a research report concerning cyberbullying. This report was destined for the Belgian Internet Rights Observatory and ultimately resulted in a policy advice approved by the Observatory's members. Besides the topic of cyberbullying, the author has a broad interest for research into how information and communication technologies are impacting the daily lives of young children and

**Ella Kolkowska** is a lecturer and PhD student at Swedish Business School at Orebro University in Sweden. Her research is about social and organizational aspects in information security, value conflicts as well as compliance with information security policies.

Laks V.S. Lakshmanan is a professor of computer science at the University of British Columbia, Vancouver, Canada. His research interests span a wide spectrum of topics in data management and mining, including: relational and object-oriented databases, advanced data models for novel applications, OLAP and data warehousing, database mining, data integration, semi-structured data and XML, large social and other networks, search, and recommender systems. He collaborates widely with both industry and academia the world over. He is a Research Fellow of the BC Advanced Systems Institute. Laks has served on the program committees of all top database and data mining conferences, chaired several, and has edited several special issues of the top journals. The latest of these, a special issue of the VLDB Journal on Data Management and Mining Issues on Social Networks and Social Media, co-edited with Klemens Boehm, will be published in Fall 2010.

**Ronald Leenes** is professor in Regulation by Technology at TILT, the Tilburg Institute for Law, Technology, and Society (Tilburg University). His primary research interests are privacy and identity management, regulation of, and by, technology. He is also involved in research in ID fraud, biometrics and Online Dispute Resolution. Ronald was work package leader in the EU FP6 PRIME project for socio-cultural aspects of privacy enhanced identity management. He is currently responsible for TILT's contribution to the FP7 project PrimeLife and leads the work package on social networks and collaborative workspaces. He has contributed to and edited various deliverables for the EU FP6 Network of Excellence 'Future of IDentity in the Information Society' (FIDIS).

**Raffaele Lettiero** is a young researcher at the Second University of Naples. He received the Laurea degree in Computer Science Engineering from the Second University of Naples in 2009. His current research interests are in the area of Grid Computing.

**Fadhila Mazanderani** is a doctoral student at the Oxford Internet Institute, the University of Oxford, where her research centres on how women living with HIV use the Internet in relation to their health. Before joining the Oxford Internet Institute Fadhila worked as a consultant specialising in telecommunications and new media technologies in South Africa. She has an undergraduate degree in Information Technology from the University of Pretoria and a masters degree in New Media, Information and Society from the London School of Economics and

Political Science. In addition to her doctoral research Fadhila works as project coordinator for the Privacy Value Networks project and is actively involved in volunteer work focussed on orphaned and vulnerable children in South Africa.

**Jean-Philippe Moiny** obtained his Law Degree from the University of Liège (ULg, Belgium) in 2008, and joined the Research Centre on IT & Law (CRID – Law Faculty of the University of Namur, FUNDP, Belgium) the same year as a junior researcher. He began studying two main research topics: access to and reuse of public sector information (as regards geographical data) and data protection (particularly in the context of Social Network Sites [SNSes]). Since February 2009, he is effective member of the Belgian Appeal Committee for the reuse of public sector information. And since October 2009, he is also research fellow for the F.R.S.-FNRS, in the CRID, pursuing a Ph.D. research related data protection and its interactions with other legal fields in the context of cloud-based SNSes.

**Anna Monreale** is a is a PhD student at Computer Science Department of the University of Pisa and a member of Knowledge Discovery and Data Mining Laboratory – KDD LAB – a joint research group with the ISTI – CNR of Pisa. Her research is in anonymity of complex forms of data, including sequences, trajectories of moving objects and complex networks, and privacy-preserving outsourcing of analytical tasks.

**Dino Pedreschi** is a full professor of Computer Science at the University of Pisa. He has been a visiting scholar at the University of Texas at Austin (1989/90), at CWI Amsterdam (1993) and at UCLA (1995). His current research interests are in data mining and logic in databases, and particularly in data analysis, in spatio-temporal data mining, and in privacy-preserving data mining. He is a member of the program committee of the main international conferences on data mining and knowledge discovery and an associate editor of the journal Knowledge and Information Systems. He served as the coordinator of the undergraduate studies in Computer Science at the University of Pisa, and as a vice-rector of the same university, with responsibility in teaching affairs. He has been granted a Google Research Award (2009) for his research on privacy-preserving data mining and anonymity-preserving data publishing. He is the co-editor of the book "Mobility, Data Mining and Privacy", Springer, 2008.

**Wolter Pieters** (1978) studied computer science and philosophy of science, technology and society at the University of Twente. From 2003 to 2007, he did his PhD research at the Radboud University Nijmegen, resulting in his interdisciplinary thesis "La volonté machinale: understanding the electronic voting controversy". After finishing his PhD, he worked for the Dutch Ministry of the Interior for one year, on electronic voting and electronic travel documents. Since September 2008 he is employed as a postdoc researcher in the VISPER project at the University of Twente. The project concentrates on de-perimeterisation, the disappearing of traditional boundaries in information security.

**Yves Poullet,** Ph.D. in Law and graduated in Philosophy, is full professor at the Faculty of Law at the University of Namur (FUNDP) and Liège (Ulg), Belgium. He teaches "Sources and Principles of the Law", "Internet Regulations", "International Commercial Law" and "Human Rights in the Information Society". Yves Poullet heads the CRID, since its creation in 1979. He conducts various researches in the field of new technologies with a special emphasis on privacy issues, individual and public freedom in the Information Society and Internet Governance. He is legal expert with the European Commission, the UNESCO and the Council of Europe. He has been during 12 years (1992–2004) member of the Belgian Commission on Data Protection. In addition, he was since its origin, member of Legal Advisory Board of European Commission. He has received the Franqui Chair in 2004. He also chaired the Belgian Computer Association ABDI (Association Belge de Droit de l'Informatique). Yves Poullet is an active member of the Editorial Board of various famous law reviews. He is a founder of the European Telecommunication Forum, ECLIP and FIRILITE. Recently (2009), he has been nominated as member of the Royal Belgian Academy and as Rector of the University of Namur

**Nadezhda Purtova** holds a law degree from Mari State University, Russia, an LLM degree from Central European University, Hungary, and an MSc in public administration from Leiden University, The Netherlands. At the time of submitting her contribution she is working towards completing her PhD research at Tilburg Institute for Law, Technology and Society. The goal of the PhD research is to develop a European perspective on property rights in personal data drawing on comparative European property law and privacy and data protection.

**Massimiliano Rak** is an assistant professor at Second University of Naples. He got his degree in Computer Science Engineering at the University of Naples Federico II in 1999. In November 2002 he obtained a PhD in Electronical Engineering at Second University of Naples. His scientific activity is mainly focused on the analysis and design of High Performance System Architectures and on methodologies and techniques for Distributed Software development.

**Denis Roio aka Jaromil** (1977) operates in research and development activities at NIMk in Amsterdam (Nederlands Instituut voor Mediakunst, www.nimk.nl). He is a software developer and artist, board member of Dyne.org and of the Free Culture Forum, Ph.D. candidate of the University of Plymouth (Planetary Collegium, M-Node), in 2009 and together with researcher Brian Holmes he was honoured with the Vilém Flusser Award.

**Joep Ruiter** recently finished the MSc. Information Sciences at the VU University Amsterdam. He will receive his graduation in the near future. Currently Joep participates in a second MSc. in Business Administration until August 2011, also at the VU University Amsterdam. **Bibi van den Berg** has a postdoc position in philosophy of technology at the Tilburg Institute for Law, Technology and Society (TILT) of Tilburg University. Her main research interests are : (1) social, ethical and legal issues surrounding autonomous technologies and robotics, and (2) identity and privacy in online worlds.

**Jean-Marc Van Gyseghem** received his Law Degree from the University of Louvain (UCL, Louvain-la-Neuve, Belgium) in 1995 and his DESS in Medical Law from the University of Poitiers (France) in 1996. Since December 2001, he is working at the Research Center for Computer & Law (CRID – Law Faculty of Namur, FUNDP, Belgium) where he is now Head of the Unit "Liberties in the information society" (Medical Law (including liability), Insurance and Private Law, in Medical Data Protection and in eHealth Services and Products). He is also member of the Bar of Brussels (since 1997) and Partner at the Rawlings Giles law firm in Brussels. He is frequently invited to present communications on medical data protection and on eHealth and he is the author of several papers and book chapters in this domain. He's member of an ethical committee in a Belgian hospital and is deputy manager of the collection "Cahiers du Crid".

**Umberto Villano** is full professor at the University of Sannio at Benevento, Italy, where he is Director of the Department of Engineering. His major research interests concern performance prediction and analysis of parallel and distributed computer architectures, tools and environments for parallel programming and distributed algorithms. He received the Laurea degree in Electronic Engineering cum laude from the University of Naples in 1983.

**Michel Walrave** is an Associate Professor and head of the Department of Communication Studies of the University of Antwerp. He leads the research group MIOS (www.ua.ac.be/mios) that conducts research on, amongst others, young people's ICT uses. His research focuses on societal implications of ICT in general, and ICT-use related privacy risks in particular. He has conducted several research projects on, amongst others, e-marketing, social networking sites and privacy and on cyberbullying. He teaches societal implications of ICT, marketing communications and e-marketing at the University of Antwerp and as a guest lecturer in several other universities. He is co-supervisor of the research team of the Belgian Internet Rights Observatory and member of several European research networks. Michel Walrave holds a master's degree in Communication Studies, a Master in Information Science and a PhD in Social Sciences.

**Hui Wang** received the BS degree in computer science from Wuhan University in 1998, the MS degree in computer science from University of British Columbia in 2002, and the PhD degree in computer science from University of British Columbia in 2007. She has been an assistant professor in the Computer Science Department, Stevens Institute of Technology, since 2008. Her research interests include data management, database security, and data privacy.

**Martijn Warnier** received his PhD in Computer Science at the Radboud University Nijmegen, the Netherlands. After four years as a Postdoctoral Researcher in computer systems group at the VU University Amsterdam, he moved to Delft University of Technology where he currently holds the position of Assistant Professor.

**Arnd Weber** is an economist, with a PhD in sociology from the University of Frankfurt, Germany. He has been the project manager of several research projects on IT-related subjects, with the Institute for Technology Assessment and Systems Analysis of Karlsruhe Institute of Technology (ITAS, KIT, formerly Karlsruhe Research Centre), Institut für Sozialforschung (Frankfurt) and the University of Freiburg, Germany. He led the requirements and specifications work in several research projects (CAFE, SEMPER, OpenTC).

**Dirk Weber** is a certified SAP Technology Associate, Microsoft Certified Systems Engineer and Certified Novell Engineer and has worked as an IT consultant for several companies. He worked for the Institute for Technology Assessment and Systems Analysis of Karlsruhe Institute of Technology (ITAS, KIT, formerly Karlsruhe Research Centre), Germany, and edited several requirements and specifications documents within the OpenTC project.