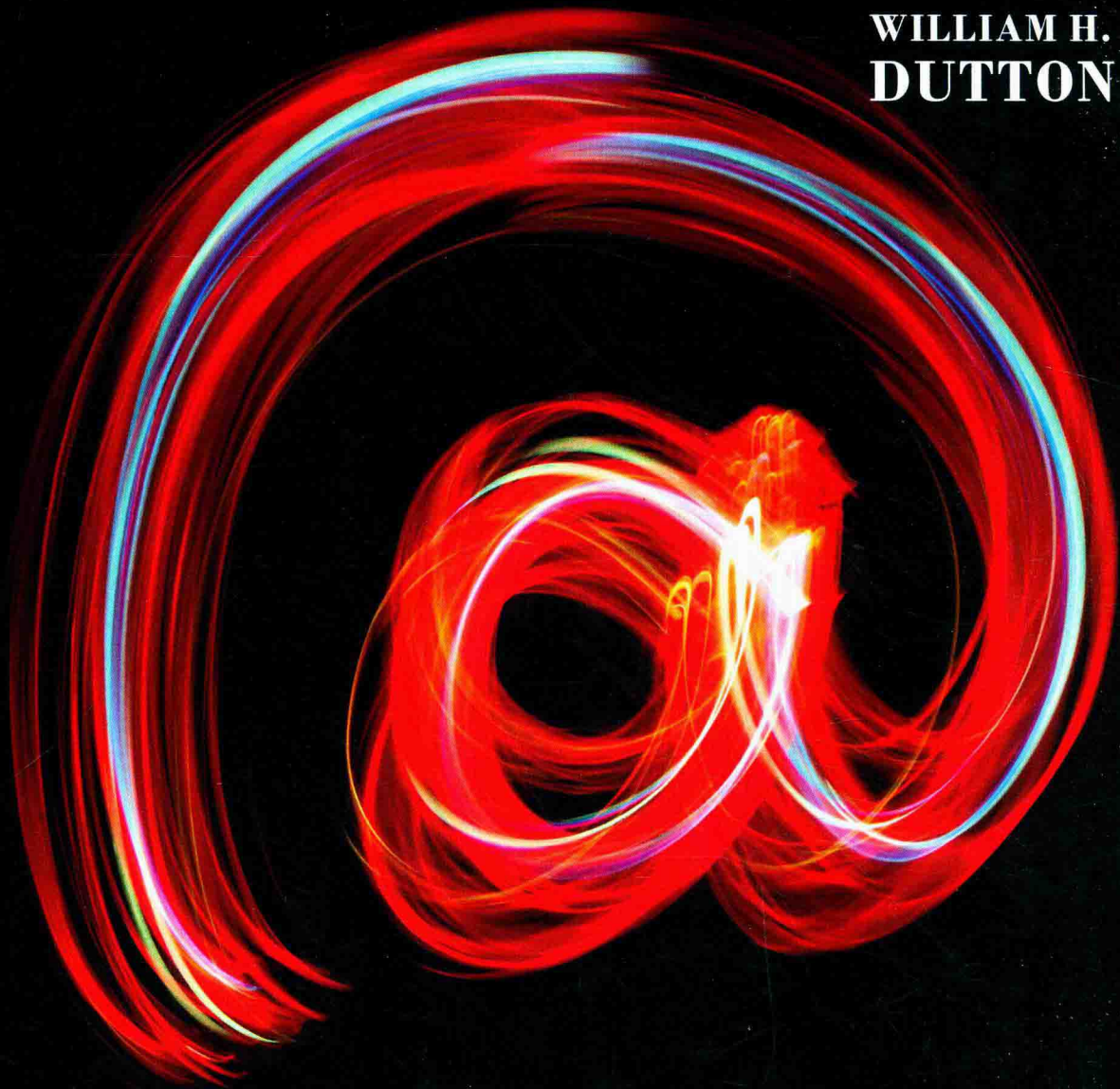


EDITED BY

WILLIAM H.  
DUTTON



≡ The Oxford Handbook of  
**INTERNET  
STUDIES**

THE OXFORD HANDBOOK OF

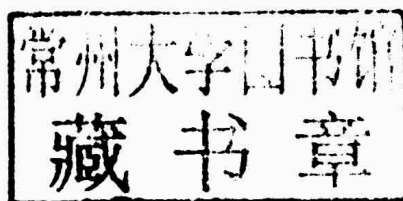
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# INTERNET STUDIES

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*Edited by*

WILLIAM H. DUTTON



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THE OXFORD HANDBOOK OF

# INTERNET STUDIES

## PREFACE

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Internet Studies is one of the most rapidly developing interdisciplinary fields of the early twenty-first century. With the increasing significance of the Internet, and the range of issues surrounding its use and governance, the field is on a course to continue expanding in its range and diversity through the coming decades. Despite the pace of change, it is a time to take stock of this emerging field, examine current approaches to study of the Internet, and reflect on the field's future. This was the key motivation behind this handbook.

*The Oxford Handbook of Internet Studies* has been designed to provide a valuable resource for students and scholars of Internet Studies. It brings together leading scholarly perspectives on how the Internet has been studied, coupled with views of how Internet Studies should be pursued over the coming years. These perspectives should help strengthen research and identify the big questions for the field to pursue.

However, the promise of Internet Studies extends beyond the field itself. The development of this field has the potential to shape research, policy, and practice across the allied disciplines and not simply within the field of Internet Studies. It is in this sense that one of the key themes of this handbook is the transformative potential of Internet Studies, not only in establishing a new field of study, but also in changing research across the social sciences and related disciplines, as more social research is driven to consider the role of the Internet and related information and communication technologies within their own orbits of inquiry.

In this spirit, a necessary aim of this handbook has been to focus on 'Internet Studies' as an emerging field, rather than provide a collection of studies of the social implications of the Internet. Each author has been asked to provide a synthesis and critical assessment of research in their particular area of expertise. The assembled chapters cover a broad spectrum of topics, including social science perspectives on the technology of the Internet, the role of the Internet in everyday life and work, implications for communication, power, and influence, and the governance and regulation of the Internet. Taken together, the authors represent the increasingly international range of scholarship that is building in the field, as well as the contribution of young, along with more established scholars. You will find that a number of chapters have senior academics working with their graduate students, many of whom are among the new generation of scholars who have focused on the Internet during their graduate training.

Given the enormous scope of the field, I had to be selective in sampling some of the most critical topics and issues confronting research in this area of inquiry. Taken together, the chapters seek to convey the broad scope of Internet Studies, centered

primarily within the social sciences. The chapter authors have not hesitated to span disciplinary boundaries, and together they ensure a multidisciplinary perspective on the study of the Internet.

The scope of Internet Studies is potentially vast and is defined broadly for this volume. As editor, I wanted to keep a broad definition of Internet Studies, and the Internet as a network of networks that includes related media, information, and communication technologies. Of course, the book also seeks to address controversies over the scope of Internet Studies and related fields, such as Web Science and New Media Studies, which propose different boundaries for their own and related fields. However, as editor of this handbook, and a long time researcher within the field, I was convinced that a broad definition of Internet Studies should incorporate many aspects of these related areas of research and teaching.

The Internet and its study are moving at such a rapid pace that many colleagues doubted whether any book could provide a definitive definition of the field. You will find in the chapters of this handbook that the pace of technical and social change is an issue that most authors are grappling with. The field cannot wait for change to slow down, however, before we sketch the developing scope and methods of a field. All students of Internet Studies are doing research on moving objects of analysis. It is nevertheless possible to capture this and other aspects of Internet Studies, and provide a meaningful framework for understanding the scope of the field. In the course of doing so, I hope this book provides a key reference on the nature of 'Internet Studies' of value to contemporary students and scholars that will remain a basis for scholars to judge the progress of the field for years into the future.

This is not the only handbook on Internet Studies; in fact, a number have appeared in the years preceding this collection. In my view, this is one of many signs that this field is maturing and beginning to reflect on its history and future. I hope this book complements other handbooks and helps continue the progress of one of the most vibrant and significant fields of new scholarship in the twenty-first century.

William H. Dutton  
Oxford, England  
November 2012

## ACKNOWLEDGMENTS

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I am grateful to many colleagues for their support, advice, and comments on particular chapters and the structure of the book as a whole.

As Professor of Internet Studies at the Oxford Internet Institute (OII), and its founding Director from 2002 to 2011, I benefited greatly from the insights of my students and colleagues, all of whom are pushing forward on the leading edge of Internet Studies. Whether in our Summer Doctoral Programme or Advisory Board meetings, my colleagues have engaged me in a continuing dialogue about the nature and future of Internet Studies, and what we have called the social science of the Internet. OII faculty, students, advisors, and visitors could not know how much I have valued and learned from our day-to-day conversations and debates, and our courses, seminars, and many series of lectures. This extends beyond our department, to my colleagues from other departments and the many colleges across this collegiate University of Oxford. A tremendous virtue of Oxford is an academic culture that resists specialization and nurtures the inter-disciplinary exchange that informs this book. It has been the enthusiasm around the social issues of the Internet, from an interdisciplinary range of Oxford colleagues that has continued to boost my commitment to better understanding the history and future of this field.

As editor, I was fortunate to gain the assistance of a strong international advisory board, which included: Christine Borgman, Presidential Chair in Information Studies, University of California, Los Angeles; Jay Blumler, Emeritus Professor, University of Leeds; Manuel Castells, Wallis Annenberg Chair USC and Open University of Catalonia; Michael Cusamano, Sloan Management Review Distinguished Professor of Management, MIT; Dame Wendy Hall, Professor of Computer Science, Southampton; Guo Liang, Chinese Academy of Social Sciences; Sonia Livingstone, Media and Communications, London School of Economics; Thierry Vedel, The Centre for Political Research at Sciences Po, National Centre for Scientific Research, France; Barry Wellman, Director of Netlab, University of Toronto; and Dorothy Zinberg, Belfer Center for Science and International Affairs, and Program for Science, Technology, and Public Policy, Kennedy School of Government, Harvard.

In addition to members of the Advisory Board, a number of colleagues reviewed and advised me on selected chapters. These colleagues included Professor Charles Ess, University of Aarhus; Dr Mark Graham, University of Oxford; Professor Barrie Gunter, University of Leicester; Professor Steve Jones, University of Illinois, Chicago Circle; Professor David Tewksbury, University of Illinois, Urbana-Champaign; Professor David

Waterman, University of Indiana; Professor Monica Whitty, University of Leicester; and Professor Jonathan Zittrain, Harvard University.

I also gained much from my colleagues in Internet Studies across the globe who have been shaping other volumes on the field, and some of whom worked with me to develop a series of workshops on Internet Studies as one means to help me better understand this rapidly developing field. Charles Ess collaborated with me in setting up a workshop at the University of Aarhus, Denmark, which led to a special issue of *New Media and Society*. This was followed by a workshop focused on consumers and the Internet, at the Interdisciplinary Internet Institute (IN<sub>3</sub>) at the Open University of Catalonia, which was organized by Inma Rodriguez-Ardura, an Associate Professor of Marketing at IN<sub>3</sub> and a Visiting Fellow at the Oxford Internet Institute. Finally, Brian Loader at the University of York, Barry Wellman, at the University of Toronto, and Victoria Nash, at the OII worked with me in organizing 'Ten Years in Internet Time', a symposium held in Oxford in September 2011, which focused on the dynamics of Internet Studies. This symposium led to a special issue of *Information, Communication & Society*. I learned a great deal from both workshops and symposium and their follow-up.

I am, of course, most indebted to the authors who contributed to this volume, not only by writing their respective chapters, but also in reviewing selected chapters, and advising me on issues of scope and coverage. All were exceptionally receptive to guidance on the aims of the handbook and how their chapters could best contribute. I have never worked with such a uniformly strong set of academics.

Robert Bullard provided valuable copy-editing in preparing chapters for the publisher, and indirectly, Malcolm Peltu, my friend and long time editorial consultant, taught me a great deal about editing that advanced my work on this book.

Finally, I wish to thank my editor at Oxford University Press, David Musson, who has been encouraging and supportive of this project from the beginning. His judgment was always valued and contributed much to the completion of this work. His team at Oxford University Press, including Emma Lambert and Rachel Platt, were professional, talented, and responsive at every stage of the book's production.



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## LIST OF ABBREVIATIONS

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A&HCI	Arts and Humanities Citation Index
AfriNIC	African Network Information Centre
AoIR	Association of Internet Researchers
APC	Association for Progressive Communications
API	Application programming interface
APNIC	Asia Pacific Network Information Centre
ARIN	American Registry for Internet Numbers
ARPANET	Advanced Research Projects Agency Network
AS	Autonomous system
ASN	Autonomous System Numbers
BBS	Bulletin board systems
BGP	Border gateway protocol
BRIC	Brazil, Russia, India, and China
ccTLD	Country code top-level domains
CENS	Centre for Embedded Network Sensing
CERN	European Organization for Nuclear Research
CERT	Computer Emergency Response Team
CIR	Critical Internet Resources
CMC	Computer-mediated communication
CNNIC	China Internet Network Information Centre
CPS	Current population survey
CS	Computer Science
CSCW	Computer-supported cooperative work
DARPA	Defense Advanced Research Projects Agency
DBMS	Database management system
DDoS	Distributed denial of service attacks
DE-CIX	Deutscher Commercial Internet Exchange
DMCA	Digital Millenium Copyright Act
DNS	Domain name system
DPI	Deep packet inspection
DRM	Digital rights management
ECHR	European Convention on Human Rights
e-GIFS	Electronic government interoperability frameworks
EMISARI	Emergency Management Information Systems and Reference Index

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EoG	Ecology of games
FACT	Federation against Copyright Theft
FAO	Food and Agriculture Organization
FCC	Federal Communications Commission
FIPs	Fair information principles
fMRI	Functional magnetic resonance imaging
FTP	File Transfer Protocol
GAID	Global Alliance for ICTs and Development
GAIN	Genetic Association Information Network
GigaNet	Global Internet Governance Academic Network
GPT	General purpose technology
GUI	Geographical user interface
GWAS	Genome-Wide Association Studies
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
IANA	Internet Assigned Numbers Authority
ICA	International Communication Association
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	Information and communications technology
ICT4D	Information and communication technologies for development
IDEA	Institute for Democracy and Electoral Assistance
IETF	Internet Engineering Taskforce
IGF	Internet Governanace Forum
IMPACT	International Multilateral Partnership against Cyberthreats
IN <sub>3</sub>	Interdisciplinary Internet Institute
IP	Internet protocol
IPR	Intellectual property rights
ISDN	Integrated Services Digital Networks
ISO	International Organization for Standardization
ISP	Internet Service Provider
IT	Information technology
ITU	International Telecommunication Union
IWB	Interactive whiteboard
IWF	Internet Watch Foundation
IXPs	Internet Exchange Points
JISC	Joint Information Systems Committee
JPEG	Joint Photographic Experts Group
LACNIC	Latin America and Caribbean Network Information Centre
LAN	Local area networks
LHC	Large Hadron Collider
LP	Learning platform

LTS	Large technical systems
LTT	Libyan Telecom and Technology
MDG	Millenium Development Goals
MDS	Multidimensional scaling
MENA	Middle East and North Africa
MMO RPG	Massively multiplayer online role-playing games
MOO	Multi-user object-oriented technology
MPAA	Motion Picture Association of America
MUD	Multi-user dungeon
NCSA	National Center for Supercomputer Applications
NGA	Next generation access
NGO	Non-governmental organization
NIE	Newly industrialized economies
NII	National Information Infrastructure
NSA	National Security Agency
NSF	National Science Foundation
NTIA	National Telecommunication and Information Administration
OECD	Organization for Economic Co-operation and Development
OER	Open educational resource
OII	Oxford Internet Institute
PET	Privacy enhancing technologies
PII	Personally identifiable information
PIU	Problematic Internet use
R&D	Research and development
RBOC	Regional Bell Operating Companies
RDF	Resource Description Framework
RIM	Research in Motion
RIPE NCC	Regional Internet Registry Network Coordination Centre
RIR	Regional Internet Registries
SES	Socioeconomic status
SIDE	Social identity model of deindividuation effects
SMTP	Simple Mail Transfer Protocol
SND	Swedish National Data Service
SNS	Social networking sites
SPLASH	Structure of Populations, Levels of Abundance, and Status of Humpbacks
SaaS	Software as a Service
SSCI	Social Sciences Citation Index
SSL	Secure Socket Layers
STS	Science and Technology Studies
SwiNG	Swiss National Grid Association
TCP	Transmission Control Protocol
TLD	Top-level domains

---

TPB	The Pirate Bay
TRIPS	Trade-Related Intellectual Property and Services Treaty
U&G	Uses and gratification
UCC	User created content
UDRP	Uniform Domain Name Dispute Resolution Policy
UNESCO	United Nations Education, Scientific and Cultural Organization
URI	Uniform Resource Identifier
VoIP	Voice over Internet Protocol
VOSON	Virtual Observatory for the Study of Online Networks
VPNS	Virtual property network servers
W3C	World Wide Web Consortium
WAP	Wireless Application Protocol
WELL	Whole Earth 'Lectronic Link
WGIG	Working Group on Internet Governance
WIP	World Internet Project
WIPO	World Intellectual Property Organization
WSIS	World Summit on the Information Society
XML	Extensible Markup Language

## NOTES ON THE CONTRIBUTORS

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**Colin J. Bennett** researches on privacy and surveillance and teaches in the Department of Political Science at the University of Victoria, Victoria, British Columbia, Canada.

**Pablo J. Boczkowski** is a Professor and Director of the Program in Media, Technology and Society in the Department of Communication Studies, Northwestern University, Evanston, Illinois, USA.

**Danah M. Boyd** is Senior Researcher at Microsoft Research, a Research Assistant Professor in Media, Culture, and Communication at New York University, a Fellow at Harvard's Berkman Center for Internet and Society, and an Adjunct Associate Professor at the University of New South Wales, Australia.

**Gustavo Cardoso** is an associate researcher at CIES, ISCTE-IUL, and Professor of Technology and Society at ISCTE—Lisbon University Institute, Lisbon, Portugal.

**John Carey** is Professor of Communications and Media Management in the Fordham University Schools of Business, New York City, USA.

**Regina Connolly** is a Senior Lecturer at Dublin City University, Ireland, and Editor-in-Chief of the *Journal of Internet Commerce*.

**Michael A. Cusumano** is the Sloan Management Review Distinguished Professor of Management at the Massachusetts Institute of Technology's Sloan School of Management, Massachusetts, USA, with a joint appointment in the MIT Engineering Systems Division.

**Matthew David** is a Senior Lecturer in Sociology at Durham University's School of Applied Social Sciences, Durham, UK.

**Chris Davies** leads the Learning and New Technologies Research Group at the Department of Education, and is Vice President of Kellogg College, University of Oxford, UK.

**Laura DeNardis** is an Associate Professor in the School of Communication at American University and a Fellow of the Yale Information Society Project at Yale Law School, USA.

**William H. Dutton** is the Quello Professor in the Department of Media and Information at Michigan State University, where he is Director of the Quello Center. He was founding Director of the Oxford Internet Institute, University of Oxford, UK, and an Emeritus Professor at the University of Southern California, USA.

**Nicole B. Ellison** is an Associate Professor in the School of Information at the University of Michigan, USA.

**Martin C. J. Elton**, was a Professor and Chair in the Interactive Telecommunications Program at New York University's Tisch School of the Arts, and Director of the Columbia Institute for Tele-Information while a Visiting Professor of Business at the Columbia Business School, New York City, USA.

**Rebecca Eynon** is a Research Fellow in the Oxford Internet Institute, and Lecturer in the Department of Education at the University of Oxford, UK.

**Ryan P. Fuller** is an Assistant Professor in the Department of Speech Communication, University of Arkansas at Little Rock, USA, and a researcher for the Carsey-Wolf Center.

**Andreas Goeldi** is the Chief Technology Officer of online video marketing company Pixability Inc. in Cambridge, MA. He co-founded several successful start-ups in Internet technology and online marketing.

**Barrie Gunter** is Professor of Mass Communication, Department of Media and Communication, University of Leicester, UK.

**Wendy Hall**, DBE, FRS, FREng is Professor of Computer Science at the University of Southampton, UK, and Dean of the Faculty of Physical and Applied Sciences. She was Head of the School of Electronics and Computer Science from 2002–07.

**Eszter Hargittai** is the Delaney Family Professor of Communication Studies in the Department of Communication Studies, Northwestern University, Illinois, USA.

**Paul Henman** is Associate Professor of Social Policy, University of Queensland, Australia.

**Yuli Patrick Hsieh** is a Doctoral Candidate in the Media, Technology & Society Program, Department of Communication Studies, Northwestern University, Illinois, USA.

**Adam S. Kahn** is a doctoral candidate at the Annenberg School for Communication and Journalism at the University of Southern California, USA.

**Tiago Lapa** is a researcher at CIES, ISCTE-IUL, Portugal. He has an Mphil degree from Cambridge University, UK, and is a doctoral candidate in the School of Sociology and Public Policy, ISCTE-Lisbon University Institute.

**Guo Liang** is an Associate Professor in the Institute of Philosophy, and Director of the China Internet Project, Chinese Academy of Social Sciences, Beijing, China.

**Darren G. Lilleker** is Senior Lecturer and Director of the Centre for Public Communication Research at Bournemouth University, UK.

**Robin Mansell** is Professor of New Media and the Internet in the Department of Media and Communications of the London School of Economics and Political Science, London, UK.



**Helen Margetts** is Director, Oxford Internet Institute, Professor of Society and the Internet, and Professorial Fellow of Mansfield College, all at the University of Oxford, UK.

**Eric T. Meyer** is a Research Fellow in the Oxford Internet Institute, University of Oxford, UK.

**Eugenia Mitchelstein** is a doctoral candidate in the Department of Communication Studies, Northwestern University, Evanston, Illinois, USA.

**Victoria Nash** is Deputy Director and Policy and Research Fellow at the Oxford Internet Institute, University of Oxford, UK.

**Kieron O'Hara** is a senior research fellow in Electronics and Computer Science at the University of Southampton, UK.

**Christopher Parsons** is a Postdoctoral Fellow at the Citizen Lab, Munk School of Global Affairs at the University of Toronto, Canada.

**Jack Linchuan Qiu** is an Associate Professor in the School of Journalism and Communication, the Chinese University of Hong Kong.

**Ronald E. Rice** is the Arthur N. Rupe Professor in the Social Effects of Mass Communication, and Co-Director of the Carsey-Wolf Center, in the Department of Communication at the University of California, Santa Barbara, California, USA.

**Christian Sandvig** is an Associate Professor in the Department of Communication Studies at the University of Michigan, USA.

**Ralph Schroeder** is Professor and Director of Research in the Oxford Internet Institute, University of Oxford, UK.

**W. Edward Steinmueller** is Professor at SPRU—Science and Technology Policy Research, University of Sussex, UK.

**Mike Thelwall** is Professor of Information Science, School of Technology, University of Wolverhampton, UK.

**Tim Unwin** is Chief Executive Officer of the Commonwealth Telecommunications Organisation, and Emeritus Professor of Geography and UNESCO Chair in ICT4D at Royal Holloway, University of London, Surrey, UK.

**Thierry Vedel** is a senior researcher of the Center for Political Research at Sciences Po (CEVIPOF), Sciences Polytechnic, Paris, France.

**Dmitri Williams** is an Associate Professor at the Annenberg School for Communication and Journalism, University of Southern California, USA, where he is a part of the Annenberg Program on Online Communities (APOC).