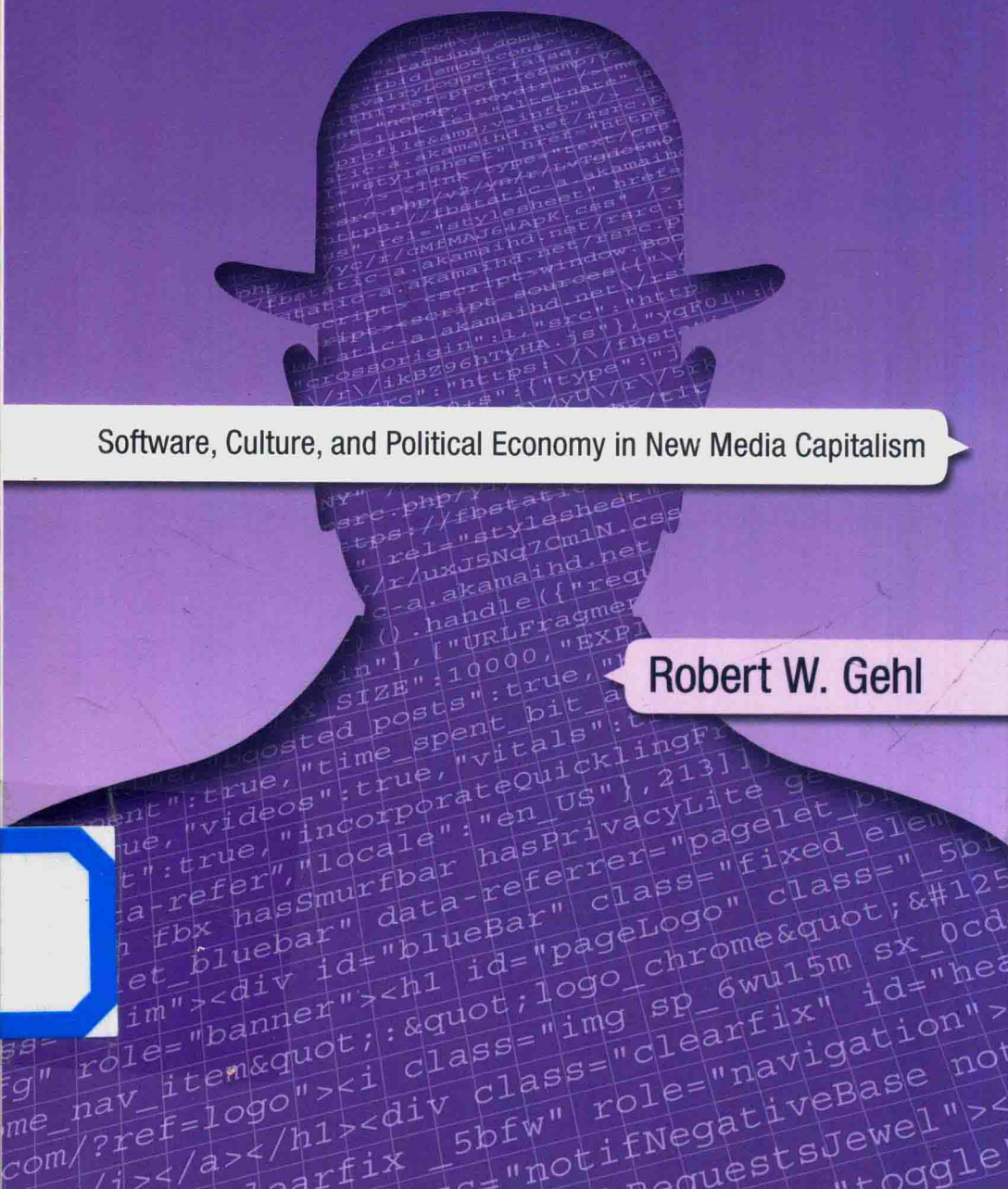
Reverse Engineering Social Media



Software, Culture, and Political Economy in New Media Capitalism

Robert W. Gehl

Reverse Engineering Social Media

Software, Culture, and Political Economy in New Media Capitalism

Robert W. Gehl

常州大学山书馆
藏书章

TEMPLE UNIVERSITY PRESS
PHILADELPHIA

TEMPLE UNIVERSITY PRESS
Philadelphia, Pennsylvania 19122
www.temple.edu/tempress

Copyright © 2014 by Temple University
All rights reserved
Published 2014

Library of Congress Cataloging-in-Publication Data

Gehl, Robert W.
Reverse engineering social media : software, culture, and political economy in new media capitalism / Robert W. Gehl.
pages cm
Includes bibliographical references and index.
ISBN 978-1-4399-1034-4 (hardback : alk. paper) — ISBN 978-1-4399-1035-1 (paper : alk. paper) — ISBN 978-1-4399-1036-8 (e-book) 1. Online social networks. 2. Social media. I. Title.
HM742.G44 2014
302.3—dc23

2013042506

Printed in the United States of America

102714P

Reverse Engineering Social Media

To all those who are fighting for a better media system,
working uphill to build alternatives to mainstream social media,
exposing the internal details of the surveillance system,
or contributing to free software

此为试读,需要完整PDF请访问: www.ertongbook.com

Acknowledgments

Anyone who takes seriously actor-network theory knows that a book is a punctualization of a large, heterogeneous network of many ingredients. Nonhuman actors who contributed to this book include my dogs, my pet praying mantis, and the mountains outside my window—not to mention Treasure Valley Coffee, Linux Mint (with Mate, of course), Zotero, Gnome Do, Libreoffice, computer screens, nineties grunge rock and seventies soul, hundreds of books, guitars, wireless mice, and science fiction movies.

But I will spend more time thanking humans. First, I thank the staff and editors at Temple University Press. Mick Gusinde-Duffy got the ball rolling, and Micah Kleit picked it up and finished the job. I hope they are as happy with this work as I have been working with them. I especially want to thank Heather Wilcox and Joan Vidal, who have put this book through the copyediting wringer; it's a far better book for it!

A special thank-you goes to the Tanner Humanities Center at the University of Utah, especially to Bob Goldberg, Beth Tracy, and Josh Elstein. The Tanner Center hosted me as an Aldrich Fellow in the spring of 2013, which allowed me to work on this book without any distractions. In addition, my fellow Fellows at the center helped

workshop ideas with me. Many of their suggestions are reflected in the text.

In addition, I owe a great deal to my colleagues in what I jokingly call the "Will THIS Get Me Tenure?" Writing Group at the University of Utah: Anya Plutynski, Mike Middleton, Casey Boyle, and Danielle Endres. Mike and Casey, especially, sparked ideas that appear in this book. Mike made very important suggestions early in the life of Chapter 1. And Danielle has been the heart of the writing group, showing us all what it means to write often and write well.

At Utah, I have enjoyed the support and intellectual camaraderie of all my colleagues in the Department of Communication, especially Mary Strine, Suhi Choi, Len Hawes, Jake Jensen, Bob Avery, Ann Darling, Heather Canary, Robin Jensen, Helga Shugart, the Jims (Jim Anderson and Jim Fisher, roof builders extraordinaire), Marouf Hasian, Joy Pierce, Kevin Deluca, Ye Sun, and Glen Feighery. Special thanks go to Connie Bullis, who helped expand my perspective on the field of communication and gave me the confidence to work with the graduate students; Avery Holton and Julianna Holton, who were happy and willing babysitters; Kevin Coe and Julia Coe, who watched my pet Chinese praying mantis; and Kent Ono and family for their support and guidance.

I also have students who contributed to this project by, well, being great students and pushing my thinking, especially Amanda Friz-Siska, Sarah Bell, and the entire Culture of Computing undergraduate course. I was so impressed by the students in that class, and they had such a great impact on the writing of this book, that I told them I would thank them by name. As promised, here goes: Jace Bradford, Tyler Pratt, Colin Cronin, Kaylynne Hatch, Cramer England, Chet Cannon, Jeff Dunn, John Foote, Spencer Broste, Katy White, Lucy Shephard, Andreas Riviera, Lauren Doxey, and Kyle Biehl. What a great class!

Much of who I am intellectually has come from my friends and mentors at George Mason University's Cultural Studies program. I benefited from working with Paul Smith and Roger Lancaster. I have too many friends among the students to name them all, but the ones who had a direct impact on this work are Jarrod "Ragin'" Waetjen, Vicki Watts (5G sends love to Adelaide!), Randall Cohn, Randa Kayyali,

Fan Yang (as predicted, you won the TCS race!), Kristin Scott, Lia Uy-Tioco, and Tara Sheoran. I especially thank my dissertation committee: Tim Gibson, Alison Landsberg, Mark Sample, and—above all—Hugh Gusterson. If I can be half the teacher Hugh is—and if I can be half as intellectually brave as he is—I will be successful.

A great deal of this work was presented at conferences far and wide, and I owe much to my colleagues and friends in several conference circuits. The Cultural Studies Association has become an intellectual home to me, and I have had great discussions about theory and culture with Jaafar Aksikas, Sean Andrews, Jamie "Skye" Bianco, Meg Turner, Bruce Burgett, Ted Striphas, and Patricia Clough. I have also had the privilege of being invited to present at Compromised Data, hosted by Greg Elmer, Ganaele Langlois, and Joanna Redden at Ryerson University and attended by such great scholars as Jean Burgess, Carolyn Gerlitz, Taina Bucher, Axel Bruns, Alessandra Renzi, and Fenwick McKelvey. It was as though one of my Works Cited pages came to life and drank beer with me. Finally, and probably most importantly, I was invited to present at the first Unlike Us conference in Cyprus. There I met Geert Lovink and Korinna Patelis, and I got my first up-close exposure to the world of social media alternatives (such as Mark Stumpel's wonderful Facebook Resistance project). Since then, Lovink and Patelis have put on multiple Unlike Us events, bringing together critical scholars and hacktivists to think through what it means to build a better social media system. This book is tremendously influenced by those conferences.

Portions of this work appeared in several journals. Material from the Introduction was originally published as R. W. Gehl and Sarah Bell, "Heterogeneous Software Engineering: Garmisch 1968, Microsoft Vista, and a Methodology for Software Studies," *Computational Culture*, no. 2 (2012). Material from Chapter 1 was originally published as Robert Gehl, "What's on Your Mind? Social Media Monopolies and Noopwer," *First Monday* 18, no. 3/4 (March 2013). An earlier version of Chapter 2 was originally published as Robert Gehl, "The Archive and the Processor: The Internal Logic of Web 2.0," *New Media and Society* 13, no. 8 (December 2011): 1228–1244. An earlier version of Chapter 3 was originally published as Robert Gehl, "Real (Software) Abstractions:

On the Rise of Facebook and the Fall of Myspace," *Social Text* 30, no. 2 111 (2012): 99–119 (copyright 2012, Duke University Press; all rights reserved; reprinted by permission of the present publisher, Duke University Press; www.dukeupress.edu). I am grateful for the feedback I received from the anonymous reviewers and editors involved with these early publications, especially Matt Fuller and Jonathan Beller.

Finally, closer to home, I thank my new friends Sean Lawson and Cynthia Love, who are the best people in the world to eat ribs and watch football with. I am grateful to my oldest friends, Ry, Mony, Brian, and Dan; every summer, they remind me how to kick it old school. I thank my in-laws, especially Captain Joe, for taking me fishing and camping in the summers to help me get away from work. I gratefully acknowledge my mom and dad and brother; I cannot begin to trace how their love has shaped my work. And I thank the two TJs: Teddy, my son, who is right now refusing to nap because he is a happy guy who loves to play, and Jesse Houf, my partner, who more than anyone in the world remains my inspiration to keep working and who is most responsible for my earning a Ph.D.

Thank you all.

Contents

Introduction

Looking Forward and Backward

Heterogeneous Engineering of Social Media Software

sumoto.iki's web2diZZaster

Web artist sumoto.iki's "web2diZZaster" is a collection of bland, muted pastel images containing little more than rectangles and lines.[1] The images are unremarkable, even unattractive, and it is hard to determine what they represent. And yet, many of these images seem eerily familiar. A second glance reveals why: these muted rectangles take shape as common social media sites. Digg, the social bookmarking site, is identifiable by the peach tabs that indicate the number of "diggs" that users have given to various stories. The tabs are empty, as is the rest of the page, but this largely empty frame is still recognizable. Myspace, the failed (and resurrected) social-networking site, is identifiable by its blue banner and log-in fields, and directly below it is Facebook's even more sedate (but much more successful) home page. YouTube is harder to recognize until the viewer sees the iconic red polygon and the two series of four rectangles where featured videos normally appear. Although its design has changed since sumoto.iki made this project, Twitter is perhaps the most recognizable because of its light blue field and narrow, prominent center column.

I am having trouble describing the momentarily unsettled response I had to sumoto.iki's art. However, after a moment of squinting at the

此为试读,需要完整PDF请访问: www.ertongbook.com

images and contemplating, I realized that sumoto.iki presents all these flagship social media sites *without any user content*. Without comments, videos, lists of friends, and editorial recommendations, these sites appear as "ghostly forms," which sumoto.iki describes as a "first impression of a possible apocalypse where only HTML vestiges would remain inside a dehumanized network of all networks." The disaster in "web2-diZZaster" is the social Web at the end of humanity. It is the tragic silence of a world without tweets, status updates, YouTube videos, diggs, and Facebook connections. When I viewed this art, all I had to go on were the surface manifestations of the most basic elements of HTML, PHP: Hypertext Preprocessor, Javascript, and CSS: div tags, positions and floats, colors, and lifeless scripts. Within the "dehumanized network" and without user-generated content, these social media sites appear as mere frames, and unappealing ones at that. Without content, these sites are lifeless shells. Without it, social media cannot work.

Of course, social media are working just fine precisely because users *do* contribute so much to these frames. Nearly a billion people populate the social network Facebook, creating constant streams of comments, links, "likes," and applications. Twitter's meteoric growth is also measured in user-generated content. Social bookmarking and link-sharing sites Digg and Reddit command millions of page views, and an upvoted link posted on their pages can drive traffic to websites. Amazon posts millions of user-written reviews of books and products. LinkedIn is filled with job-seekers and headhunters posting résumés and e-introducing one another. Flickr has billions of photos and comments, and Facebook's servers contain the largest collection of user-uploaded photographs in the world thanks to its ownership of Instagram. And the company that is perhaps the exemplar of social media is Google, which relies on user-generated links, videos, social connections, and blogs to power its highly profitable search and advertising business. Investors who participated in the 2004 Google IPO have seen their investment grow substantially; the stock was offered at $85 and as of this writing trades for nearly $1,100. Although Facebook's IPO was much less successful, it still generated $1 billion. Twitter's recent IPO avoided Facebook's missteps to raise nearly $2 billion. This rise in value comes directly from user-created content, all

within the opposite of sumoto.iki's "dehumanized" network. Perhaps we should borrow a phrase from networking company Cisco and call it the "Human Network."

Considering the history of the Web, it seems unlikely that social media would be such a commercial success. Just over a decade ago, the term "dot-com" (i.e., commerce on the Web) drew derision from anyone with an interest in business. The 2000–2001 financial/technology bubble burst resulted from irrational exuberance; investors in online commercial sites, such as Pets.com, lost millions of dollars when that business model failed to catch on. Direct-to-consumer sales of pet supplies, groceries, and gardening supplies had all the sustainability of a paper fire. In addition, investment in the networks themselves—that is, in the physical connections between sites—was drawn to oversaturated corridors, such as between New York and Boston. Just like the housing bubble burst of 2008, in the late 1990s there was a fiber-optic bubble.[2] When it burst, investors withdrew from the market almost immediately. According to PricewaterhouseCoopers, the first quarter of 2000 saw investment in IT peak at $2.8 billion, and the first quarter of 2002 saw investment of only 10 percent of that peak level.[3] Even in the post-Google IPO years, investment has come nowhere close to even 25 percent of the peak of the bubble years.

While the 2000–2001 market rejection of direct-to-consumer marketing of mass-produced goods and online commerce scared venture capitalists seeking to profit from the Web, another more sustained contemporary movement was attacking global capitalism, mass culture, and private property—and relying on the Web to do so. Writing about the Zapatista movement of the 1990s, Maria Elena Martinez-Torres notes that "a paradox has emerged from the revolution in communications: the same technology that has taken world capitalism to a new stage of development—corporate globalization—has also provided a significant boost for anti-corporate and anti-globalization movements."[4] By co-opting the Internet as a space of spectacle and image politics,[5] antiglobalization and progressive movements have been able to transmit their messages to worldwide audiences.[6] Even in the midst of the dot-com euphoria of 1999–2000, protesters were able to use the Web to organize massive, coordinated demonstrations

against the World Trade Organization (WTO) meeting in Seattle. The actions of the estimated forty thousand protesters were supplemented with the advent of Indymedia, a user-led, anticapitalist news source that began as an alternative to mainstream coverage of the Seattle protests. These anticapitalist uses of the Web were engagements in what Nick Dyer-Witheford calls the "struggle for the general intellect."[7] Drawing on Karl Marx's iconoclastic "Fragment on machines" in the *Grundrisse*,[8] Dyer-Witheford argues that the Internet has simultaneously enabled extensions of the Taylorist domination of labor and the very means for labor to short-circuit global capital. On the one hand, the Internet might allow for "fast capitalist"[9] flows of commodities and value realization, but on the other hand, it allows for the fast and space-eroding coordination of protest.

Here, we see two interweaving movements going online. On the one hand, capitalism's cycles of boom and bust came to the Web as the irrational rationality of herdlike investment movements seized on cyberspace as the next great marketplace.[10] On the other hand, the strong counterhegemonic possibilities of the Internet and Web were being explored by an increasing number of "hacktivists," cybersocialists, and antiglobalization agitators seeking to appropriate the Web as a tool of revolution.

This seems to be an unlikely place for social media capitalism to thrive. However, in 2004, technology book publisher Tim O'Reilly and journalist and technology blogger John Battelle confidently stood on stage at the inaugural "Web 2.0 Conference" in San Francisco and argued that Web-based commerce was making a comeback.[11] Their proof came from companies that recognized the chaotic, unpredictable nature of user-generated discourse on the Web and were able to create sites that harnessed this "collective intelligence." In O'Reilly and Battelle's vision of Web 2.0, companies that were appropriating the socially articulated energies, passions, and labors of users—wherever those users might go with them—were not only surviving in the world of online commerce; they were building new media empires.

In this milieu, the practices—but certainly not the anticapitalist politics—of a user-generated site such as Indymedia are replicated

within the user-generated, for-profit CNN iReport, where "citizen journalists" produce and share news stories. The Zapatistas and their supporters are now welcome to connect via Facebook at the Chiapas Project.[12] The spectacle of mass protests drives news coverage, and thanks to the personalization of Google News and user-generated services Reddit and del.icio.us, we can easily keep up with the latest developments. Dyer-Witheford's manifesto *Cyber-Marx* is available on Amazon; those undecided about spending $25 on it can consider several glowing user-written reviews that appear on the listing. In short, social media are the corporate response to the mass creativity, collaboration, and desires of networked peoples. It is a tacit admission by large media companies: when given a choice, people prefer content produced and recommended by themselves and their friends to that recommended by editorial authorities. They are leery of mass culture and globalized corporations, so they seek to create their own culture.[13] They express political opinions and offer frank assessments of commodities, corporations, and states, and they openly share these opinions with their friends and colleagues.

However, it is not as though new media capitalists are simply stepping aside and allowing users to lead the way, let alone slough off capitalist media production. Clearly, social media outlets are new media capitalism's attempt to absorb and capture this explosion of user-generated content as objectified surplus value. Whatever the form—from fandom to antiglobalization manifestos—if the user-generated content occurs within what sumoto.iki calls the "ghostly frames" of many social media sites, it is being exploited for profit.

Sumoto.iki's artwork, then, is a useful illustration of the central argument of this book: social media need to be understood not just as a collection of sites that place the users at the center, nor just as a radical reform to the top-down, authoritarian model of mass media. Social media also have to be understood as software engineered to privilege and enhance certain users while closing off others. To be sure, the "ghostly frames" that sumoto.iki depicts are notable for their absence of user-generated content, but they are also notable because they *are in fact a framework for users to inhabit and populate.* This software

framework contains a contradiction: on the one hand, social media allows for users to "be the media" and thus influence mass culture; on the other hand, social media sites are rigidly hierarchical, allowing certain uses and discouraging others, while site-owners constantly watch users' movements and exploit users as what Tiziana Terranova has aptly described as "free laborers."[14] As she argues, free labor is rife with contradictions: it is freely given yet exploited; it is done for love, yet hypervalorization haunts and directs it; it is work, but it is play. Similarly, the "ghostly frames" sumoto.iki reveals are simultaneously sites of user freedom and rigid structures of exploitation. Social media must be understood along these lines, and to do so, we have to turn to computer architecture design as a key source for this contradiction. As Lawrence Lessig argues, "Code is law."[15] The architecture and software matter.[16]

However, despite the limitations of and problems with the social media architecture, what do we make of social media's progressive aspects, started by the Zapatistas and the anti-WTO movement and progressing to the Arab Spring and Occupy Wall Street movements? It is myopic to only talk of exploitation while ignoring the power of new social movements. Here, I suggest that such movements indicate the pressing need for users to take an active role not only in producing online content but also in shaping the structure of the sites themselves. The fact that Occupy and the Arab Spring have achieved what they have *despite* the surveillance and exploitation of social media makes me wonder: what if social media were built to help *advance* activism and politics rather than constrain them? Again, the architecture matters. To alter social media to meet this goal, users and activists must be engaged early and often with the development of social media architecture and software to avoid many of the social inequalities and problems with privacy we currently are witnessing. Indeed, they would have to reverse engineer social media. I want this book to help point the way toward a better Web, one designed for progressive politics. In other words, I outline ways in which the structures and cultures of new media capitalism and social media software can be reverse engineered, hacked, altered, and maybe even renewed.

Software Studies and Engineering Metaphor(s)

Thus, this book is a contribution to the growing field of software studies. In the words of Rob Kitchin and Martin Dodge:

> Complementing the work of computer scientists on the mechanics of software development and human computer interaction, and research on digital technologies more generally, social theorists, media critics, and artists have begun to study the social politics of software: how it is written and developed; how software does work in the world to produce new subjects, practices, mobilities, transactions, and interactions; the nature of the software industry; and the social, economic, political, and cultural consequences of code on different domains, such as business health, education, and entertainment.[17]

Software is ubiquitous. It structures many of our spaces, mediates much of our communication, helps shape our collective and individual memories, and underpins global economics. Software is an obvious part of our daily lives as we use computers and smartphones, but it is also a hidden substrate operating out of view: running automobiles, controlling infrastructure, algorithmically calculating credit and finance, storing data on myriad human and nonhuman flows, and collecting evidence of past behaviors. It provides us with new ontologies and epistemologies as we ponder what it means to be human in an age of smart machines and smarter phones.

Software studies is a critical interrogation of this multifaceted object. Theorists and scholars working in this field study how power operates in relation to software: who writes it? Why? To what purposes? What are the conditions of its production? How does it shape uses? What is its architecture, and why was that architecture selected over competing ones? How do users reappropriate, extend, build on, or break it? What can code, layers of software, the software/hardware relationship, network topologies, and the software/user relationship tell us about our assumptions about subjectivity and identity? Software studies does more than just analyze lines of code; rather, it evaluates

此为试读,需要完整PDF请访问: www.ertongbook.com