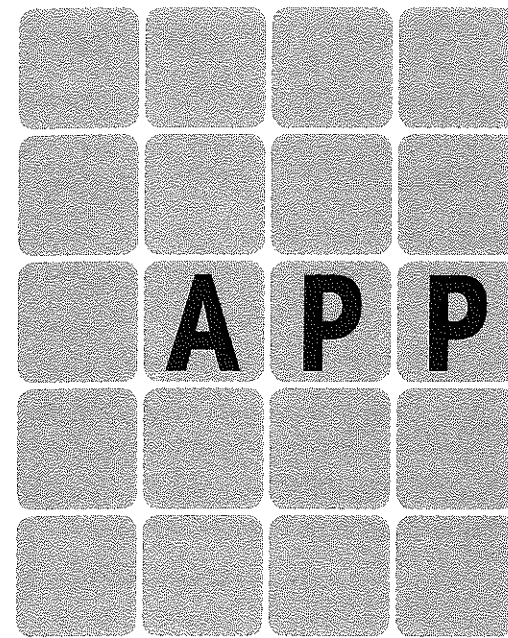




APPIFIED

Culture in the
Age of Apps

Jeremy Wade Morris
and Sarah Murray,
Editors

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Ann Arbor

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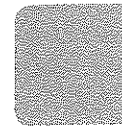
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and enthusiastic suggestions have made this collection better and in turn, we hope this text will serve you better in your classes and your research.

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Introduction

Snapchat. Whisper. Yik Yak. Electric Razor Simulator. Vibrator Secret for Women. IAmAMan. I am Important. Candy Crush. Spotify. Evernote. Uber. Boom Boom Soccer. Emoji Keyboard. Is It Vegan? Is It Dark Outside? Is It Tuesday? Is It Love? MapMyFitness. MapMyDogWalk. MyPill Birth Control Reminder and Menstrual Cycle Calendar Tracker. SmartMom. Waiting for Birth. Waiting for Birth Pro—Father's Version. Baby Shaker. Gay-O-Meter Full Version. Tinder. Grindr. AgingBooth. Black People Mingle. iGun Pro—The Original Gun Application.

How else to open discussion on an ecosystem as complex, fascinating, frightening, and culturally significant as apps than with a list? Not only are app stores themselves ordered by lists ("Top Free Apps!" "Best Games!" "New Apps We Love!"), but listing even a small smattering of titles from the millions of apps that now exist reveals the strange encounters and endless choices users face with every visit to an app store. There are apps to help us communicate, travel, sleep, play, and learn. There are apps to help us hide, cheat, share, shop, and save. Some apps keep us connected, informed, delighted, entertained, and safe; others leave us distracted, deceived, disappointed, and addicted. We watch, use, touch, feel, and listen to apps. Apps use, watch, track, follow, monitor, and sell us in return. There are apps that promise to make us better workers, parents, friends, and lovers, and apps whose premise shows the worst sides of what it means to be human. When we look at any single app, it's often hard to conceive how such a trivial and small piece of software could be particularly notable. Viewed from further back, though, from a wide-angled list that apposes each app with like and unlike others, we can start to make connections between all that app stores have to offer—between casual games and productivity suites, between weather apps and dating services, between hidden photo vaults and anonymous activist apps.

The singular insignificance of most of the apps listed above belies the very real collective significance the format represents as an emerging economic market and cultural platform. The apps above are a tiny fraction of the over two million apps available across dozens of app stores (PocketGamer 2016;

Statista 2016a). Apps represent the fastest-growing subsector of the software industry, involving thousands of independent and established developers, from hundreds of countries, and the software they create finds its way into smartphones, mobile devices, cameras, televisions, cars, game consoles, fridges, and other technologies. Media researchers are well versed in theories and methods for understanding the complex ways people make and take meaning from cultural goods like films, songs, video games, and television, but the small and everyday nature of apps as well as their newness as a format has left them understudied and their cultural significance largely unaddressed.

At first glance, after all, apps do seem rather trivial. They are abundant, cheap, or free and often serve limited functions. They can have a rapid rise from obscurity to overnight success, but they fade quickly as different apps emerge, tastes change, or as operating systems update and force obsolescence. Most apps are built to solve mundane, everyday problems: keeping track of one's schedule, waking up, remembering the milk, taking notes, planning workouts. But the quotidian activities they influence and encompass are far from banal: connecting with friends (and strangers), sharing memories (and personally identifying information), making art (and trash), navigating spaces (and reshaping places in the process). Although the sheer number of apps may be overwhelming, as are the range of activities they address, each one offers an opportunity for media and cultural studies scholars to seek out meaning in the mundane. Rather than treat apps as frivolous or incidental, what insights reveal themselves if we take apps seriously, as a specific manifestation of software, as a vector for popular culture, and as a particular aesthetic and functional presentation of code that has expanded the market for software and further integrated it into leisure, commercial, educational, interpersonal, and other spheres of everyday activity?

Appified seeks to answer this question by drawing on the research of emerging and established scholars from a variety of disciplines and backgrounds. Each contributor to this book was tasked with analyzing one individual app and thinking through the issues it raises not only for software as a form of media but also for the relationships between users and their software (and ultimately, users and each other). We began the project with a few key questions in mind: How are apps different from other forms of software? How does the mundane nature of apps reconfigure our ideas of what software can and should do? How do app interfaces affect the experiences of users and the media/cultural content they produce, consume, and interact with? What do different categories of apps (productivity, health and fitness, social, educa-

tion, communication) say about the ideologies embedded and represented in apps? What digital divides do apps exacerbate? What presumptions do apps and their developers make in the design, functionality, and mode of address of their apps? What opportunities, if any, do apps present for resistance, activism, and subversion through technology? This intentionally broad set of questions is meant to mirror the wide range of apps that populate various app marketplaces and the wide range of analyses that apps make possible. After all, apps, as research objects, cross fields and disciplines.

Apps also pose methodological and theoretical hurdles: How does one research an app that is updated frequently with new features and may only last a few months? (Several of the apps in this collection, indeed, shut down during our production process.) Similarly, how might researchers approach an app built for a specific event, location, or time period? How does a researcher analyze and explain the experience of an app? How do we study the ways that apps are categorized, approved, banned, or featured when these are notoriously mysterious and proprietary processes? Thankfully, our contributors met and surpassed these challenges by thinking about apps both as individual nodes in larger networked media industries and, collectively, as vectors for the production, transmission, and interactions of culture. The result is a volume as ambitious in breadth as it is in depth—a transdisciplinary, geographically, and institutionally diverse collection that aims to make sense of this burgeoning industry and this emerging form of software.

Our modest table of contents of thirty apps is but a drop in the ocean of the app-o-sphere, but we hope *Appified* highlights the range of critical cultural analyses that apps open up when examined as microscopic case studies symptomatic of broader social-technological practices. Ultimately, as the title of this volume suggests, we wanted *Appified* to provide a study of a historically specific moment when an increasing number of everyday activities and routines are being expressed through, carried out by, and experienced as apps. We believe there is much to be learned from this particular moment, one in which cultural products and communication practices are increasingly being appified.

Planet of the Apps

While their colorful, glossy, rounded-edge icons and innovative, personalized features encourage users to be swept up in their newness, apps are more ac-

curately the latest iteration of the software commodity, whose longer history includes formats as varied as punch cards, preinstalled code, boxed software (shrinkware) on floppy discs, hard disks and CD-ROMs, as well as digital bits delivered via direct downloads or online streaming services. Although as recently as the 1960s, software was preinstalled on computers and not technically a distinct commodity (Johnson 2002; Pugh 2002), it was gradually unbundled through the late 1960s and early 1970s (Boudreau 2012; Campbell-Kelly 2003). This led to the emergence of a dedicated software industry, complete with producers, publishers, retailers, and, of course, customers. Corporate and organizational software flourished during this early period (Campbell-Kelly 2003), as did games (de Peuter and Dyer-Witherford 2005; Newman 2017), and by the early 1980s, the term “app” became a common one used as shorthand in tech press articles to describe the various kinds of software applications available (Morris and Elkins 2015). The advent of the web in the early 1990s and its subsequent development through the late 1990s and early 2000s brought a diversity of novel software such as Flash animations, music and video software, email programs, map applications, web games, and more, casting a wide definition around what was considered an app. With the near concurrent rise of mobile phones during this period, software spread from computers and the web to mobile devices like phones, PDAs, and tablets. An early prototype phone from IBM in 1992, for example, offered users access to maps, stocks, and news information (Sager 2012), while more mainstream handset makers like Nokia and Ericsson added small programs—usually in the form of games like *Snake* or *Tetris*—to their cell phones as a way to distinguish their phones from the competition. There were even online stores, like GetJar (founded in 2004), that allowed users to search for and download software onto their phones.

The launch of Apple’s iPhone in 2007 and the iOS (Apple’s mobile operating system) store in 2008, then, is not so notable for being the first phone to include apps, or the first distribution outlet for mobile software, but rather for crystallizing a certain definition of apps that has come to shape how we think of the relationship between software and ourselves. Web apps still exist and other forms of software are still referred to as apps, but the term “app” now has greater internal discursive coherence and narrower boundaries, in part because of the visual, aesthetic, and technical design of those small and stylish bundles of code that users have been downloading to their phones, tablets, and televisions over the last decade.

After opening up the iPhone to third-party app developers in 2008, the

iOS store debuted with close to five hundred apps that garnered over 10 million downloads during its first weekend (Apple 2008). Other tech companies, like Google, Amazon, and Research In Motion (RIM) quickly launched app stores of their own, as did global tech companies and sites like Wandoujia (China), Baidu (China), Anahi (China), Aircel (India), Yandex (Russia), GetJar (Lithuania), and SK T-Store (South Korea). While Apple and Google Play remain the market leaders for revenues, app store downloads, and number of users both domestically and abroad, many of the sites listed above are becoming key outlets for the production and circulation of apps. China, for example, where Google Play has little presence, has over two hundred app stores (Shu 2014), the largest of which, Tencent MyApp, counts around 500 million users who, collectively, download over 100 million apps a day (Riaz 2014, Yip 2015). As Nina Li points out (in this volume), these app stores not only demonstrate the shifting nature of software distribution and commodification, but they also serve as definitive cultural guides to mobile media experiences for users, particularly for China’s significant population of migrant workers.

The global popularity of apps has made them big business. App Annie, a leading ratings and statistics provider for the app ecosystem whose influence is both described and critiqued in Patrick Vonderau’s chapter (this volume), estimates that the gross revenues of global mobile app stores grew to \$86 billion in 2017 and may exceed \$101 billion in 2020 (App Annie 2018; App Annie 2016). App store downloads grew 60 percent to 175 billion in 2017 and reach 284.3 billion by 2020, up from the 111.2 billion downloads logged in 2015 (App Annie 2018; App Annie 2016). Given that global smartphone penetration is currently around 25 percent and expected to grow to 35 percent by 2020, apps are quickly becoming one of the most frequent ways users interact with software (Anderson 2015; Statista 2016b). Estimates suggest that US smartphone users spend about forty hours a month on apps (Nielsen 2015; Rosoff 2016), and, globally, total time spent in apps on Android phones grew by 63 percent from 2014 to 2015. But while our appetites for apps seems broad—the average number of apps a US smartphone owner has downloaded at any one time is twenty-seven—we are ultimately creatures of habit, with a majority of users employing only four to six apps daily (Smith 2014; Statista 2015). In other words, apps are now a primary platform of their own, sometimes surpassing previous ways of interacting with media, brands, and other cultural content. As Finn Brunton’s analysis of WeChat’s routinization of financial transactions demonstrates (this volume), apps are insinuating themselves further and further into the patterns of our everyday lives and becoming more habitual and second nature in the process. App

Annie's (2016a) self-serving claims that "apps are eating the Web" may be a bit far-fetched, but it is clear that apps aim to present an alternate version of what it means to be connected and what it means to interact with digital information.

Collectively, this volume argues that apps are a form of software packaging, presentation, distribution, and consumption that significantly shifts users' relationships with software and their understanding of what software does and can do. Not only is the number of apps and the pace at which they have become a primary model for making, circulating, and using software remarkable, but also apps represent a moment of historical rupture in the selling of software. Apps are an aesthetic mode of selling digital objects—one that has been mimicked and ported to a wide range of devices and other media forms. Apps also signify a new logic of production: while there has long been independent and third-party software development, app stores represent a coordinated effort to corral those disparate actors in a way that provides both a (relatively) seamless user experience and a significant amount of outsourced labor, profit, and brand recognition for the app store owners. App stores represent the digitization not just of the software product (which has long been digital) but also the digitization of the distribution chain, a move that has been far more successful than other online means of selling software and one that affords app store providers, as Tarleton Gillespie's (this volume) essay on banned apps suggests, a significant amount of industrial and moral influence over the software users discover and experience.

Apps also represent a different vision for the future of human-software interaction. Jonathan Zittrain (2008) argues that early personal computers and the nascent internet were designed as "generative" technologies—technologies that allowed users to create what they needed or to build easily upon the work of others rather than forcing users to be subservient to a device's or platform's prescribed uses. Drawing on ideas and practices from the free and open-source software movements (see also Kelty 2008) and theories of the Commons, Zittrain defines generativity as "a system's capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences" (2008, 70). Given the control that manufacturers and app store providers exert over devices and software, technologies like the iPhone or apps represent, in this view, highly sterilized and "appliancized" versions of more generative technologies by not allowing users to tinker with the code, customize devices, or run programs or applications of their choosing. Zittrain's critique arrived just before Apple opened up the iOS platform to third-party developers, at a time when the iPhone and its apps were almost entirely closed off to outside

tinkering, save for adventurous jailbreakers and Cydia store users. Others have since argued that truly generative systems are more theoretical than actual (Grimmelmann and Ohm 2010; Thierer 2008), that usable systems and their potential for social and cultural generativity are perhaps more important than an openness to technical tinkering or hackability (Burgess 2012), and that the oversight that platform providers exert over third-party developers allows for *more* innovation and creativity *not* less (Snickars and Vonderau 2012). Yet it's hard not to see apps as driving a more restricted and tethered relationship between software, user, and device. While application protocol interfaces (APIs) and software development kits (SDKs) allow for countless apps to be created for mobile platforms, these third-party apps only allow what Zittrain calls "contingent generativity" (2011); they are only customizable at a surface level, they run on devices that allow for very little tampering or tweaking, and they may ultimately limit a user's perception of what agency they could have with a given piece of technology (Gillespie 2006). As Zittrain writes, "Contingently generative apps will appeal to the market, even as they constrict the ability for truly revolutionary applications to come about, and place unprecedented power in the hands of the platform vendor and the governments that will regulate it" (2012, n.p.).

Apps marry mobile hardware and personal software in ways far beyond what computers and boxed software allowed, ways that stretch software's capabilities and how it is popularly understood and used. Apps are not outside the long history of software, but they do present new configurations and encounters of hardware and software (Miltner, this volume); new gestures (Duguay, this volume), movements (Halegoua, this volume), tactile and sensory experiences (Hagood, this volume), new avenues of affect (Keller and Harvey, Chess, this volume) and new forms of bio-control (Rettberg, this volume) that are embedded into the everyday routines and rituals of users.

Mundane Software

We are not the first to recognize the increasing embeddedness of software in everyday life. Since Lev Manovich's call for a move to "software studies" (2001) to some of the earliest work in the field that formed in response (Chun and Keenan 2006; Fuller 2003, 2008; Galloway 2004; Hayles 2005; Manovich 2013; Wardrip-Fruin 2009; Wardrip-Fruin and Montfort 2003), researchers have noted the power of software is "significant but banal" (Kitchin and

Dodge 2011, 10). As Matthew Fuller argues, “Software forges modalities of experience—sensoriums through which the world is made and known” (Fuller 2003, 63). Increasingly “everyware” (Greenfield 2006), software is also becoming troublingly habitual (Chun 2016). Like other new media, software “matter[s] most when [it] seem[s] not to matter at all” (Chun 2016, 1), when it is integrated so precisely and unremarkably into the rhythms of the everyday that its uses and meanings become second nature, instinctive, repetitive action, and common sense. As software becomes habit, it waffles between conscious routine and unconscious action, between the voluntary and the involuntary, the creative and the mechanical, and thus becomes a prime locus of power and ideology (Chun 2016, 8). Today software is literally in the pockets of millions of users worldwide—a fact that early software studies scholars predicted in theory but had not yet encountered in terms of the material format, cultural logic, and commercial industry that apps have inaugurated. Now more than ever, users delegate a vast swath of everyday activities to highly packaged and curated software on mobile devices.

The influence of apps has piqued the interest of software studies scholars (Bogost 2011b; Bratton 2016; Manovich 2013) but their presence on smartphones, tablets, and other portable platforms has also drawn in scholars from mobile media studies (de Souza e Silva and Frith 2012; Farman 2012; Goggin and Wilken 2012; Wilken and Goggin 2015). Moreover, apps now encompass a number of issues that have been key to cultural and media studies, so projects on labor, production, representation, identity, the public sphere, and surveillance now often have to contend with apps. Svitlana Matviyenko and Paul D. Miller’s recent collection, *The Imaginary App*, presents apps as “an abbreviated software application—figuratively and literally, linguistically and technically: apps are small programs—pieces of software designed to apply the power of a computing system for a particular purpose” (2014, xvii–xviii). The collection’s theoretical pieces, interviews with technologists, and essays about imaginary apps—apps that do not actually exist but work as a form of critique of app culture—offer an important conceptual toolkit for thinking through the realities of mobile and digital culture we try to build on here. Other research on apps, like the special issue of *FibreCulture* on the subject, calls for them to be understood at the intersection of affect and materiality, as “objects that are related to the constitution of subjects, as a component of biopolitical assemblages, and as a means of digital production and consumption” (Mellamphy et al. 2015, 2). Apps’ industrial significance has been investigated, given the app is “particularly powerful in its combination of software design and

price modeling . . . adding genuinely new meanings to an object [i.e., phone] not originally conceived as a mobile platform for consumers to download data in a standardized format” (Snickars and Vonderau 2012, 3) and the ideologies of specific categories of apps—such as productivity (Gregg 2015a) and casual games (Anable 2013)—have been critiqued. Much remains to be said, however, about the apps themselves—their design, their interfaces, their features, their designers and users, as well as the networks of hardware, software, actors and agents they bring together. Luckily, scholarly research is catching up, with apps now central to several emerging research programs (e.g., Duguay 2017; Gerlitz et al. 2016; Nieborg 2015).

In line with these investigations, *Appified* provides analyses grounded in case studies of individual apps and app stores and places those programs in the wider historical and cultural context of media and cultural studies scholarship, attuned to structures of power, modes of access and representation, and issues of identity. By adopting the modular, single-serve ethos apps themselves represent, we hope the volume builds on the above critiques and presents new methodological (Light, this volume) and theoretical vectors (like Sarah Sharma’s focus on temporality in her analysis of TaskRabbit, this volume) for the analysis of this emerging software format.

The collection also further develops the concept of mundane software. “Mundane” is a term to qualify both a particular format of software and the devices that help insinuate that software into our everyday lives. Since for most of software’s history, usage was limited to computers, software has not had the chance to inhabit everyday life to the extent it does currently. As recently as the 1980s, for example, computers were still largely specialized machines for specific purposes (accounting, games, calculating, etc.). The rise of multimedia machines in the 1990s and the proliferation of the internet made computers more essential to everyday life and thus made software more important. But the move to mundane software has as much to do with the phones, watches, televisions, cars, gaming consoles, tablets, and other technologies that have opened up their interfaces to app development as it does with the shifting role of software itself. Put simply, one rarely pulls out a laptop while waiting for the bus to kill time with a casual game, or at the grocery store to check on the shared shopping list, or when walking home, scared, late at night to enable a tracking app to ensure they arrive home safely.

The qualifier “mundane” productively extends the notion of software as and in everyday space by considering how the app represents the mobility, ubiquity, and ready accessibility of software. It also places the app within the

context of “the everyday” long theorized by cultural studies. Mundane, ordinary, banal, and quotidian: media and cultural studies have consistently taken these qualifiers of everyday routines as central to their fields of study. Whether through Raymond Williams’s notion of culture as ordinary (1989), Henry Jenkins’s or Janice Radway’s efforts to identify pockets of resistance in the popular (Jenkins 2014, 1992; Radway 1984), or Erving Goffman’s seminal work on the presentation and management of the self in prosaic social encounters (1959), the study of culture necessitates careful consideration of repeated practices that organize a daily flow. Everyday life is a space and experience that has been colonized by commodities and information technologies but also one of the few arenas where resistance and subversion can authentically originate (Lefebvre et al. 2008). The everyday is a purposeful and known ordinariness, and our ability to imagine and manage that ordinariness as routine is dependent on the media and technologies we incorporate to stifle the “threat of chaos that is the *sine qua non* of social life” (Silverstone 1994, 166–67). The everyday is constructed out of the conditions of possibility for habits to form from the “continuity and reliability of objects and individuals” (Striphas 2009, 10). The patchwork that forms is what Michel de Certeau described as the practice of “making do” (1988), even if affect theorists like Lauren Berlant (2006) and Kathleen Stewart (2007) offer a more cynical take, defining the everyday as the cruel optimism of forward momentum.

By juxtaposing these theories with grounded studies of software, we hope to situate apps as a particular, historical expression of the software commodity that insinuates itself in, and exploits, the mundane in powerful and important ways. Mundane software, then, as Jeremy Morris and Evan Elkins argue, is software that

spreads out beyond the computer and into a vast range of everyday routines and activity. Mundane software is mundane because it is relatively unremarkable: a to-do list app, a bird-watching guide, an app that mimics the sound of a zipper, etc. This is not to suggest mundane means useless or boring. Mundane software can be necessary, affective, and enjoyable, even if it is for everyday tasks like doing groceries or tracking your exercise. But given the diversity and wide-range of functionality apps provide that seem to defy categorization or unification, we suggest their mundane-ness is precisely what allows for the incorporation of software into a range of everyday practices. (2015, 65)

Mundane signifies a material and aesthetic shift in the form of the software commodity from boxed/shrink-wrapped software that costs between forty and

sixty dollars to stylized virtual programs that come freely or cheaply from highly rationalized digital stores. Its flexibility accounts for entertaining distractions (e.g., Temple Run or HQ Trivia), as well as more everyday but essential apps (e.g., the Eat Sleep Baby Tracking app, Rain Rain Sleep app). Mundane software is not a measure of popularity; it can mean programs with hundreds of users (e.g., Stapler Simulator) or those that have attracted millions (e.g., Evernote). It is also not a measure of seriousness; the term is meant to include both novelty apps (e.g., iBeer or Face on Toast) and those more serious in tone (e.g., SMS Lifesavers).

Mundane software is meant to qualify both a particular kind of software—a program that is simple, has a single purpose or limited functionality, is cheap or freely available, is not particularly remarkable in terms of design or content, etc.—and also the ways/places in which it is taken up and used (e.g., during chores, at the store, before bed, waiting for the bus). As Jesper Juul (2010) notes in his discussion of casual games, where “casual” is less about specific generic attributes of a game and more about the practices, interactions, and relationships users have with games and gaming, mundane software is both object and practice. Mundane also helps account for the sheer volume this particular format of software production and distribution encourages. It provides a framework for distinguishing the impact and importance of a particular format of software, at a specific moment in software’s longer history. The mundane constitutes at once the daily imperative of making ends meet (Sharma/TaskRabbit), the pressures to participate in societal rituals (Duguay/Tinder), the relentless daily goal of self-improvement (Schull/Lose It!; O’Riordan/FitBit), and the instrumental acts of communication users take part in to find their place in their communities locally or globally (Gajjala and Verma/WhatsApp). We engage in the mundane when we take in news, politics, and trends (Powers/This.Reader; McKelvey/Hillary For America) and when we seek out our favorite sounds (Razlogova/Shazam), images (Rettberg/Snapchat) or videos (Goggin/TubiTV), even if the interactions that occur in these spaces—among users, between users and information, and between self and identity—raise questions that are essential for understanding the role of new media in processes of communication (Shepherd and Cwynar/YikYak).

We use the term “mundane,” then, purposefully and provocatively to acknowledge commonality among a disparate set of software programs and in an attempt to bring order to the miscellany that app stores both create and encourage. Despite the number and seemingly endless variety of purposes for apps, mundane helps draw connections between software as potentially discordant as an app to play fantasy sports (Lopez, this volume), an app

for participating in a national election as a canvasser or campaign manager (McKelvey, this volume), an instant weather forecasting app like DarkSky, and a walkie-talkie app like Zello that can be used to coordinate both democratic protests and militant ISIS messages. We see potential to expand the scholarly conversation in digital culture if a term like “mundane software” can force connections between, for example, casual games and antiterrorism apps or music-making apps and productivity software (Chess; Elmer and Nasirzadeh; Simon; Murray, this volume). “Mundane” is ultimately a flexible yet useful qualifier for a particular iteration of the software commodity that is marked by its ubiquity, its discardability, and its increasing incorporation into the rhythms, routines, and rituals of daily life through smaller, more mobile devices. It accommodates the popular and the obscure, the trivial and the useful, the fun and the serious, the single-purposed and the multifunctional. Mundane allows us to consider how the ordinary is developed as a market investment (i.e., the rationalized, high-volume production of packaged and marketed apps in Apple and Google stores from a wide variety of developers) while also offering contributors to this volume a frame through which to highlight how apps invite certain uses, how they are distributed and used by various audiences, and how they circulate within the context of daily routines.

The Order of Apps

Dropbox, Waze GPS, Mint Money Manager, Infectious Disease Compendium, Swarm, 7 Minute Workout, Hooch—One Drink a Day, Nigerian Constitution, Dog Supplies, Naughtify—Sexy Adult Emoji for Naughty Couples. This list of apps, like the list that began this chapter, seems unwieldy at first: a jumble of proprietary names, succinct (and strategically vague) descriptions suggesting potential uses and meanings. Each visit to an app store brings us face-to-screen with similarly odd juxtapositions. The relatively low cost of app production and distribution has sparked a plethora of novel ideas for mundane software but also a host of new ways to classify and categorize it: Productivity, Navigation, Finance, Medical, Social Networking, Games, Magazines and Newspapers, Health and Fitness, Food and Dining, Government and Politics, Education, Shopping, Lifestyle, and more. Beyond the categories lay the lists, curated bundles of related content, meant to direct our attention: “New and Updated Apps,” “Top Grossing Apps,” “Our Indie Picks,” “Games Recommended for You,” and so on. These tools for organizing and present-

ing apps highlight different ordering ideologies: objective measures of success, subjective thematic groupings, affective collections by mood or need, algorithmic suggestions from data mining, and editorial recommendations from experts or advertisers. While traditional software retail stores usually classified software in the broadest of swathes, such as Business, Industry, Productivity, Games, and Education (Campbell-Kelly 2003, 208–209), even a casual scroll of today’s app categories show just how far into the realms of the everyday software has spread.

Given the bizarre eclecticism across apps, the ubiquity of lists and categories enforce a kind of ontological order. Categories describe the things within them and prescribe how those things should be perceived and experienced (Bourdieu 1991). They appear as a natural ordering of things and present themselves as common sense. But they also, as Michele White notes about eBay’s lists and categories, “create a set of objects and relationships between objects, articulate what is recognizable and purchasable [and] structure how things can be viewed” (2011, 8). In other words, the process of categorizing reproduces normative articulations of certain objects, texts, and practices to certain identities and, in the case of app marketplaces, produces visible and less visible apps and digital practices. When faced with disorder, lists are “deployed in order to order” (Young 2013, 502), and it’s precisely in this ordering where the power of lists and their subsequent presentation in app stores resides. Perhaps the most notable innovation of app stores, then, is infrastructural: they bring together, package, and present these odd mixings of mundane software in a way that gives them order and coherence and makes them commercially legible. Whereas the software commodity was historically sold through a variety of independent or networked retailers, each with differing levels of quality, reliability, and commerciality, the biggest achievement of most app stores has been the consolidation of a commodity in a way that offers users an easy-to-use, reliable, and secure way to download, install, and use software on their devices.

But the list above also shows the power of lists, at least academically speaking. If the content categories and commercially oriented lists of the app store enforces order and logic and ways of understanding software, our collection seeks to freely associate a number of apps to see what transpires. As Ian Bogost argues, lists can be the “perfect tools to free us from the prison of representation precisely because they are so inexpressive. They decline traditional artifice, instead using mundaneness to offer ‘a brief intimation of everything’” (2012, 40). Despite the power of lists and their ability to direct attention to-

ward some goods and not others, to some causes, beliefs and attitudes and not others (i.e., what else could be in “Top Free Apps” other than the top free apps?), lists also “remind us that no matter how fluidly a system may operate, its members nevertheless remain utterly isolated, mutual aliens” (40). Even if lists work subtly to shape how we navigate digital stores, the list also “disrupts being, spilling a heap of unwelcome and incoherent crap at the foot of the reader. In doing so, a tiny part of the expanding universe is revealed through cataloging” (41).

It is in this spirit that our list of chapters—subdivided into categories—seeks to describe, enact, provoke, and expand. The categories we have chosen to structure this book are drawn directly from various app stores. We do this not to merely mimic industry logics, but rather to reflect on them. While the move is partly performative, we also mean to call attention to the power of lists and categories to structure app stores and users’ experiences of them, and to the logics of commodification that underpin any act of categorization. App designers and producers, for example, must think in these categories: developers must think about how many other apps exist in the category in which they compete for visibility, and they must engage in marketing and other processes (e.g., app store optimization, as Morris discusses in his chapter) that might help get their app ranked in one of the many lists or bundles that adorns the landing pages of various app stores. Knowing which categories are more or less crowded, how to design an icon that both suits the category and stands out within it, or how to increase ratings and visibility for an app are all part of the business of entering any app store. Placing an app in the productivity category, or calling it a utility, or getting it featured in the “Must Have Apps for the Long Weekend” promotional bundle can make a substantial difference in the future success of an app, even if the process of having an app included in such a grouping is both opaque and proprietary. With software delivered directly from the developer to the customer, there’s little need for these artificial designations, but in a unified online retail outlet that aims to present a coherent interface through which to access hundreds of thousands of programs, categories and lists become incredibly important and influential, so app store owners must figure out which categories make the most intuitive sense to consumers and the most financial sense to support. The organization of this volume is meant to call attention to the power these categories enact and to the way they frame how scholars even approach apps in the first place.

However, the need to force mundane software into a manageable and user-friendly interface also means that much of the software sticks out from the cat-

egories to which it is assigned. Our chapter organization strategies also hope to call attention to just how damaging acts of categorization can be. To place a rape activism app (see Rentschler’s analysis of Hollaback!) or a personal safety app (see Ellcessor’s chapter on Companion) in a catch-all category of “Lifestyle”—a category that also houses apps like the home-finding app Zillow, the Consumer Reports Car Buying Guide, dozens of food/cooking apps, and the Houzz Interior Design app—seems to belittle the purpose of the former and relegate/equate the needs they aim to fulfill as nothing more than a lifestyle choice. It is as if the “choice” to get home safely or not be harassed is somehow equivalent to buying a car or decorating a home and should thus be solved through the same mechanism—the app.

Indeed, part of what is remarkable and troubling about mundane software is that it puts in the same category the trivial and the serious, the funny and the frightening. The category “Utilities,” for example, contains innocuous apps like calculators and flashlights but also seems to be the category where some registered sex offender-tracker apps reside (see Mowlabocus’s chapter). For the majority of the apps in the collection, we have mimicked their placement in the app stores; they are listed under the same headings and categories in which you might find them in the iTunes store or Google/Android marketplaces. With others, we took some creative license and placed them in categories where they seemed to connect topically or thematically with the other chapters in their section. In both cases, the intent was to provoke a reflection on the categories themselves. To see an app’s purpose reduced to the level of category and the very fabric for understanding this new software is problematic, and it is for these very reasons we call attention to them in this volume.

We open the collection with a section titled **Welcome to the App Store**, which includes four chapters that broadly sketch the app ecosystem, including discussions of the role that app stores and other infrastructural intermediaries play in shaping access to apps and app marketplaces. This section begins with App Annie, an app about apps, and a chapter that reflects on how the app industry measures itself and the role that “ratings” companies play in creating a coherent marketplace discourse. Tencent MyApp, both an app and an app store, demonstrates the diversity and popularity of app culture across China and the substantially different market conditions shaping app distribution in Asia. Also a focus of this opening section are banned apps like Exodus International and a consideration of the power that app store owners (e.g., Apple, Google, Tencent) exert over the content that users discover and download. Finally, we include what we see as a field-defining discussion of a format-

specific methodology for approaching mundane software—the walk-through method. Using the case of the discreet encounter app Ashely Madison and building on recent work by Ben Light, Jean Burgess, and Stefanie Duguay (2018), the chapter helps establish a structured yet flexible qualitative mode of studying apps. These chapters are intended to set the economic, theoretical, and methodological frameworks for the rest of the collection.

The next seven sections follow the layout of an app store more closely, beginning with **Productivity/Utilities**, which explores the ideologies behind the drive to be more productive and efficient workers and citizens, ideologies that are often designed into the app from conception. Featured in this section are apps that help users “get things done,” often with little thoughtfulness about what the imperatives of efficiency do to notions of labor, time, and care (TaskRabbit) or productivity and shame (Carrot). Meanwhile, an app like See Send, which encourages intuitive reporting of suspicious activity, reduces the racially fraught logics of surveillance into simple snap and swipe gestures. Rounding out this section is the novelty, single-purpose app Is It Tuesday?, an app that is as entertaining as it is insightful in making plain the digital solutionism evident in mundane software. All the chapters in this section look at how the productive and utilitarian aspects of apps are presented as convenient and effective solutions to complex social and cultural issues.

The **Health/Fitness** section considers two popular tracking apps and the historical precedents that contribute to a particular vision of healthiness and happiness that apps subsequently take up as they position themselves as a necessary tool for daily attention to self-betterment. LoseIt and FitBit represent appified continuations of a longer history of debate about how to be healthy and what it means to track and quantify the self through technology in order to achieve socially acceptable, and often very gendered, health and fitness goals. **Lifestyle/Relationships** draws together chapters on intimacy and safety, paying careful attention to the role interfaces and software play in mediating both. Using dating apps (Tinder), personal safety and reporting apps (Companion, Hollaback!), and sex offender tracker apps (Sex Offender Tracker) as cases, the chapters in this section pinpoint in critically excellent yet alarming ways how both the marketing and functionality of apps shape how societal problems are valued (e.g., women’s safety as a “lifestyle” issue) and which social problems deserve a technologically solutionist intervention, and of what kind.

The **Social Networking/Communication** category focuses on a variety of messaging and social media applications that appify ordinary, ritual

communication practices and in doing so raise questions of community, civility, and commodification in digital technologies. This section looks at the tensions between Yik Yak’s initial success with anonymous communication and its business imperatives to authenticate and profile users, Snapchat’s emphasis on ephemeral and phatic communication, and WhatsApp’s ability to provide diasporic and transnational communities crucial links between private/domestic spaces and the broader publics with which they connect. All of these chapters consider how social apps mediate intimate and affective communication. The chapters on WeChat and Foursquare also point to the extent to which our everyday practices and movements have been colonized by app providers looking to capitalize on the data these mundane activities generate as they attempt to insinuate themselves into all aspects of our daily routines.

News/Entertainment reaches across a number of media aggregation apps to consider how apps influence the distribution of news, images, videos, and political discourse. From trend-spotting apps like This.Reader to the free TV streaming app TubiTV, this section explores the promises content providers see in the appified distribution of media while also considering the economic and cultural reasons why those promises are rarely realized. This section also takes up two apps that contend with liveness and real-time experience: Periscope extends and reconfigures the long-held “scopic regime” of traditional broadcasting into a live-streaming video app, while the gamified political campaign app Hillary for America attempts to draw audiences into campaign participation by making something like the experience of canvassing feel both ordinary and exceptional. Overall, this section shows how apps act as potentially novel venues for message dissemination but are also channels complicated by app infrastructures, expected uses, and longer histories of communication.

The **Music/Sound** category listens in on a variety of sound-based apps to consider how algorithms are shaping the production and circulation of music and music industries and the very timbre and tone of the soundscapes around us. Apps like Shazam and iMaschine 2 remind us of the agency of technologies in shaping our sonic environments: Shazam champions discovery for on-the-go music lovers but also points users to a limited subset of mainstream genres and artists, while iMaschine 2 provides novice and expert musicians with user-friendly tools for creating songs and sounds but may also reign in creativity in the process. This narrowing of the sound of music, or rather the music of sound, is even more explicit in the case of Here: Active Listening, an app that literally reconfigures and personalizes the user’s sonic environment. We

conclude the volume with the ever-popular **Casual/Games** category, which collects a series of games and leisure-time apps that explore the affects and ethics of fun, sport, downtime, and aspirational make-believe as it becomes appified. Analyzing a keyboard app connected to a popular reality TV competition (RuPaul's Drag Race Keyboard), a fantasy sports gambling app (DraftKings), a game that invites users to participate in the social entrepreneurship of celebrity labor (Kendall & Kylie), and an app that gamifies the caregiving of digital pets (Neko Atsume), the authors in this section address the blurry boundaries between leisure, work, and self-branding; fantasy and legality; and personal communication, play, and corporate marketing.

We hope these distinct categories do not isolate readers from themes that carry across the volume—such as the increasing role of affect and interface design in shaping relationships with software; or the ways neoliberal ideologies of more efficient, self-sufficient, and productive users infiltrate more than just productivity apps; or how the infrastructural and embedded nature of many of these apps are sites of corporate or state power and user resistance. The mundane software analyzed here calls our attention to the modular, microfunctional and highly personal nature of contemporary software and the influence this has on processes of identification and communication. It also reminds us how quickly individual apps fluctuate and change over time, not just in terms of basic features and design but in purpose and meaning as well. The chapters on Yik Yak, Tinder, Foursquare, TubiTV, and others, for example, demonstrate how these apps have changed mission, market position, or otherwise tried to adjust their reputations over the course of their lifecycle. This flexible, iterative, and responsive design is an (often futile) attempt to meet the needs of shifting economies, audiences, and social conventions, with each version update acting as a response to the unpredictable and messy nature of cultural practices like dating, anonymity, public spheres, and everyday movement through space, place, and various taste cultures. The app's relationship to these growing pains reminds us that mundane software is significantly more variable than most cultural goods media scholars are used to addressing.

Ultimately, we want readers to recognize the potential discomfort in categorization, and we hope this discomfort is productive. Labeling a rape activism app as "Lifestyle" or an antiterrorism app as a "Utility" is as concerning as it is problematic and is directly related to the troublesome commercial and cultural challenge of trying to fit a broad collection of apps and their nuanced, specific functionalities into inflexible or vague categories. Lists both recognize connections between the listed objects and generate them. It is our hope that

the organization of this volume does precisely that and, in doing so, fosters new dialogues, theories, and critiques of the role mundane software plays and should play in our everyday lives. As more and more interaction with software and networked communication shifts to mobile devices, and as apps begin to proliferate and populate a number of other devices previously absent of software, apps represent not just a fashionable tech trend but a new way of accessing information, experiencing media, mediating commerce, and understanding the self and others. If it's true that, as Intel intimated, the next era of the computer age will be characterized by "computing not computers" (qtd. in Farman 2012, 1), then *Appified* argues that mundane software will play a crucial role in these new forms of computing and, more importantly, in the management and coordination of everyday life.