

# **Hijacking Our Own Attention Controls to Curb Capitalistic Surveillance**

Scry – The Development of a Distraction Blocker App to Curb Perpetual Scrolling

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## Abstract

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There is currently a lacuna within the law with regard to the legality of the ethics of creating software with features that motivate and perpetrate addictive behavioral patterns: users are engaged in a perpetual scroll that allows for extensive free data mining that benefits the profit motives of corporations. The user is the product: in essence, the user's attention is being mined, as the more time a user spends scrolling, the more profitable to a corporation he/she is. Internet companies are only concerned with how to best initiate, motivate and perpetrate addictive behaviors as strategies to mine data and in turn, optimize profits, and take no pains to protect or care for vulnerable populations that fall prey to the woes of addiction. This data is shared with corporations, institutions, and government agencies who use it to modify behavioral changes and to categorize, classify, differentiate, and hierarchize individuals as they see fit. Knowledge is power. We no longer own our own data. We no longer own our own attention. Ethicists understand the need for enacting and enforcing policies and regulations that limit the data mining of Big Tech and limit the addictive potential of platform and app designs. In this paper, I examine the relationship between knowledge and power and its relevance and implications for the infiltration of surveillance as a mechanism of power in educational practices with the aim of increasing user conformity. I discuss the development of an app that helps redirect the obsessive-compulsive feedback loop of addictive thinking that benefits corporations and institutions into thinking patterns that help users control usage and break addiction, and in turn, generate positive physical, mental, and socio-cultural benefits. Finally, I evaluate the positive and negative social implications of using attention distraction blocker apps.

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# Introduction

The purpose of this paper is twofold: (a) to carefully examine the relationship between knowledge and power and its relevance and implications for the infiltration of surveillance as a mechanism of power in educational practices with the aim of increasing user conformity, and (b) to develop an app that helps users to become aware of the pernicious effects of attention extraction so that they can redirect and control their own attention for their own benefit.

The ubiquity of technology in our modern society has led to exponentially extended and intensified digital surveillance and data mining nudged along by the incorporation of addictive features. There is a growing body of research on the pernicious effects of surveillance on society, but the literature on surveillance capitalism is much less concerned with the deleterious effects of software features that initiate, motivate, and perpetuate addictive behaviors on a vulnerable population. Mental health research on device addictions lags behind and millions suffer from unhealthy addictions that are unrecognized, underdiagnosed and underserved.

This paper, rather than explore the question of who will become an addict and why, focuses on the question of what preventative resources can be employed to protect society's most vulnerable populations, most particularly young, developing children and teens. Developers have been likened to this generation's railroad workers, but is this analogy just an excuse to shirk responsibility? I want to know who should hold responsibility for software that incites addictive behaviors? Does the burden fall upon the designers, the architects, the coders, or the company, or does each of these players play a part? Alternatively, does the burden fall upon the user, or the organization/institution that employs the software? Essentially, by putting myself in the

developer's seat, I am hoping to get a better understanding of the systems at play and to experience the ethical dilemmas firsthand.

To date, there are no regulations with respect to software design, so that for the past twenty years software developers have had free rein to develop platforms and apps that optimize data extraction, and corporations have had free reign to monetize data sharing. Because of the negligence of tech developers and tech companies, our institutions must impose regulations that oblige tech to bring ethical design to its products, and to make platforms and apps less addictive so that users have more control over usage. When regulatory mechanisms are absent, and user willpower fails, the user needs to have a toolkit to help limit compulsive scrolling behaviors with negative consequences. Technologists must design software with ethical considerations in mind: persuasive technology features must be retooled to redirect and retrain users' attention and to limit external surveillance and increase self-regulatory surveillance for personal gains in physical and mental wellbeing. Moreover, app users (and the guardians of minor app users) must be provided with guidelines that enable them to assess whether users are spiraling into addiction and if so, to understand what measures they can take to proactively protect themselves.

# Chapter 1

## Overview

There is currently a lacuna within the law with regard to the legality of the ethics of creating software with features that motivate and perpetrate addictive behavioral patterns that engage users in a perpetual scroll that allows for extensive free data mining that benefits the profit motives of corporations. Although addictive behaviors have existed since time immemorial in people all over the world, and the persistent and pervasive use of drugs and engagement in addictive behaviors suggests its appeal to our biological nature and highlights our inborn vulnerability, addictive behaviors associated with social media platforms and apps are relatively new in society. To date, guiding regulations or protections are not in place; hence, unregulated tech companies are driven by surveillance capitalism rather than limited by ethical considerations.

Digital technology is ubiquitous in the lives of not only adults, but also of children and adolescents. The creation of apps and social media platforms and their monolithic online connection world has enticed an entire global generation of people to partake in an unprecedented experiment in the manipulation of communication and culture. Tristan Harris, former design ethicist for Google and co-Founder for the Center for Human Technology, warns that artificial intelligence (AI) is already at the tipping point where it threatens to overpower human weaknesses, and that this tipping point being breached is at the root of addiction, polarization, radicalization, outrage-ification, vanity-ification to name a few of the detrimental consequences that are creating chaos in our world (Social Dilemma). GENZ are the first

generation of kids on social media since middle school and compelling research shows that this generation experiences significantly more mental health issues than previous generations (WHO).

Internet companies, the richest companies in the history of humanity, utilize a marketplace that trades exclusively in human futures for their own capital gain (Zuboff 2019). Users are often unaware that every single action they take online is being tracked, monitored, measured, recorded, and fed into systems that build increasingly accurate and predictive models that are capable of predicting users' future behaviors. Companies vying for the best model and in turn, the greatest profits, show no restraint in the attention extraction model that optimizes corporation profits (Social Dilemma). The user is the product: in essence, the user's attention is being mined, as the longer a user spends scrolling, the more profitable to a corporation he/she is. Internet companies are only concerned with how to best utilize user data in order to initiate, motivate and perpetrate addictive behaviors as strategies to mine data and in turn, optimize profits, and take no pains to protect or care for vulnerable populations that fall prey to the woes of addiction.

## Addicting Features of Apps and Social Platforms

The Fifth edition of The Diagnostic and Statistical Manual of Mental Disorders (DSM-V), published by the American Psychiatric Association (APA) in 2013, lists gambling as an addictive disorder and warns that pathological gambling often begins during adolescence and sometimes during childhood (DSM-V). Online apps now allow individuals to indulge in all



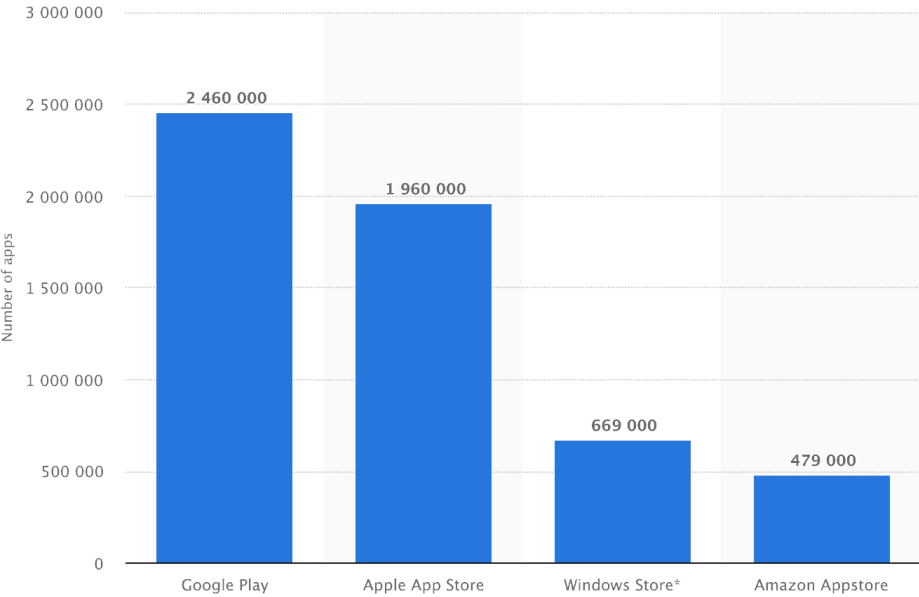
forms of gambling from the comfort of their homes; there is no need to seek out the casino, the betting office, or the pachinko parlor. For example, the commission free trading app Robinhood with its colorful Candy Crush interface incorporates elements of ‘gamification’ in their app, thus making stock trading and investing much more accessible and attractive to the general public. Since the barrier of entry is so low and the app is very easy to use, many users - half who are first time traders with limited or no understanding of the workings of the stock market - are lured into a form of investing akin to gambling, except that this form of gambling is available on screens 24/7 where a confetti fall and a release of feel good chemicals like dopamine celebrate transactions made with a click of a button, and endless notifications and addictive patterns invite users to keep trying their luck. The intermittent release of feel-good neurotransmitters generates a feeling that is so positive that users repeatedly indulge in the behavior to ignite that positive feeling, in spite of any distress or negative consequences. If a user indulges in the quest for intermittent positive reinforcement often enough, this behavioral pattern perpetuates itself so that ultimately the neuronal circuitry in the brain is affected and addiction eventually occurs (Kuhar M. 2012).

While the Robinhood app is legal, many users in their “get-rich-quick quest” have lost huge amounts of money as they spiral into addiction, engaging in compulsive behaviors despite negative consequences across a number of life domains that ultimately lead to a dysfunctional lifestyle. Unregulated apps like Robinhood highlight the insidious practice of app designers and developers of utilizing algorithms to optimize the frequency and duration of app use without regard to the consequences of motivating and perpetuating a pattern of addictive behaviors that for certain vulnerable individuals leads to addictive disorders. The DSM-V recognizes Gambling Disorder with its clinically significant gambling-related problems as the only behavioral

addiction. However, Internet Gaming Disorder, currently classified as an addictive behavior in the 11<sup>th</sup> revision of the International Classification of diseases (ICD-11), is classified in the DSM-V as a “Condition for Further Study”. Although the controversial subject of a growing body of research, to date addiction to social platforms and apps has not yet been recognized as a unique addictive disorder. Nonetheless, many psychologists believe that a preoccupation with social media platforms and apps causes sufficient dysfunction in physical, social, and mental wellbeing to be considered a recognized behavioral addiction in the near future.

The profusion of apps on the market is mind-boggling: that there are over four million apps in stores, with over 800,000 gaming apps (statistica.com). Gaming apps are becoming increasingly sophisticated and complex with an exponentially increasing revenue and user base.

Figure: Number of apps in app stores



Strong user engagement and the extensive demographic and geographic reach of a mobile gaming industry that yields massive revenues has led to traditional financial institutions and

governments investing in the gaming ecosystem market. It is projected that the global games industry will be worth a quarter of a trillion dollars by 2023 (statistica.com). Gaming apps are not the only apps that lead to behavioral addiction.

Dr. Anna Lembke, Medical Director of Addiction Medicine at Stanford University School of Medicine explains that, “Social media is a drug. We have a social biological imperative to connect with other people that directly affects the release of dopamine in the reward pathway... Social media optimizes the potential for connection, hence has the potential to be addictive” (Social Dilemma). She further hypothesizes, “I do believe when we’re constantly having our train of thought interrupted by checking a message or checking a text, we deprive ourselves of having a sustained flow of thought, which is crucial to creating something. Yet by constantly checking and responding on the smartphone, we have the sensation of doing or making something. But it is an illusion, because at the end of the day, we haven’t created anything. We’ve only been in response mode” (standforddaily.com). Dr. David Greenfield, founder of the Center for Internet and Technology Addiction and recognized authority on the treatment of tech addictions says: “What people don’t realize is that their smartphone is shaping them, it’s conditioning them... As a culture we have crossed the tipping point of overusing the technology” (The Christian Science Monitor). The smart phone with its social media platforms and apps distracts us from real world living.

In her book, *Unbroken Brain*, Maia Szalavitz, proposes understanding addiction as a learning disorder – “a learned compulsion that continues despite punishment” (241) - and explains that difficulties with self-regulation pave the way for learning addiction: “As a behavior moves from being a conscious choice to a habit, brain activity changes, moving up toward the top or “dorsal” portion of the striatum and away from the bottom or “ventral” area. In addiction

and other compulsive behaviors, brain activity that is increasingly dorsal in the striatum seems to be lined with reduced ability of the prefrontal cortex to stop or control the behavior” (Szalavitz 63). It is noteworthy that 90% of all addictions begin during adolescence (Szalavitz 97).

## Surveillance Capitalism

Ethicists and those concerned with the vulnerable falling prey to social media and app addictions see the need for enacting and enforcing policies and regulations that limit the addictive potential of platform and app designs. Ethicists also recognize the need to develop design strategies, therapies, and interventions that help remediate addictive behaviors and impact successful recovery in these chronic, often relapsing-remitting disorders. For their own personal gain, developers and investors are content to turn a blind eye to the social chaos engendered by the addictive platforms of social media and apps with algorithms that fuel the variable rewards system. Nonetheless, a growing number of the originators of social media platforms like Facebook, Twitter, Pinterest, Snapchat, etc., express grave concern about the unforeseen and unintended negative consequences and sound the alarm that action needs to be taken to curb technology’s unlimited selling of users’ attention to advertisers.

While platforms are free for users, platforms depend on advertisers to pay for the products that users use. Advertisers are the customers and platforms embrace the business model that users must be kept engaged on the screen, therefore platforms viciously compete for users’ attention and exposure to advertising. Shoshana Zuboff, researcher at Harvard Business School and author of *The Age of Surveillance Capitalism: The Fight for a Human Future at the New*

*Frontier of Power* highlights that data mining is integral to the modern business model because for businesses to optimize profits, they must make accurate predictions based on data. The aim of data mining is “to predict and modify human behavior to produce revenue and market control” (Zuboff 75). Data-users’ personal information is used to predict, and in turn, to influence and modify behavior by changing how we think, feel and create meaning in our lives. Jaron Lanier, founding father of Virtual Reality and author of *Ten Arguments for Deleting your Social Media Accounts Right Now* explains that the product of data mining is the gradual imperceptible change in users’ perception and behaviors. The private industry of platforms and apps uses infinite tracking to manipulate the world’s people into sources of enormous revenue, often unbeknownst to the user. Corporations mine and use users’ data and attention to their own ends: users are “the objects of a technologically advanced and increasingly inescapable raw-material-extraction operation” (Zuboff 10). Professor Zuboff decries “surveillance capital’s behavioral engineering expertise” and data mining as an expropriation of critical human rights, an antidemocratic and antiegalitarian “form of tyranny that feeds on people but is not of the people.” (Zuboff 513). Zuboff warns that “the balance of power between those holding the data and those who are the subjects of that data” lead to unprecedented asymmetries in knowledge and in turn, power, with dire consequences for the individual and society (461).

To optimize a platform’s potential to manipulate users, tech designers, engineers, and key growth figures at big Internet companies are instructed in the psychology of persuasion and trained specifically in how to make technology more persuasive. Persuasive technology is an element of design intentionally applied to the extreme in order to modify someone’s behavior. Teams of engineers engage in “growth hacking” - their primary task is to hack people’s psychology using positive intermittent reinforcement in order to generate more growth. Teams

exploit this vulnerability in human psychology by constantly experimenting on how to use AI to predict and manipulate people so that companies/advertisers can affect real world behaviors and emotions without the users knowing. It is not only companies, but also institutions and government agencies that seek to mine personal data with the intent to mold people's attitudes and behaviors to their own social, political, and cultural ends. The Snowden disclosures of 2013, and the Cambridge Analytica scandal of 2018 are just two data breaches among many that revealed the collusion between corporations and government agencies. It is common knowledge that the Big Five Internet companies – Apple, Google, Microsoft, Amazon, and Facebook – all engage in large scale surveillance of their users and share their data with government agencies.

## Foucault's Panoptic Modality of Power

In "*Discipline and Punishment: The Birth of the Prison*" (1975), the French philosopher-historian, Michel Foucault (1926 -1984) theorizes on the relationship between power and knowledge and how modern societal institutions use the surveillance mechanism of power as a means of social control. Foucault uses Jeremy Bentham's Panopticon as a paradigm for society's modern system of discipline. The panopticon is a highly efficient prison surveillance system with a watchtower at its center circled by a round system of separated cells; it is a system in which one supervisor may observe many prisoners but is not seen by them. Foucault explicates that the panoptic modality of power initially used to monitor prison systems has led to "systems of micro-power that are essentially non-egalitarian and asymmetrical" infiltrating the fields of medicine, military, education, industry, etc. This new and ostensibly more benevolent mechanism of power replaced the former retributive and punitive mechanism of power used by

institutions and authorities to manage and control the human multitude (Foucault 216). Foucault argues that the knowledge gained by “invisible” surveillance leads to the exhaustive categorizing, classifying, and hierarchizing of individuals in a disciplinary society where individuals internalize ‘the gaze’ and sustain the structures of power. Foucault warns:

*“He who is subjected to a field of visibility and who knows it assumes responsibility for the constraints of power. He makes them play spontaneously upon himself; he inscribes in himself the power relation in which he simultaneously plays both roles; he becomes the principle of his own subjugation”.*

Foucault also contends that the increase in new forms of knowledge is proportionate to an increase in the effects of power, with knowledge and power continuously reinforcing one another in a cyclical process. Digital surveillance may be construed as a contemporary version of the panopticon, but its reach is exponentially more pervasive and increasingly inescapable as vast domains of new knowledge are extracted **from us, but not for us**. Foucault would, no doubt, agree with Zuboff that, “an information civilization shaped by surveillance capitalism and its new instrumentarium power will thrive at the expense of human nature and will threaten to cost us our humanity” (Zuboff 11).

## Lyon’s Post-panoptic Surveillance Culture

In *The Culture of Surveillance* David Lyon cautions that that surveillance can no longer be compared to the dystopian Orwellian “Big Brother is watching you” external surveillance system. Lyon emphasizes that with the emergence of an unprecedented digital surveillance

culture, everybody plays a role “within the mushrooming surveillance systems of today” (Lyon 9). He contends that, “Surveillance is no longer merely something external that impinges on ‘our lives’. It is also something that everyday citizens comply with – willingly and wittingly or not – negotiate, resist, engage with and, in novel ways, even initiate and desire” (Lyon 9). People are actively engaging in their own surveillance and in the surveillance of others: “As surveillance itself liquefies, the neat and simple one-way vision of surveillance becomes less relevant and even misleading” (44). Today, surveillance is inextricably enmeshed with our whole way of life.

Lyon argues that, “in many ways, today’s world is post-panoptical,” as in digital era surveillance systems are no longer solid and fixed, but flexible and fluid and fun, with surveillance on multiple technological devices like smartphones, tablets, fit-bits, ring systems, etc., “seeping into many life areas where it once had only marginal sway” and occurring “across life spheres that once were in much more separate silos” (35). In short, “As surveillance itself liquefies, the neat and simple one-way vision of surveillance becomes less relevant and even misleading” (Lyon 44). This surveillance culture is the result of digital modernity. Lyon likens the panoptic system to a tree, and the post-panoptic system to a fast-growing invasive weed that “penetrates the capillary levels of life” (51). He notes that the culture of surveillance is not monolithic, but is culturally diverse and constantly “shifting, mutating, expanding” (Lyon 50).

While Foucault focuses more on the direct top-down external formal power of agencies whose purpose is social control through a pervasive bio-political and disciplinary power, Lyon “takes us beyond simple conceptual binaries such as power-participation, in/visibility, privacy-publicness or even the misleading us-and-them of much popular surveillance rhetoric” (43). Lyon emphasizes user-generated surveillance: “The culture of surveillance is about how surveillance is enabled not only by technical and political means but also by the enthusiasm,



ignorance, and sometimes reluctant cooperation and even initiative-taking of the surveilled” (30). In the modern digital world, “surveillance has become a way of life, a way of ‘seeing’ and ‘being in’ the world, with people engaging in a desire to watch, record and post their lives and the lives of others (Lyon 31).

Lyon views surveillance culture through the lens of ‘surveillance imaginaries’- perspectives or outlooks on surveillance constructed through familiarity and engagement with surveillance, and the lens of ‘surveillance practices’ - ways of initiating, negotiating, responding, or resisting surveillance. The concepts of risk management and securitization have habituated people to surveillance and engendered a shared understanding “about certain aspects of visibility in everyday life and in social relationships, expectations and normative commitments” (Lyon, 41). Moreover, the normalization and domestication of surveillance encourages people to engage in self-tracking for fitness, health, income, and time management and hence, to willingly embrace “the self-surveilling ‘monitored performance’ of the so-called quantified self” (Lyon, 36). Lyon likens surveillance practices embedded in our modern lives to Pierre Bourdieu’s habitus, a system of dispositions that people accumulate throughout their lives as expressed by their attitudes and behaviors toward things (Bourdieu 470).

In short, panopticism guarantees submission through social control using a disciplinary power that in an age of pervasive surveillance infiltrates and controls every aspect of our lives: the individual is both the subject and the object of knowledge and power. In a post-panoptical world, given the pervasive surveillance embedded in social media platforms and apps, and the collusion and sharing of data between corporate entities and governmental agencies, surveillance culture goes beyond the surveillance state and surveillance society: in digital modernity, the individual is simultaneously the subject and the object of data mining. Today there is widespread

compliance with surveillance as users collude in their own surveillance by sharing personal information in the online domain and allowing their data to be mined. Essentially, much of the data is generated by the online activities of ordinary people, but this data ends up in the databases of corporations. Social media platforms and apps are the tools used to seduce and manipulate users into releasing their data. Individuals constantly exposed to the psychology of persuasion, knowingly or unknowingly, allow their brains to become co-conspirators in addictive behaviors rooted in an addiction-based online environment.

Power is the interplay between domination and resistance in social spaces and is at the root of understanding our social world. Both Foucault and Lyon enrich our knowledge of how surveillance infiltrates every aspect of our social space and both highlight how power can operate under the cloak of invisibility. However, Lyon notes that the active participation and engagement of surveilled and surveilling subjects in the surveillance culture of digital modernity gives rise to the ambiguity inherent in the modern surveillance culture: “While some surveillance is intrusive, undemocratic, disempowering, other forms seem participatory, playful, possibly empowering. Discerning which is which is a critical exercise” (50). He further notes that while most users would like to maintain control over their own data, there is a tendency to “choose the path of least resistance when making choices about managing their profiles (Lyon 54).

## Surveillance and Schools

In most modern societies, school is the main socializing institution for children and adolescents until they join the workforce. Increasingly social platforms like Zoom, are becoming

mechanisms of power integral to the functioning of disciplinary techniques for managing students. Although he did not directly study educational practices and institutions, Foucault's concept of discipline and knowledge may be applied to educational practices and institutions. Schools want to exercise power at the maximum efficiency and effectiveness with the lowest possible cost while increasing the docility and productivity of students. Foucault would argue that when students know they are being watched, they become more docile and more useful, thus surveillance and the knowledge it yields is a much more efficient and effective instrument of power than punishment. Foucault believed that it was the 'pedagogical machine' of the Ecole Militaire which most likely inspired the Panopticon that became the model for disciplinary institutions like prisons, armies, and religious institutions (Foucault, 1986, 173; Bentham, 1995, 87). Schooling fosters order by presenting bodies of knowledge, inculcating work ethics, routines, and habits, and fostering discipline and compliance over resistance and insubordination. Students are expected to absorb not only bodies of knowledge but also skills and values that engender socially desirable modes of behavior.

In today's educational institutions, the contemporary educational practice of using platforms like Zoom in the classroom, a practice that has been exponentially accelerated with the advent of Covid 19 restrictions on social distancing, allows for increased surveillance and the potential for increased data mining. From the Foucauldian perspective, the practice of using Zoom in the classroom functions as a new mechanism of power taking the social as its object and the network as its form. The traditional time and space constraints of schooling are no longer as clearly defined: time and space no longer limit visibility so that individuals from diverse backgrounds and cultures will be subjected to steadily increasing degrees of surveillance with its inherent dangers of manipulation and molding.

Foucault would argue that this increased surveillance leads to more knowledge and power and in turn, to more classification, categorization, hierarchization, normalization - inclusion and exclusion, - and regulation. Similarly, Lyon believes that “Smart surveillance and social sorting go hand in glove” and like Foucault, he fears that the ‘social sorting’ of surveillance may lead to the marginalized or disadvantaged being further discriminated against with services and opportunities being denied or made inaccessible. Lyon explains, “People are sorted into social categories (these may include gender, socio-economic, religious and ethnic/national) so that their classifications may be used to distribute opportunities and risks according to the criteria of the surveillant organization. The ‘pie slices’ are cut in a number of ways, sometimes subtly and complexly, but with very real consequences in the everyday world of work, travel, consuming and relating to official bodies....” (109). Big data social sorting is not necessarily a democratic process; algorithms can determine differential treatment for different population groups. Harvard professor Latanya Sweeney exposed that algorithms may have racial biases built into them by demonstrating that Google’s AdWords sales program discriminated by race (Ferguson 123). Educators must be aware of the ethics and justice of using predictive data in education. A lot can be learned from the impact of Big Data on policing.

In his book, *The Rise of Big Data Policing*, Andrew Guthrie Ferguson explicates the dangers of the effects of data-driven predictive technologies in relation to policing in the United States: “Person-based predictive policing involves the use of data to identify and investigate potential suspects or victims. ... big data can visualize how violence spreads like a virus among communities. The same data can also predict the most likely victims of violence. Police data is shaping who gets targeted and forecasting who gets shot” (35). Ferguson explains how surveillance goes hand in hand with security and that today soft surveillance is rapidly merging

with hard surveillance to provide exponentially more data used by algorithms to generate a “heat list”.

Chicago, the ground for a predictive policing experiment based on focused deterrence, uses 11 variables to create risk scores from 1 to 500 in generating a heat list (Ferguson 39). Statistics prove that “the heat-list algorithm has been tragically accurate” (Ferguson 37). Nonetheless, the reality is that the crime rate continues to escalate. Forecasting who may be involved in violence has not helped end the violence. This suggests that risk identification means little to those at risk if the proper resources and interventions are not implemented. To date, big data policing only benefits the police as a targeting mechanism. Ferguson cautions that output data is influenced by input data so that “Fears of racial bias, a lack of transparency, data error, and the distortions of constitutional protections offer serious challenges to the development of workable person-based predictive strategies” (35). Ferguson presents New Orleans, Louisiana, as a more successful experiment with a 21.9% reduction in homicide and a 55% reduction in gang involved murder due to the implementation of a more holistic program with a multitude of social services programs offered to those determined at risk.

Going forward there is no doubt that surveilled students and teachers will find themselves being surveilled under increasingly complex layers of surveillance as in the digital reality of today surveillance culture is no longer the binary ‘us versus them’ scenario. While there is hierarchical observation of teachers instructing under the critical gaze of supervisors, and of students studying under the critical gaze of teachers – there is also the added layer of lateral or participatory surveillance, or peer-to-peer monitoring: “Watching and being watched are taken for granted in such spaces and may also be discussed as ‘lateral’ or ‘participatory’ surveillance” (Lyon 157). One can also expect a blurring between private and public life, for although Zoom

allows more inclusion and flexibility in contrast to the classroom and while the digital teacher and student may believe themselves to be independent, unique and in control, every online action will generate data that will be used to create profiles, which may, in turn, score and rank individuals in order to place them in consequential categories that lead to differentiated treatment.

## Compliance and general collusion with contemporary surveillance

Teachers and students alike have for the most part shown compliance with using Zoom. This begs the question: Why would teachers and students willingly participate in and actively engage with platforms like Zoom with embedded surveillance features? We can attribute compliance to Lyon's surveillance culture with its component outlooks and practices of familiarity, fear, and fun: "Surveillance has become a way of life, a key aspect of how we think about the world and operate within it on an everyday and sometimes almost unconscious basis" (79). Most kids 'live' on the social media platforms and the Internet, so the integration of platforms and apps into the world of schooling – interacting with teachers, tutors, and peers - is familiar. Zoom was already mushrooming as a leisure time platform and teachers and students familiar with its workings are confident in using this platform in the sphere of education. The fear of losing out on educational opportunities compounded with the fear of catching Covid 19 in brick-and-mortar schools weakened any real resistance. Moreover, fun socializing online with peers proves highly motivating in a time of isolationism.

Nonetheless, it must be remembered that familiarity, fear, and fun may be experienced differently to produce different outcomes. Certain students may fear stricter surveillance and stricter timelines for work completion more than the fear of missing out on educational opportunities, and out of this experienced fear skip class. Currently Houston Independent School District (HISD) – the state’s largest school system - reports that 42% of students are failing one or more core classes as compared to 11% during the same grading period in 2019 when students attended brick and mortar schools. Why aren’t students in attendance online during regular school hours and why aren’t they completing assignments to meet given deadlines? Many students are currently working part-time which makes attending online classes and handing work in on a daily basis by midnight prohibitively difficult. Furthermore, teachers report that students are engaged in all sorts of distractions when online. Will this incite educational institutions to begin a stricter monitoring system based on points that factors into grades? Or worse yet, into classifications that lead to differential treatment? We must ask the questions: What practices of liberty can be employed to limit pedagogical power relations to collecting data that is not used FOR the benefit of the student/teacher? How can we avoid or counteract/minimize practices of domination by power that do not lead to interventions that help students?

It is clear that Foucault’s “disciplinary society,” although still highly relevant, has given way to Lyon’s surveillance culture and Harcourt’s “expository society” where users, “numb to the risk of digital transience,” lack an understanding that the “see-throughness of our digital lives mirrors the all-seeingness of the penal sphere” (Harcourt 21). Surveillance culture and the self-exhibitionism of digital exposure should prompt teachers and students to contemplate the consequences of their online words and actions and to ask the question: How do I conduct myself online? What is and is not appropriate in online communication with peers and teachers? Both

teachers and students participate in their own surveillance through self-exposure so both groups need to be aware of the consequences of their words and actions. The data collected from embedded surveillance coupled with the increasingly predictive analytical powers of AI will be utilized to assess the performance of teachers and students alike and as in big data policing, this data will be used to generate “hit lists” in the educational domain.

The online learning environment encourages a growing number of students to be much more inattentive due to a false sense of anonymity. Students can while away class time in a perpetual scroll, responding in real time to all push notifications from texting, messaging, and marketing apps or engaging in gaming or social media apps to their hearts’ content. Students must be aware that their actions are being consistently monitored, recorded, and analyzed for predictive purposes and that embedded surveillance technologies will be utilized not only to generate data on students’ interactions with mobile devices during learning sessions, but also to generate data on students’ attention controls and self-regulation skills for classification, differentiation and hierarchization. There is the inherent danger that students who pay attention will be rewarded with higher grades and more challenging learning tasks that optimize their opportunities for a better college education, while those who fail to pay attention will be relegated to classes without the support they need to be successful. Docility and passivity will be rewarded. The ability to wrest back control of one’s own attention from an addictive state of online compulsion will become increasingly important in the school setting. To this end, a new generation of brain training apps and attention distraction apps must be designed with the same behavioral engineering expertise and persuasive technology used in entertainment apps.



## Chapter 2

### The development of an attention distraction blocker app - Scry

This chapter discusses the design and development of an iOS-based attention distraction app named Scry that monitors device usage and redirects students' attention from a barrage of messages, emails, alerts, advertisements, notifications, gaming, etc., during class. The app utilizes stopping cues to limit and/or redirect attention in an attempt to condition users to curb and eventually eliminate the use of phones during class, while simultaneously becoming more engaged with the app. The intention is to repurpose the attention extraction model and addictive features of common apps to create an app that has positive implications for attention control and in turn, meta-cognitive awareness, and educational achievement. Self-regulation is generally a preferable form of surveillance than external surveillance operating as a disciplinary power according to the rules of hierarchical observation and normalizing judgement. It is the lesser of two evils because at some level it benefits the user. An internalized locus of control gives an individual choice and responsibility and is potentially empowering as it allows for motivated participation. My end goal is not only to create a tool to redirect and retrain users' attention, but also to create an experiment that will essentially test to see how pernicious an app's design can be and to gauge if IOS developers should have apps inspected by a regulatory body that curtails the use of addictive features in software.

Scry allows users to become more aware of their own power to hack their own mind and hone their own attention. The app consistently redirects the user's attention when the user is distracted by his/her smart device. By consistently redirecting the user's attention, the app helps the user sustain attention for increasingly longer periods of time, and in the process rewires the

user's neural circuitry to be more effective so that he/she exhibits improved mental focus during online lessons and in personal study sessions. Moreover, consistent use of the app will heighten users' awareness of the tactics of Big Tech in their efforts to mine for personal data and encourage students to wrest away control of their own mental focus from this insidious capitalistic surveillance system so that their attention can be used for their own personal gain.

Scry is user centric. After registration, the user can log in and sign up for when they will want to start focus sessions. Each user chooses a given name and password, which will then be authenticated on the backend. After logging in, users will use a calendar to schedule when they want notifications for their focus sessions. If a user has a meeting at 4 pm, they can schedule a reminder around 3:55 that will prompt him/her to open their app and start a focus section. Each focus session allows users to start a timer and tracks users when they close the app or pick up their phones. Users will be graded per session, and each session will contribute towards their total point average. Users can view their individual results as well as how they compare to other users via the global user board. As the administrator, I can view the results of all users on the backend. I will use Firebase to host my backend as it is the most accessible and easiest to learn backend available for apps. I considered MongoDB, but since we learned a little bit of Firebase in class, I decided to go with the solution that my support system (Professor and friends) is more familiar with.

Scry will be introduced to students with the purpose of helping them better focus during class by resisting extraction of attention by other devices with more engaging/entertaining apps. If the app is successful, it should allow students who are 'addicted' to their device apps, and suffer negative educational consequences because of lapses in attention, to redirect their attention and ultimately to rewire their brains so that they are in charge of their own attention. One of the

key features that encourages users to open and view apps is the implementation of app notifications.

Firstly, students will input their class schedule so that notifications are customized, and before class begins, they will receive a push notification sent to the app users' device inviting them to start the app's surveillance mode. Push notifications will appear on the lock screen or main home screen or appear as a message box when the user is browsing the web or using other apps and will encourage users to open and engage with Scry. While the app is running, it will take note of any distractions (manipulations of attention) that occur during the learning session, e.g., when a user leaves the app or if a user picks up the phone (via gyrometer). The app will record actions that lead to lapses of attention and assign points to each action. At the end of a class, all the actions will be summed up and students will be pointed (graded) depending on their phone usage by the app. Students that did not touch their phones will be awarded high points, while students who were distracted by opening other apps, or even fiddling with their phone will be rated lower. At the end of each focus session, students will be placed on a leaderboard, and they can see how their focus ranks compared to other users. When they show distraction, users will be prompted to immediately redirect their attention and at the end of the session based on their score users will be invited to participate in vignettes that feed snippets of information that help the user limit attention extraction, and build positive assumptions, habits and behaviors that will ultimately engender self-regulatory practices that foster motivational participation. Below are some rough design documents of the app.

For implementation of the Scry, I wrote the program in Swift, Apple's programming language created specifically for Apple products to help developers produce expressive code that is less prone to errors than older Objective-C programming languages. I chose to create an Apple

app over an Android for a multitude of reasons. Firstly, my main reader, Dr. Bulko, specializes in Swift Development. Secondly, the social status around Apple products makes Apple apps very appealing, and many startups now forgo Android development and create their product with Swift to showcase it as a superior product. Furthermore, Apple users tend to spend more on in-app purchases. An app on the app store will make on average 80% more money than the same app on Google's Play Store (Nelson). While Android Studios uses Java, a language I am more familiar with, Android Studios, the IDE (integrated development environment, essentially the code editor that one runs and compiles code on) is very cumbersome and I have had the displeasure of working with it. I wanted a fresh start on app development, and this solidified my decision on choosing Swift. Not only did Swift feel fresh and enjoyable to work with, but the goal of learning a new language really motivated me to explore the features of Swift. Learning Swift has allowed me to appreciate the complexities of developing for IOS and programs that require a lot of user interaction. As a backend developer, I am not usually exposed to the front end, so building a user facing product was a rewarding experience.

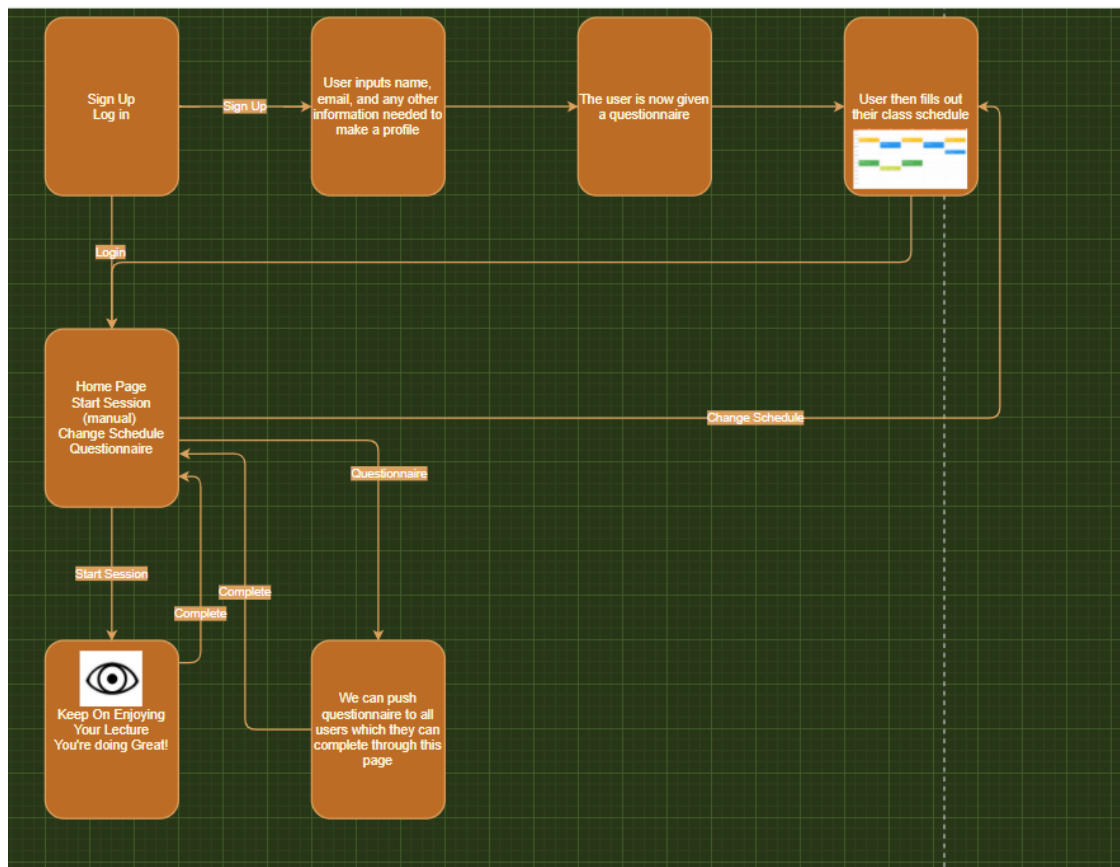
## Outline and Design Document

Creating an app is much like filming a movie. For both endeavors, one needs a strong blueprint to save costs and development time. I once read that by creating a storyboard, Steven Spielberg saved one million dollars in the process of filming *Raiders of the Lost Ark*. As my blueprint, I followed the instructions on the app development process Doctor Bulko recommends to his students in class. First, a team of students develop a proposal, a paper that “describes the application you intend to design and build” (Dr. Bulko's website). This proposal acts not only as

an elevator pitch for the app, but helps students find their target audience and formulate their development plan. Next is the design document, an illustrated “user interface of the application, along with brief descriptions of each screen’s functionality” (Dr. Bulko’s website). One can compare the design document to a movie’s storyboard. The design document’s model can be illustrated by hand, or designed utilizing software such as Figma or Sketch. The next stage is the Alpha, which is the first progress check of the app. In theory, one third of the app is created by the Alpha. Students can choose whether they want to focus on the user interface (UI) design or concentrate on coding the more complicated features such as cloud storage and functions that use algorithms. After the Alpha is the Beta release, which can be viewed as a second more refined Alpha. At this point in time, two-thirds of the app should be functional. Lastly, there is the final release, which is its namesake. At this point, the entire app should be completed.

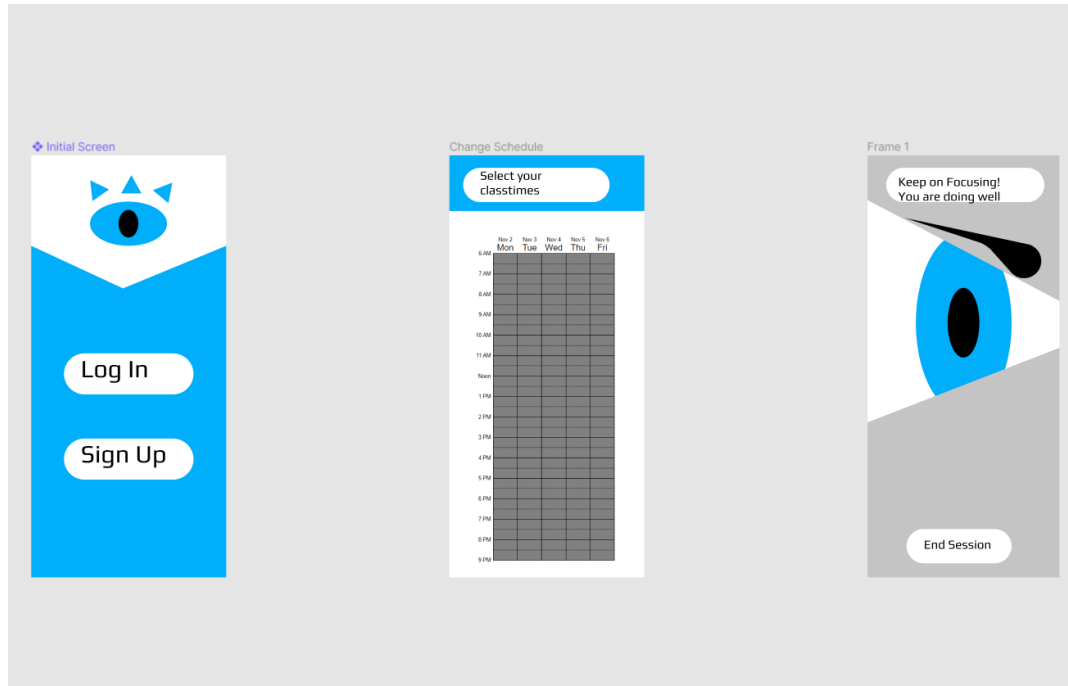
The proposal phase went seamlessly for me. I had to think about what features the app would have and how it should behave; I needed to think about what I wanted to build before I decided on how to design and build it. I used my thesis prospectus as my proposal paper, and since we had conversed about my app and our expectations for it, Dr. Bulko approved my proposal. Next up was the design document. I had to take the requirements and turn them into architectural design for the system, specific algorithms, and UML diagrams and figure out how the system was going to be built and work together. Frankly, this was the hardest part of creating the entire app. While I consider myself creative, I must admit that designing an aesthetically pleasing user interface was much more challenging than I had anticipated. At first, I tried using Sketch to create a rudimentary UML document that would also function as a design doc. Sketch allowed me to better understand the workflow of how my application would function. I drew out all the connections I thought would be necessary. In retrospect, this was a terrible idea because I

did not know the exact details of what tools I would be using. I had no concept of how Firebase worked, or how I would handle any of the backend. Furthermore, the Sketch document was ugly. It contained the basic functionalities, but was devoid of any aesthetics. It looked very rudimentary and really undersold my idea.



Admittedly, I was frustrated with my Sketch design: I wanted something more aesthetically pleasing. Sketch is a powerful graphical editor, but I continued exploring more specialized app designing tools, and after fiddling with Invision Studios, I eventually decided to use Figma. At first Figma was just as confusing, but I stuck with it and I learned how to better utilize its tools and hone my design sensibilities. My first Figma design was a step up in terms of design, but two steps back in terms of functionality. The design conveyed no information on how

the app worked and the UI looked like it consisted of PowerPoint clip art. The worst part was its static nature, the screens were just pictures and had no clickable functions.



After watching more YouTube videos on Figma, and taking professional assets from the Figma website, I set a new goal for myself. My new design would use Figma's capabilities to make a mock app. Essentially, this is an app that is all frontend, but it has no backend capabilities, so all the screens would work, but none of the button clicks would do anything. In the video accessible under the Demos tab (at the end of my thesis), I will walk you through a demo of my final design document. Most of the details are planned out at a very low level at this stage, but you get a good idea of the app's workflow.

# The Development Path

## Starting the Code

While the design phase was the hardest part of this project, starting the code was the second hardest part of the assignment. This was mainly due to me being a Swift novice. The Swift language proved to be a friendly language for a novice app programmer, although some of the UI features in the language take time and effort to understand and utilize. In this phase, the design must be turned into actual working code. I originally started programming the app in January before taking the IOS course with Dr. Bulko. Things moved a little faster once I began learning in class. However, there were several glitches because earlier iterations were not up to snuff and I frequently designed myself into a corner.

## Logging in, Firebase, and the Importance of Delegating Responsibility

The app truly began with the login screen. While the login screen sounds like the easiest component, I can assure you it is not. With the login screen I also implemented Firebase, a Google service that allows for the creation/management of accounts. Firebase is a very popular solution among developers because when making an app, one wants a backend that has reliable security. By outsourcing the backend to Google, the app designer is not reliable for any data breaches that happen on his/her end. I could have tried to create my own servers and authentication, but that would have been an entirely different project in itself. From my time at Athenahealth, I learned that one should focus on their strengths, and outsource their weaknesses. I have no formal computer security or networks backgrounds, so I opted to use a tried and trusted solution used by companies and developers. In fact, it was an obligation to my users to use Firebase since I could not guarantee a foolproof security solution or network solution



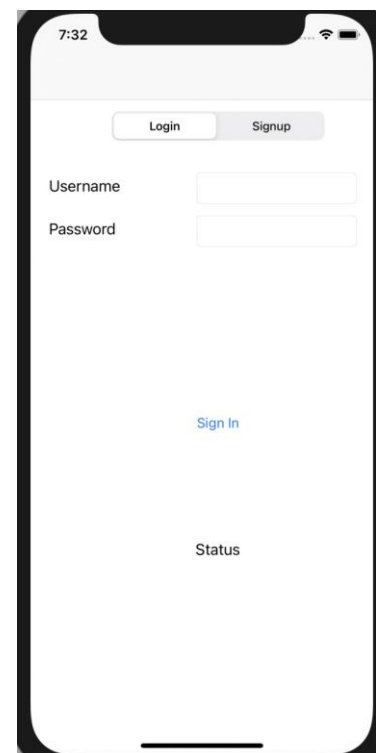
programmed by myself. Before joining the industry, I assumed that companies built their entire codebase by themselves. My internships at Symplr and Athenahealth made me aware that companies often use outsourced software. Both these companies pride themselves on security and upholding HIPAA regulations, but to ensure their integrity they utilize a trusted server. An analogy that helped me appreciate the importance of outsourcing software is that of a high-end restaurant. A restaurant's goal is to serve customers delicious food, but safe food. The restaurant does not need to grow the food, nor do they need to forge the silverware, or build the chairs and tables. A restaurateur buys all of these basic necessities since he/she does not have the capabilities to produce these items. If a restaurateur had to create every foundational item with no prior experience in any of these domains, chances are the quality of those items would be seriously compromised and jeopardize the restaurant experience for the diner. The same thing applies to servers: as a novice app designer, I have not had the experience of ever building a

server, so to protect user data, I will use a tried and tested server that will offer a reliability I cannot.

With all that background information out of the way, I can now explain what my app does on the login screen. Users can either sign in or create a new account here. If a user wants to sign up, they need a username (it has to be their email sans the @gmail.com part) and password. I could have implemented Google sign in, but it would have been just a fancy bell that was ultimately unnecessary. Also, since I have no email authentication, I could create dummy emails to sign up and test my app. If I were to launch this app officially, I would definitely implement Google sign in since it makes signing in easier for users. For those unfamiliar with Google sign in, it basically allows users to login with their Google account so that they do not have to remember the password for the app. Additionally if I were to launch, I would consider allowing users to exclude making an account and allow them to use the focus function. This system would not be able to track long term usage and user points, but it would definitely entice more people to use the app. Like most young people, I can attest that I have deleted and avoided apps because I am too inconvenienced with signing up/in.

## Constraints and Implementing the User Interface

While the interface did not come directly after the login screen, it is the next logical thing to talk about because it was interlaced throughout the project. My first login screen looked like this. Pretty boring right? The unseen problem with this screen is that when run on other phones, all the elements (labels, text fields,



buttons) would fly to different parts of the screen. While many may think the UI design is separate from the coding portion of creating an app, the two are deeply intertwined. You cannot use an app if half the buttons are out of bounds and elements are randomly disappearing. Furthermore, what I had on my storyboard (the UI tool used to draw out your screens and connect your UI to code) always differed from what appeared when I ran the app. I needed constraints.

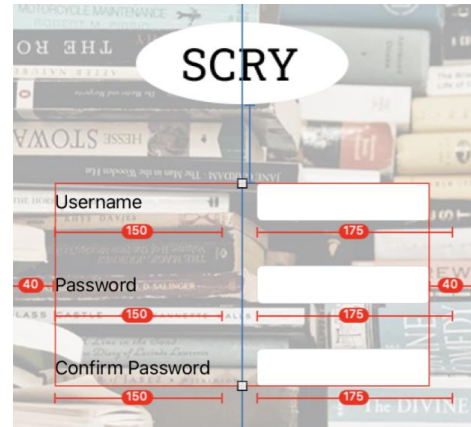
To the uninitiated, constraints are essentially restraining orders an element has against all other elements. If I have a button that has 20pt constraints for all sides, no other element can be placed in those 20pts from the element to the end of the 20pt line. (Author's note: pts are points, Apple does not use pixels since pixel values are inconsistent between phones). The pros of constraints are that they consistently space the UI elements, so that the elements will be laid out consistently, regardless of what phone they are run on. Furthermore, you can constrain the height and width of certain elements like pictures and textboxes. For instance, in the shown picture, I have width constraints on all the textboxes, so they do not get squished by the stack view they are in. A stack view is an invisible container that lines up elements horizontally or vertically. Here I have three horizontal stack views that contain a label and its respective text field (Username and the username text field). All these horizontal stack views are embedded in a vertical stack view to keep all of the horizontal stack views symmetrically spaced. I then can put constraints on the vertical stack view so that it does not overlap with the title or push the Scry logo off the screen. While this sounds like a lot of work for just drawing out the UI, it is necessary to use constraints so that the app's UI will consistently run on all iPhones. While I did my development on an iPhone 11 Pro simulator, the app will look relatively good on any other

kind of iPhone. I have even tested my app out on iPod touches, and it still works despite a little bit of overlap from the logo and the password confirm field.

## Scheduling

The next development step was to create a scheduler. My go-to solution for this was to try and use the Google calendar API, as I own a Google Phone and I use Google calendars a lot with my email. This was possible, but after further development research, I realized that the Datepicker UI framework created by Apple integrates perfectly with iPhones and has a much cleaner layout. The actual implementation of the Datepicker UI was complicated since Datepicker recently got updated in IOS 14 to have a much cleaner design. My early prototypes were popping up in very weird ways, and it was not until I dove deeper into the documentation that I could fix these errors. Since Datepicker was updated, a lot of the new documentation from Apple was written for Swift UI, so I had to convert this to UI Kit.

Once I had the date picker set up, I had to figure out how to store these dates on Firebase, so users could see when they had their appointments scheduled for. This part was tricky because these notifications involve two parts. The first is a notification request that is sent to Apple. This is what creates the actual push notification on the phone. It is quite simple, and all one must do is include a block of code that asks the user for permission to send notifications and then send a request for Apple to send the notification. Next is the data entry I make for it and store it in Firebase, so users (and me as the administrator) can see when their appointments are. Here, I



store the name of the appointment and the date. I do this so users can see what notification they will get from across devices.

## Focus Session

This is the most important aspect of the app. To recap, this feature allows the user to set a timer and then each time they lift their phone, swipe to another screen, or exit the app, they will get points deducted. To incentivize users to stay in the app, I changed the timer so that it pauses when users leave the app. I used the Datepicker UI to allow users to choose the amount of time they want to spend studying and used local notifications in conjunction with core motion to track any movement changes. Right now, the app is super sensitive to any kind of movement, so I implemented a little grace time (5 seconds) to make sure that picking up the phone would not trigger the loss of thousands of points. I got the idea from video games where when you get hit, you cannot take any damage for a set amount of time to prevent one's character from instantly dying. Regardless, every time a user picks up their phone, I keep track of this and store it in Firestore. Furthermore, I assign an arbitrary grade based on how many times a user has been distracted. Every infraction deducts a letter grade, so an A plus would be no infractions, an A would be one, and A minus two, and so on.

## Leaderboard

The leaderboard was the last technical problem I had to solve. My first iteration of this feature utilized a hacky design. Due to my lack of database knowledge, I just made a global list of users. Whenever a user scored points, I just added their points to a corresponding struct in the global list, as well as into the dynamic user profiles. In this way, I did not compromise user

security by having to index into every user account whenever I wanted to display the user board. I originally wanted to access each user's profile and get the points directly from them, but at the time, could not find a way to do this in Swift. Interestingly, I found the documentation to do this for Java on the Firestore website, but the Firestore website had no walkthroughs on how to do this via Swift.

With a bit of help from a classmate, I was able to implement what I theorized to be the better solution. Cycling through the user profiles is a much cleaner solution than having two copies of the same data and ensures fewer things will go wrong. This aspect of the project was complex and time-consuming because I had to do a lot of database research to clear up the confusion. Regardless, I was happy to find a working solution. Originally, I had intended to cycle through the average grades of all the users' focus sessions, but ultimately, I decided to display the leaderboard based on total points. I wanted to promote the amount of focus recorded to incentivize users to use the app more, rather than to only use the app when they know they will get an A plus. To get a concrete understanding of how the app works, I would recommend that you view the demo to see the app in motion as I run through its workflow. The demo displays the functionality of the app better than words can describe it. Once again, this video is under the Demos and Code Repos section. Also, if you have an Apple device and are technically inclined, I recommend that you download the app and give it a test for yourself, although I cannot promise that all the firebase capabilities will be working.

## Hardships and big technical problems

In retrospect, the two things that impeded my progress the most were my unfamiliarity with Swift and not owning, and hence not being familiar with an iPhone. The first one is evident, as learning a new programming language can be challenging. As an intermediate developer, I learn a new language best by comparing it to other languages I know better in order to get a reference for what is happening. Syntax is usually the least of my problems, as most syntax can be understood with a Google search. Many of the problems arise with efficiency. For example, if you were born in the tenth century and walked into a dark room in today's world, you would not try to hit a light switch, instead, you would try to find a candle or torch to light. The concept of a light switch and electricity would be alien to you, and you would use the tools available to you that you know exist. I came into Swift as a tenth century knight, gung-ho and eager to build. As a result, a lot of my early code was unusable and had to be trashed. I had three projects of faulty code I had to delete due to those files having faulty foundations. For example, I once had an implementation of Scry that did not use a tab controller (an abstraction that handles moving to different screens), and instead used buttons. This created a lot of complexity because I had to manage the individual buttons, when the tab controller could have handled them all.

### UI Kit vs Swift UI

One choice I had to make before the programming stage was the choice between UI Kit vs Swift UI. When I started my design phase, I did not know the difference between the two and chose UI Kit because my professor used it, and it was the industry standard. Before I get ahead of myself, both UI Kit and Swift UI are frameworks used to develop app UI in conjunction with Swift. These UI frameworks allow programmers to format the layout of their app screens and all

the visual elements of an app. UI Kit allows programmers to drag and drop objects onto the storyboard and position objects with their mouse. Swift UI is the newer framework developed by Apple (circa 2019), that does not allow programmers to edit the storyboard. Instead, programmers must implement the UI programmatically, i.e., write the UI completely with code. This eliminates the need for constraints (mentioned in chapter two) and also leads to less merge conflicts (when two versions of the code have conflicting changes). If I had used Swift UI, I could have avoided a lot of problems with constraints, but would have had to learn everything Swift UI related outside of class. A lot of UI Kit solutions are vastly different from Swift UI. Near the end of my IOS class, we worked on a project that introduced us to SwiftUI, but by that time, I was so entrenched in UI Kit, I found Swift UI to be very weird. In class, Dr Bulko confided that Swift UI did not take off the way Apple had expected it to. I expect this was because of many of the issues I encountered. Sometimes, learning a new framework can be a pain, and having to refactor an entire project from UI Kit to Swift UI can be very intensive. If I have learned anything from working on this app, it is that one should work with the tools they are familiar with.

## Testing the Code

In my outline, I had an entire section dedicated to talking about creating unit tests to check the validity of the code. This was my initial intuition as an industry engineer who had participated in a very big project at Athenahealth. Since everything I wrote at Athena required unit tests, I saw this project as no different. The goal of testing software is to reduce risk by proactively finding and eliminating problems that negatively impact the user. However, I came to realize that the best way to test was by using the app and getting friends to look at it. This form of functional testing is to ensure that the app does what it is supposed to do from a



functional perspective. If I put in this input and push this button, do I get the expected output?

The small scale of this thesis project was nothing like the big monolithic systems I worked on at Athena. While creating the app was a complicated endeavor, the code was fairly modular. My workflow usually was as simple as implementing a feature and then running the app to make sure it worked. Thanks to the modularity of my code, new features never disrupted the old code. Furthermore, things such as the UI and constraints cannot be checked with unit tests. These visual elements can only be checked by users, and since I did not have an iPhone, I constantly asked my more Apple-indoctrinated family and college friends to review my app to make sure it was in line with other IOS apps. In our IOS class, all of our projects were graded following a QA style (Quality Assurance), meaning that the grader would look through the app and test the features manually, rather than using a computer script to grade. Scripts are very useful for backend functionality, but since I used Firebase as my backend, I did not have to worry too much about any data validity. To conclude this section, if this app were a product for enterprise, unit tests would have been a boon, but due to the scale of the project, they were unnecessary. Manual quality assurance testing was definitely the better method of testing for the scope of this project.

## Development Takeaways

My biggest development takeaway is that we must pressure tech companies to have high ethical standards in regard to the tools they make and hold them culpable when they fail to do so. We live in a world with constant data breaches and a lack of laws regulating data harvesting. I cannot confirm whether Apple or Google have access to the data that I collect from my users via hidden backdoors. However, this app would have been impossible to develop without the free

tools Apple and Google provide. Theoretically, I could not have programmed everything from scratch, even if I were given ten years. Most developers feel the same way and have no recourse but to use tools already on the market. When developers try to build something, ethics are usually the last thing on their mind. From their perspective, the more available tools there are, the easier their task becomes. If Google Firebase is the best backend solution for the job, then there is no question about using it. A good analogy would be a carpenter choosing which tool to use to hammer in a nail. He can choose between a hammer made by a questionable company, or a saw made by an ethically sourced company. Of course, the builder will not choose the saw to hammer in the nail: he needs the hammer. This line of reasoning explains why I had to choose Google Firebase. When I first started programming for the app, I did not even second guess using Firebase because it is an industry approved solution that my professor and peers are using. The influence of FAAMG company tools is unshakable not only within the industry, but also within indie development. Many developers will not even consider the ethical trade off because the functionality far outweighs the ethics. I do believe we should invest more resources into creating legislation that will ensure tech giants follow best practices. When tech giants do not follow best practices and developers are dependent on their tools, then all development suffers from any inherited ethical breaches.

## Chapter 3

### Testing the App

Implementing the Scry App in the iOS environment was a phenomenal experience from the standpoint of developing a reasonable level of expertise on how to best use the available technology to make an app. However, as the saying goes, “The proof is in the pudding.” An app, no matter how aesthetically pleasing the design, must have a certain level of functionality and fulfill the objectives it set out to accomplish. The reason for building the app is to have users use it. Therefore, it is imperative to understand users’ experience with the app in order to understand the role different features and factors play in user engagement and satisfaction. This understanding drives app developers to customize applications to improve users’ experiences, perceptions, and feelings, and in turn, engagement. A rewarding notification and user experience will generally foster positive emotions and positive motivational participation.

The objective of building a distraction blocker app was to investigate whether such an app could encourage students to ignore distracting online stimuli in order to devote their own

attention to their own learning needs. My objective was to create a useful and welcome tool that would ultimately heighten motivational participation in educational tasks. I hypothesized that notifications, reminders, and feedback would create a cognitive reward system, acting as Pavlovian cues, positively reinforcing motivating behaviors which results in more persistent engagement and negatively reinforcing distracting behaviors which results in redirecting attention controls to re-engage with the task. I anticipated that stimulus response patterns involved in notification, reminder and feedback behavior would help create and foster a focused mentality that engenders an expectation and psychological mindset of attention control.

Initially, I considered devising rater scales, but abandoned this assessment method as I did not believe that it would yield sufficient knowledge for in-depth analysis. Instead, I conducted 30 - 60 minute in-depth interviews with app users to better understand their user experiences and to better understand why notifications, reminders and feedback are described as positive, negative, or neutral. A key benefit of in-depth interviews is that it gave me the latitude to gain deep and detailed answers with participants recounting their user experience, discussing features and factors that contributed to or hindered their user experience, and exploring what additional features or factors might nudge users to increase use and engagement. Students were also encouraged to provide free-form feedback that they considered helpful, and thus, the interview method allowed me to explore and probe issues that I may not have considered myself. Although in-depth interviews with students do not yield objective quantifiable data, at this stage of app development, a qualitative approach is more suited to the purpose of gaining deep and detailed answers that allowed me to reflect on features and factors that contributed to or hindered app users' experiences. User feedback is vital in understanding the different features and factors

necessary for motivational participation: no two users are identical in their needs and wants, but patterns and trends tend to emerge that advance the development of a more effective user app.

I adopted a responsive interviewing style around a few main questions designed to encourage the users to do most of the talking. Users were asked to answer a set of questions devised to learn whether users' experience with the app were positive, negative, or neutral. The questions were open, semi-structured, and interactive thereby encouraging honest and reflective responses rather than cursory responses. My interest in participants' responses helped build a good rapport and encouraged participants to discuss in depth the details of their experiences.

1. How do users describe their experience with the app? With app notifications?  
Reminders? Feedback?
2. How do users describe their feelings with the app? With app notifications? Reminders?  
Feedback?
3. Did the distraction blocker app contribute to or hinder your attention controls/self-regulation? What if any additional features would be helpful?

Through the process of listening and questioning, I gained valuable insight into the objective features of the app and the subjective feelings associated with its use.

Participants were college students in the 18 -23 age range, an ideal cohort as the vast majority of this population have experience with apps on mobile devices and the majority have grappled with attention controls during college lectures at some point in their college experience. Participants were volunteers and were not incentivized or rewarded in any way for their

participation. This ensured that participants were eager to cooperate and collaborate with the researcher. Based on their open responses, typically users fell into one three categories:

- users who are very aware of the pernicious effects of perpetual notifications and scrolling habits and hence, very eager to learn to control their attention controls.
- users who embrace the online world of chaos and dopamine induced distractions, and hence are resistant to prioritizing their attention controls believing they can multitask.
- users who were confident in their own attention controls and self-regulatory skills and hence, neutral but agreeable to testing Scry to oblige the app developer.

Feedback from 12 participants who tested the app over several sessions confirmed that the app was functional and usable. Findings suggest that it is possible for a distraction blocker app to influence and restrict students' inclination to become easily distracted. In trials, students who used the app reported that it encouraged them to ignore distractions with phrases such as "Recapture attention" and "Tickle the user" (tickle is a colloquial term for gaining user attention). Many of the participants mentioned that it was a welcome respite from a constant barrage of notifications that was the root cause of their distraction and 'busyness' and hence, they welcomed that the app encouraged participation in class, and alleviated being distracted by messages or notifications that had no relevance during their study session. Many of the participants expressed feeling less frustrated/overwhelmed/burdened at being able to control the volume of notifications during class, but others spoke about feelings of frustration and anxiety due to what is commonly known as FOMO - Fear of Missing Out. However, those who suffer from FOMO admitted that the app helped create clear boundaries, (boundaries that they were incapable of or lax in setting for themselves), which in turn, helped users break the habit of feeling obligated to immediately respond to new notifications.

Generally, students welcomed the opportunities to fine-tune their own attention controls without the interference of teachers. Each time a student was distracted, the app issued a reminder to get back on task. The students who used the app and were issued reminders reported that they were more likely to lose less time on distractions and paid better attention to class work. Receiving direct reminders and encouragement from the app overrode students' impulsivity and desires to engage in distractions during learning sessions. Surprisingly, students who were most reluctant to use the app as they were confident in their ability to multitask, that is study and attend to all push notifications, engine recommendations, etc., while 'actively' participating in class, expressed a new awareness of the benefits of controlling their own attention as reflected in increased retention of class knowledge and increased class participation. Although these users were initially reluctant to participate, the app seems to help unveil their self-deception and create an awareness that there is a level of sacrifice and a price to pay if distractors gobble up slices of one's attention pie.

Although the evidence from my trials is based on in-depth interviews, and although interviews are not objectively quantifiable and can be biased due to subjectivity and lack of honesty/transparency, results suggest that distraction blocker apps help strengthen selective attention controls. Selective attention is the building block of all learning tasks, allowing the learner to resist distractions and fully commit to focusing on specific learning tasks. Further scientifically valid and reliable studies based on larger populations of different age groups need to determine the reliability and validity of these results and need to determine if apps that increase self-regulation lead to enduring physical and functional neurological remodeling across different learning domains.

The emerging field of neuroscience and Encephalogram (EEG) neuromapping software shows brain activity in real time and can also measure changes in brain patterns over time. Future researchers and developers of distraction blocker apps should conduct EEG experiments on subjects engaged in cognitive tasks comparing sessions using the distractor blocker app with sessions without the distraction blocker app to note the differences in brain patterns in real time. This method of quantitative analysis over many subjects would show how repeated distractions fundamentally change brain patterns during cognitive tasks and would also show neurocognitive differences over time due to attention and self-regulation training. Distraction blocker apps are potentially powerful tools for a range of attention and self-regulation research studies and if results prove scientifically valid and reliable, these apps may become the first line of treatment for those grappling with technology addictions and those diagnosed with deficits in attention controls and executive functioning.

The distraction blocker app is likely to exert influence on students' behavior through positive and negative reinforcement in the same way as a teacher might. However, many students reported a strong preference for using the app as a distraction blocker tool rather than being monitored by a teacher. Students reported that the tool when switched on consistently empowered them to take charge of their own attention controls and to seek to improve their level of attention control without the negative attention of a teacher. Students used phrases like "it gets the teacher off my back", "doesn't bother me as much as a teacher constantly nagging," "not ridiculed in front of my classmates", "sick of the teacher at me", etc. It is hoped that the patterns of behavior engendered through a rewards system will ultimately lead to an internal locus of control that fosters motivational participation. Such comments suggest that students would rather take the locus of control away from, in Foucauldian terms, disciplinary bodies. Stry is a self-



monitoring app that offers a sustainable means of enhancing attention controls and with continued use should nudge students towards developing an internal locus of control.

Although I did not test the app on teachers, prior to its development I discussed at length with several teachers the features and factors I should take into consideration and the pros and cons of devising a distraction blocker app to monitor attention controls in educational settings in real time. Teachers in general were very enthusiastic: they reported that distractor blocker apps would relieve them of playing the role of “robo-cop” or disciplinarian and allow them to focus on their role as teacher/facilitator. Both teachers and students reported that the app would help to reduce adversarial relations and conflict that often arise when students are not in control of their attention and learning. Students reported feeling a sense of independence and a sense of anonymity when using the app, albeit a false sense of anonymity as all data are transparent to teachers and administrators. If future reliable valid studies conclude that distraction blocker apps can positively influence attention controls, or at least provide reliable valid data on attention controls, then there are several implications for students in our schooling system. These implications will be discussed in Chapter 4.

## Steps for Future Development

While it was not within the scope of this project, there are certain features that would augment Scry’s effectiveness and which would be worthwhile if the app were to be marketed. I excluded these features initially because I wanted to run lean. I am aware that the number one killer of projects is adding on as many features as one can, because at best this causes bloat, and

at worst, you are just trying to fix inefficient features with auxiliary features because the core features are not functioning optimally.

For improved self-monitoring, I would implement a home screen that lets users chart their progression. I would use a tool like Graphana to show users their overall growth and to reward them for fostering good attention control habits. I would implement streaks for using the app every weekday and give bonus points for any focus sessions initiated on the weekends. I have also considered giving a miniscule number of points for scheduling a session, since that rewards user commitment.

Another beneficial feature is to devise a way for two users to open up a video chat, with the goal that they work together and hold themselves accountable for working together. Participants would have a 2-minute window to chat and to get ready for their dual focus session. After that, they would work together in silence for a set amount of time, or with background noise or music conducive to study. Utilizing methods from the pomodoro technique (a focus method where one works for twenty-five minutes at a time, then breaks for five), we could allow users to interact in these five free minutes, and then study for the other twenty-five. This feature would definitely implement elements of Lyon's Post-Panoptic Society and would also turn the app into a vertical social network (a social network with a singular focus like Stack Overflow, rather than a generalized social network like Facebook). The more I explore additional features, the more aware I become of how personality type and preferences factors into how effective a feature will prove for different individuals.

One shortcoming of the app is that it failed to detect when students engaged in inattentive behaviors like daydreaming or zoning out. Ironically, this admission of guilt came primarily

from those in the group that asserted that they were confident in their own attention controls and self-regulatory behavior. Inattentive behaviors may be covert, and therefore can fly under the radar. Rather than being distracted by external influences, these students were distracted by the inner workings of their own minds.

The comments of this group made me aware that the etiology of lack of attention controls are different for different individuals. This is in keeping with the characterization of Attention Deficit Hyperactive Disorder (ADHD) as “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (DSM-V). Although the existence, definition and treatment of ADHD are highly controversial topics, there is growing concern that girls may go underdiagnosed as they usually fall primarily into the predominantly inattentive subgroup (Barkley, 2014). Because the docility of the inattentive group does not interfere with classroom instruction in the same intrusive way as the impulsive/hyperactive group, these students can go undiagnosed and untreated. ADHD will be further discussed in Chapter 4: Societal Implications.

Distraction blocker apps could categorize users into two subsets: those who want to resist external distractors and those who want to resist internal and external distractions. Scry caters to the first group but would need to have additional features to capture/ engage the second group by having them receive randomized push notifications to keep them on task. Most likely these subgroups have different personality types with different preferred cognitive functions. I imagine that those who are easily distracted by external influences are extraverts that like to engage in the real world, while those easily distracted by their inner world are introverts who like to intuit or engage in their imaginative or conceptual world. If I were to create a feature to help combat zoning out, I would implement a randomized rewards system that incentivizes listening

via minigames. For example, every time a teacher asks a question, instead of clicking the raise hand feature on zoom, users could shake their phone to answer the question. The physicality of shaking one's phone would engage the student more, and perhaps there could be some kind of extra credit opportunity associated with it. For this to work through, teachers would have to include more interactive elements into their learning sessions.

## Chapter 4

### Societal Implications

Our society has increasingly rigorous standards of educational achievement and our educational system is based on the belief that higher education is attainable for everyone. However, in the US, there is a propensity to medicalize deviance by assigning psychiatric diagnoses to students who do not conform in the school environment. For instance, over the past decades, the number of children and adolescents in the US diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) has skyrocketed. ADHD, classified as a brain-based neurodevelopmental disorder and characterized by "persistent problems of inattention, hyperactivity, and/or impulsivity that leads to dysfunctional behaviors across a range of life domains" is the most commonly diagnosed psychiatric disorder among children and adolescents (DMS-V). Currently, in the US, 9.5% of students are diagnosed: one in six boys and as many as one in five high school boys (cdc.org). The vast majority (62%) diagnosed between the ages of two and seventeen are treated with stimulant medication to improve weak attention controls and poor executive functioning (chadd.org).

The continued upward trend in ADHD diagnoses in children and adolescents points to the need for research to better understand the causes of this rise. There is to date no objective physiological, cognitive, neuropsychological, or metabolic biomarker or no single diagnostic test that can definitively diagnose ADHD (Barkley 2014). The heterogeneity of ADHD symptoms and individuals suggests multiple causal pathways. It is plausible that digital modernity and its incentivization of perpetual scrolling is one of the potentially modifiable environmental risk factors. Foucault would view schools with their hidden curriculums as institutions of disciplinary social control governed by hierarchical observation and normative classification and would likely criticize the use of psychostimulants as teachers and parents engaged in drugging behavior to engender a docility that conforms to educational environments and expectations. I have previously discussed at length the addictive state of compulsion that surveillance capital's behavioral engineering expertise has engendered in so many of today's children and adolescents. Like ADHD, behavioral addiction disorders are classified as psychiatric disorders, but research on gaming and social media and app addiction is still in its infancy. With increased embedded surveillance and the unprecedented asymmetries in knowledge and power that online surveillance technologies in schools afford, we can only expect the trend for increased diagnosis and medication to continue unabated unless we abandon our current stance of ethical indifference and mindless capitulation.

The ability to be in command of one's attention controls and executive functioning will become increasingly important in the school setting. Students who fail to meet the ever-increasing demands of school will most likely find themselves classified and categorized as ADHD or some other psychiatric or learning disorder label that stigmatizes and disempowers. What we choose to view as a disorder may in fact be more of a social construct in our

achievement oriented high-pressure society. Although a diagnosis of ADHD like other psychiatric diagnoses is made based on a full developmental, clinical, psychiatric, and psychosocial assessment of each individual, rating scales based on self-reports or observations by parents and teachers are integral in the assessment process. Ratings can be highly subjective as rater perceptions can be influenced by variables such as gender, age, knowledge, culture, personality type, etc. Diagnosis is clinical and subjective and lacks scientific reliability and validity. Going forward, parents and educators must ensure that students are not diagnosed with attention control disorders on the basis of extremely cursory evaluations.

In the foreseeable future, we can anticipate that embedded surveillance and distraction blocker apps will provide more reliable data upon which to base diagnoses. Artificial intelligence is becoming increasingly accurate and predictive in behavioral analytics. Everyone exhibits attention control deficits to a greater or lesser degree, but we must establish a cutoff line between what is normal and what is pathological and may interfere with functionality across life domains. If behavior is considered a scientifically valid biomarker, then it must be measured objectively. A distraction blocker app could be used to collect reliable data by recording distraction frequency and severity, as well as improvement over time. This data is more reliable than self-reports and observations based on rating scales. A distraction blocker app that is utilized across all school systems may lead to those who truly grapple with attention control deficits but are underrecognized (minorities, those in lower socio-economic classes), underdiagnosed (particularly those without the hyperactive component), and underserved being diagnosed and treated. Utilizing a distraction blocker app to enhance attention controls appears to be a worthwhile behavioral modification tool before resorting to psychostimulants as it places the

locus of control in the hands of the individual. As previously discussed, risk identification is of little or no use if those at risk are not offered suitable resources and multi-pronged interventions.

Individuals in Lyon's post-panoptic world can to a degree increase resistance to the lens of authoritative surveillance by engaging in self-surveillance and self-monitoring. However, this begs the question: Do self-monitoring tools such as distraction blocker apps contribute to or hinder the power of hierarchical surveillance? Foucault would see self-surveillance and self-monitoring as primarily serving the controlling authorities in society and hence, undemocratic. He would argue that knowing ourselves and regulating ourselves to fit the routines, rules and regulations of higher governing powers is internalizing their locus of control. Ultimately, I believe that self-surveillance and self-regulation may be more desirable than external regimes of surveillance. True, there is the danger that self-monitoring apps lead to a growing complicity in embracing the intensification of surveillance performance to uphold disciplinary powers in schools turning students into docile self-regulating subjects. However, a lack of motivation to conform to educational expectations is always seen as a deficit in the child or adolescent in need of treatment and more often than not leads to labeling, stigmatization and self-fulfilling prophecies that disempower. The system is rarely if ever found to be at fault.

Mass schooling demands social order, but should social order be so rigid and so medicalized? Schools tend to run on the assumption that 'one size fits all' and educators strive to drive every 'square peg into a round hole'. If schools use data for students and not against students, then data collection would be for the greater good and the social benefits would outweigh the costs. If the potentialities of data were to maximize educational gain for all and lead to a more balanced distribution of educational benefits and educational inclusion for the marginalized, then surveillance in schools could be nudged in a democratic direction,

democratizing education away from more entrenched traditional educational institutions and the elite few. However, for misdiagnosed students, there is a price to pay in stigmatization and lowered self-esteem and self-expectations. Moreover, there is the social cost of valuable and limited resources being misallocated. Technology has ushered in tech tools that can be accessed by all for self-monitoring and self-regulation and these tools have the potential power to somewhat disrupt centralized educational authorities if students (and their parents) demand that educational environments and curricula meet their individual needs. Ultimately, we must resist confluence and demand a better educational system with tailored educational and behavioral interventions that cater to our individual needs in a digital modernity. Self-monitoring could prove to be as disruptive to educational institutions as fintech is proving to be for traditionally entrenched financial institutions. It is up to us to wrest back control of our own data and control of our own attention.

School services should focus on the educational needs of each individual and be distributed based on those needs and not on clinical psychiatric diagnosis. The aggressive marketing of Big Pharma and the profitability of advertising to sell attitudes, illnesses, and the drugs to cure psychiatric disorders like ADHD must be tempered by our government. There should be constitutional protections against school systems using psychiatric diagnosis to command extra services and constitutional protections against the aggressive marketing of Big Pharma. To combat diagnostic inflation, it is also imperative that our government devise and implement regulations limiting software design that optimizes data extraction through engendering addictive behavioral patterns. Government regulations must be sufficiently stringent that tech is obligated to bring ethical design to its products and make platforms and apps less addictive so that users have more control over usage. We can choose to label our vulnerable as



psychiatrically ill or as the victims of missing public policies. Currently, public policy allows escalating psychiatric diagnosis to take care of the problem of neurotypical individuals who develop addictive behaviors and deficits in attention controls and executive functioning due to pernicious but modifiable environmental factors. Psychiatric disorders are neither creating the problem nor fixing the problem. Data extraction is the new gold and public policy must ensure that attention extraction is contained in much the same way as smoking is contained. The difficulties that individuals have in dealing with the pernicious effects of perpetual scrolling and in meeting society's educational attainments should not be labeled as psychiatric disorders.

## Summary

For their own personal gain, developers and investors are content to turn a blind eye to social chaos engendered by the addictive platforms of social media and apps designed to consume the maximum amount of users' attention with algorithms that fuel variable rewards while voraciously amassing users' data. Technology continues to expand exponentially and will become increasingly integrated into our lives and AI continues to get better at predicting what keeps us on the screen. Processing power has increased with such speed that our brains, which have not evolved at all in this short time frame, cannot keep pace. A user's brain competes with behind the screen the power of AI in the form of thousands of interconnected computers running complex programs. Essentially, the machines are controlling the information to manipulate and mold users. The AI knows all about us by analyzing vast streams of data, but we know next to nothing about the AI.

Currently, there are no laws around digital privacy and no fiscal reason for corporations to change. Zuboff argues that regulation is what the tech companies fear most and urges that markets that trade in human futures are made illegal in the same way as slave trade was made illegal. She implores users to stop being used and demands that regulations be implemented so that tech is forced to forego its corrosive business model and curtail its attention extraction model. If regulations are implemented, users can enjoy digital modernity without relinquishing their liberty and democracy to surveillance capitalism. It is not ethical to treat humans as extractable resources; products must be designed humanely so that humans can preempt addictive behaviors and all their concomitant negative consequences. Technology is not a law of physics: humans can change tech and have a moral responsibility to change it.

Similarly, cultures of surveillance are socially constructed and thus can be challenged and reformed. Surveillance should be for people and not of people. We have a moral responsibility to cultivate “the good gaze” in our surveillance culture in the social, political, economic, and cultural spheres. We have a moral responsibility to ensure that social sorting, rather than lead to discriminatory practices, leads to interventions that help the vulnerable in our society. “Philosophers have defended the idea of prioritarianism, a form of welfarism that puts special weight on the well-being of those who are worst-off” (Sunstein, p. 42). The interests of people must be put first. We need to reinvent our economic system so that each individual is the controller of his/her own attention and the owner of his/her data.

I hope that this distraction blocker app will pave the way to help children and adolescents wrest back control of their own minds and in doing so, initiate a trend of stealing power away from corporations and institutions that optimize attention extraction to fuel data mining for maximal profits and optimal social control. If a fraction of the time, effort and money that is put

into the gaming industry were invested in mind training or neurological remodeling games, then our education system could breed a generation of leaders rather than followers. Tim Hartford, the award-winning economist, suggests that in the future perhaps selling our own attention or data may be plausible: “What are Facebook, Uber and Amazon, for example, if not databases which use our information to help us interact? Might blockchain one day build new online models where we own our data, or perhaps sell our attention directly? Some think so” (Hartford, 2019).

The burden of responsibility for software that causes addictive behaviors should primarily fall on the companies that contract these apps, as well as on the shoulders of all who develop these apps and platforms. Users of these apps should, as responsible citizens, critically reflect on and take ownership for their own technology usage, but we need government and industry reforms to protect their rights. Surveillance culture is part and parcel of today’s digital modernity and the normalization and domestication of surveillance practices mean that today practically everyone is actively engaging in their own surveillance – self-tracing for health, fitness, time-management, income, etc. - and in the surveillance of others. Surveillance technology is here to stay, and we can expect it to be increasingly incorporated into institutional, governmental, and corporate devices as well as personal devices, with the line between the public and private sector becoming increasingly blurred.

Going forward, institutions must optimize data mining and predictive behavioral analytics for the benefit of all by devising narrower applications like the attention distraction blocker app to make data mining and AI useful in a democratic way. If surveillance is used to classify, categorize, and hierarchize, then surveillance data must be used in the best interests of those that are differentiated, rather than pathologizing them. Schools should, at the very least, be open and transparent in their surveillance mechanisms. Students can actively engage in

monitoring their own attention controls and teachers and educators can use this reliable source of data to make improved educational decisions that benefit those who need intervention.

Distraction blocker apps help with individual accountability placing individuals in the seat of control and change. However, it is imperative that government regulations are devised and implemented to curb tech's unlimited power to prevent the escalation and legitimization of behavioral addictions and psychiatric diagnosis.

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# Access to Demos and Code Repository

Below are my demo and code repos. I just created a GitLab repo that is publicly available, and you can access all the code and even download and run the app on your own iPhone if you chose. For a more guided view of the app, you can look at the Demo videos I recorded and made public via my Google account.

Gitlab: [https://gitlab.com/JordanHilder9/scry-a\\_panoptic\\_distraction\\_blocker](https://gitlab.com/JordanHilder9/scry-a_panoptic_distraction_blocker)

Demo Videos:

[https://docs.google.com/presentation/d/125tt3FIXsEAixs30sQLpKf\\_dH9nfNIOcERtT2bACEaM/edit?usp=sharing](https://docs.google.com/presentation/d/125tt3FIXsEAixs30sQLpKf_dH9nfNIOcERtT2bACEaM/edit?usp=sharing)

# Biography

Jordan Hilder is a huge fan of raccoons and can usually be found at Clarke Field at 2 am taking videos of raccoons fighting over trash. Right now, he is debating on what post-graduation pet he will adopt: it is a three-way tie between a cat, a raccoon, or a snake. To feed his pet, he will be working as a software engineer at Athenahealth starting this summer. Last summer, he worked as an intern with the scheduling team at Athena. His code was used to help people schedule all manner of medical appointments, even Covid vaccines. To compliment his day job, he is looking into starting a free tutoring service for kids that do not have access to computer science programs.