Jonathan Schreiber

CSC 300

Assignment #2

As I sit here, trying to think of a captivating way to start this paper, my mind and eyes begin to wander. I notice that every single person who is sitting around me is glued to their phones. I watch as a class gets dismissed nearby and observe most of the students immediately start scrolling through their missed notifications. My friend walks by, but he is too consumed in his smartphone to notice me or even hear me as I call out his name. Now I look like a fool, it’s a good thing no one around me noticed either. What I realize is that the very phenomena that is transpiring before my eyes is exactly what concerns me most as a budding computer professional. The very technology that was designed to connect us, make us smarter, and make our lives easier is only making us isolated, dull, and is literally changing our brain chemistry. The scariest part is that most people don’t even realize that they are being used by the technology they are using. Therefore, being a computer professional in this day and age no longer means simply creating better and better technology; it demands a much greater responsibility. It means asking the tough questions about new technologies and considering the potential impacts and consequences they pose. It means critically examining old technologies and understanding how they affect society today. It means figuring out how to reintegrate technology into society in a way that is not intended to addict and exploit. Through my experience as a Computer Science student in a world that is constantly becoming more and more digitized and through my analysis of *What The Internet is Doing To Our Brains: The Shallows* by Nicholas Carr, I will argue that the responsibility of computer professionals has never been greater.

Even before reading *The Shallows* by Nicholas Carr, I knew that there was a major issue with how technology is being used today. It doesn’t take a genius to realize that technology has consumed humanity, only someone who is halfway observant. However, what I didn’t know was exactly what is happening in our brains as we continue to rely on technology more and more. I honestly didn’t know much about the brain in general. This all changed when I read *The Shallows.* I take few issues (which I will get to) with the picture Carr paints in this eye-opening novel. His argument is extremely thorough as he aims to convince the readers beyond any doubt that the internet is in fact changing the chemistry of the human brain. The logic that he followed to prove his central thesis followed similar logic to that of a mathematical proof. If you wanted to prove that technology is changing our brains, you would first have to prove that our brains are, in fact, capable of change. This is precisely how he begins his argument. He describes the exact experiment in which Michael Merzenich first discovered that adult human brains are in fact plastic (capable of change), and his ensuing studies which convinced the scientific community that previous held theories that the adult brain was fixed were wrong. “The brain is not the machine we once thought it to be. Though different regions are associated with different mental functions, the cellular components do not form permanent structures or play rigid roles. They’re flexible. They change with experience, circumstance, and need” (Carr, 29). After Carr establishes that our brains are plastic he continues his history lesson by showing how past “tools” or “technologies” have changed our brains. He begins with early human abstractions that helped the mind understand more complicated abstractions, such as the map and the clock. Historically speaking, however, the “technology” that Carr sees as the most influential on human thought was the book. Reading and writing altered thought and inspired knowledge more than any other invention in human history. “The words of the writer act as a catalyst in the mind of the reader, inspiring new insights, associations, and perceptions, sometimes even epiphanies. And the very existence of the attentive, critical reader provides the spur for the writer’s work. It gives the author the confidence to explore new forms of expression, to blaze difficult and demanding paths of thought, to venture into uncharted and sometimes hazardous territory” (Carr, 74). It is only after establishing all of this historical context that Carr begins to discuss computer technology. He dedicates the entirety of Chapter 7 to citing studies on deep reading, memory functionality, and the adverse effects of hyperlinks in texts that show how the internet is manipulating the neurons in our brain. They can be best summed up with the following passage. “One thing is very clear: if, knowing what we know today about the brain’s plasticity, you were to set out to invent a medium that would rewire our mental circuits as quickly as thoroughly as possible, you would probably end up designing something that looks and works a lot like the internet. It’s not just that we tend to use the Net regularly, even obsessively. It’s that the Net delivers precisely the kind of sensory and cognitive stimuli-repetitive, intensive, interactive, addictive-that have been shown to result in strong and rapid alterations in brain circuits and functions” (Carr, 116). The very nature of the internet causes changes our minds; it tricks us into expecting instant gratification as the norm and trains our brains to constantly work under distractions, making it hard to focus on a single task. “The Net’s cacophony of stimuli short-circuits both conscious and unconscious thought, preventing our minds from thinking either deeply or creatively” (Carr, 118). These distractions that the internet inspires are having a drastic effect on our thoughts. The same deep thinking that was reached by the “critical reader” is contradicted in the online world. Our brains are merely skimming the surface while on the online world, incapable of fully investing in a topic. “The Shallows” is a fitting name the book, as our brains continue to sacrifice depth for “efficiency”. Carr’s argument was thoroughly convincing; there is no doubt that the internet and the dependency that humanity has developed on it have significant consequences on our minds. Although I appreciate his argument, I was disturbed that he offered no solution or course of action we can take to combat the bleak future we are heading towards. He ends the afterword with “We may be wary of what our devices are doing to us, but we’re using them more than ever. And yet, history tells us, it’s only against such powerful cultural currents that countercultural movements take shape. As I said, it’s a small boat. But there’s still plenty of room inside. Feel free to grab an oar” (Carr, 228). This invitation to “join him in the countercultural movement” seems like a genuine call to action, yet what action can be taken? Downloading software to limit the usage of other software? Setting time limits on apps and programs? These solutions may work for the most mindful of society, but the real issue is that most of society does not even realize that there even is a problem. Carr himself even admits that he is just as reliant on the internet as the rest of us. “As for me, I’m already backsliding. With the end of this book in sight, I’ve gone back to keeping my email running all the time and I’ve jacked into my RSS feed again. I’ve been playing around with a few new social-networking services and have been posting some new entries to my blog. I recently broke down and bought a Blu-ray player with a built-in Wi-Fi connection. It lets me stream music from Pandora, movies from NetFlix, and videos from YouTube through my television and stereo. I have to confess: it’s cool. I’m not sure I could live without it” (Carr, 200). Maybe I am being too critical of Carr; the point of the book is to spread awareness on the effects of the internet. But for me there has to be something more. As a future Computer Professional, how can I go into an industry that is built around exploiting users’ attention for self-gain? How can I claim that the technology that I will be helping to create will “create a better society for everyone” when it is so clearly sucking us in and diminishing our minds? In reality, Carr does not need to have the answers, because that is not in his scope. What is in his scope is researching, building arguments, and spreading awareness on complicated issues, which he did beautifully. Maybe the reason I felt like there was something missing at the end of the book was because I know that the ball is in my court now. It is up to the computer professionals of today and tomorrow to come up with solutions to these tough questions and reintegrate technology into society in a way that will actually be beneficial.

My least favorite question that people seemingly love to ask is “What are your plans for after college?”. Usually I just laugh and make some sort of joke like, “That’s a problem for future Jonathan to deal with”. They then usually say something like, “Oh, well you’ll be fine. You’re in Computer Science so you’ll make buttloads of money regardless”. But to be honest, I hate that. The reason I am getting a degree in Computer Science isn’t to make “buttloads of money”, it’s because I love solving problems. I know that most of my peers are primarily concerned with what their future is going to look like and how they are going to get enough money for their family and what-not. Don’t get me wrong, I believe these things are important. However, I will not be able to live with myself if I take a job as some software engineer at a huge tech-company that is not concerned with making a positive impact on the world, but instead is exploiting user’s attention and data just to increase profit. I will not be able to live with myself if I see people addicted to the technologies that I am helping create, just so that I can get a bigger paycheck. I will not be able to live with myself if I create technologies that destroy the environment even further. This is because of a sense of responsibility that I carry to give back to the world. I am extremely grateful with the cards that I have been dealt in life. I was born to a caring and loving family in Colorado, where I was constantly showered with love and encouragement. For some reason, I was always really good at math and school in general. I developed a love for the outdoors and the natural world. I was allowed to be myself, and through the experiences and the wisdom of those who have touched me, I learned that the most important things in life aren’t things you can see on a screen or buy with money but are the connections we make. I learned that value doesn’t come from external validation, but from within. But something still didn’t stick right with me, and frankly still doesn’t. Why should I, some random kid, get such a great life, while there are kids all around the world that are suffering every day? I felt really guilty for a long time. Yet I soon realized that feeling bad about how great my life is isn’t going to change anything. So instead of sitting around feeling guilty I should use this incredible fortune that I have been blessed with to make a positive difference in the world. And to be honest, based on the current state of the world I believe we need more people to embody this philosophy. I am genuinely concerned for the future. It pains me to sit down in class and look around only to see everyone fixated on their phones, afraid of the angst of awkward silence. It seems that our phones have become our default in any uncomfortable situation. Yet what people have forgotten is the most growth occurs in those moments outside of the comfort zone, where angst and awkwardness flourish. Sherry Turkle, in her article “Stop Googling. Let’s Talk” points out how our phones are taking away from genuine conversation and are in fact making us less connected. She touches on the importance of feeling uncomfortable in both social and private situations. “In solitude we find ourselves; we prepare ourselves to come to conversation with something to say that is authentic, ours. If we can’t gather ourselves, we can’t recognize other people for who they are. If we are not content to be alone, we turn others into the people we need them to be. If we don’t know how to be alone, we’ll only know how to be lonely……For conversation, like life, has silences – what some young people I interviewed called “the boring bits.” It is often in the moments when we stumble, hesitate and fall silent that we most reveal ourselves to one another” (Turkle, “Stop Googling. Let’s Talk). What pains me even more is that each of my fellow students sitting in class with me are all probably going throw their phones in the trash sometime in the next couple years, only to upgrade to the next latest and greatest model. And where is their old phone going to go? Are they going to magically disappear? And what impact on the environment did the production of that brand-new phone have? According to the article, “Digging for rare earths: The mines where iPhones are born” by Jay Greene, iPhones require rare earth’s to be mined in order to operate. However, mining these metals and disposing of them can prove to be costly for the environment. “By some accounts, the smog in Baotou can be dense, the air acrid. But the biggest hazard is an artificial “tailings” lake west of the city, where refineries that process the rare-earth minerals dump their waste. A Daily Mail reporter, who sneaked past guards and climbed sand dunes to reach the rim of the lake, described it as “an apocalyptic sight.”” (Greene, “Digging for rare earths: The Mines where iPhones are born”). The scariest part is that these two issues (which both pose serious threats on the future) are just two in a vast sea of uncertainty surrounding technology. What is most disturbing to me is how lax, and even ignorant some of the leaders in the tech industry are. George Holtz, a famous super hacker who is working on self-driving cars, interviewed with Reason TV. In the interview, Holtz claimed that “AI is going to take everyone’s jobs and that he is looking forward to this day”, saying that it is “the end game of technology in general”, and “this is a great world”. However, when the interviewer asked him, “Well, what would that world look like?”, Holtz said, “Oh, I think a month in advance… I’ve got a date tomorrow night”. This is just another example of the “engineering mindset” at its worst. Holtz is quick to state that “technology is so great” yet refused to ask the tough questions and critically think about how what he is building will impact the future. Maybe it is the values that I have held true for my entire life, maybe it is the rich and eye-opening content of this very “Computer Ethics” class, or maybe even the open-ended conclusion of *The Shallows*, but I have never had a clearer vision of what it means to be a computer professional in today’s day and age. A computer professional is someone who is, first and foremost, aware of the ethical questions and complicated issues that are present in our society. It’s someone who is willing to critically analyze existing and future technologies and have the courage to ask tough questions. It’s someone who is willing to put aside their desire for a paycheck, recognition, and power to work towards building a better society. It’s someone who is willing to question the way the tech industry is being run and who has the courage to start doing things differently. It’s someone who is concerned with and aware of the social, political, ethical, and environmental implications of their work. Even though I still have no idea what to say when people ask me, “What are you going to do after college”, I have never had a clearer vision of my future. Maybe I should just start answering with, “A Computer Professional”, because even if I don’t know what exactly I will be doing, I know the values that I will carry forward with me.

Technology poses one of the most convoluted, complicated, and paradoxical ethical conversations in human history. As we continue to make life “easier” through technological innovation, we are simultaneously becoming disconnected and idly watching as the natural world around us is destroyed. I am not saying that technology is bad, but I am saying that we need to stop being ignorant to the side effects that are threatening to destroy society as we know it. This is why as our society evolves, it is important for the very idea of a computer professional to evolve as well. No longer can we be primarily concerned with our own self gain while remaining ignorant to the ethical implications; there is too much at stake. No, there is a much greater responsibility in being a computer professional today. I am not saying we must be perfect, but we can be a whole lot better than the standard that has been set for us.