

Adam Netsky
Multiverse
Non-Fiction Component
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Multiverse: a fictional exploration of algorithms and agency

For my thesis project I have written a work of fiction entitled *Multiverse*. Here I will demonstrate its context within the academic framework of Media Studies and its underlying arguments and goals. Along the way I will detail its many inspirations and connections to the philosophical ideas, authors and real world institutions and practices which have inspired it. Overall I will argue for the use of theoretically informed fictional narrative, in the form of a near-future existentialist novella, as a tool to show how big data algorithms are threatening human agency in the contemporary world.

In brief, *Multiverse* is the story of Albert, a young man in New York City who works in communications for a data analysis company. Relatively new to the city, having graduated with a BA in Philosophy upstate, he finds himself socially isolated and growing apathetic. He has even lost touch with his best friend, Paul, with whom he moved to the city about a year before the story takes place, after graduating together. In the narrative we see through recollection and fragments of alternate realities, how a day full of reconnections, missed opportunities, technological subcultures and coincidences manifests an app—a creation of Albert's unconscious dream life—into his reality. This app is called Multiverse, and it uses the many Big Data imprints inherent to the average western person's day-to-day life in order to analyze moments of choice, and then create alternate realities, or immersive alternate social media streams, based on what could have been if one had acted differently. While slowly understanding the psychological state the

app comes from, we are also learning about Albert through notes on his trials with the app, including his failed relationships, his non-committal tendencies and his increasingly flexible worldview. We then follow his partnership with a technology industry guru, Peter Hutchins, as well as his friend Paul's virtual reality graduate school project, as reality blurs into the digital Multiverses and memories plaguing Albert in his descent into delusion and further isolation.

The Garden of Forking Paths

The original seed for my narrative came from a reading of the prescient short story written by Jorge Luis Borges in 1941, *The Garden of Forking Paths*, which many credit with foreseeing the invention of hypertext, decades before computer networks made the concept a reality. Within the broader story of the strategic bombing of a small town during a war, there is a proto-hypertextual interpretation of a book and labyrinth by the fictional figure Ts'ui Pen, referenced by the main characters of the story. The fragmented work of Ts'ui Pen can be read in different directions, starting from different points in the story (as in a maze) to achieve different and seemingly infinite results. This forward-thinking notion of a hypertext novel is extended by another classic Borgesian idea, one that is at the core of the Multiverse concept in my story.

Stephen Albert (who's last name I have borrowed for my narrator), studies Ts'ui Pen's work and discusses his literary significance with a visiting undercover spy who happens to be a descendent of Ts'ui Pen. While the spy is more pressingly looking to identify a rival artillery park in a town also named Albert, Stephen engages him in a discussion of Ts'ui Pen, describing how, "in all fictional works, each time a man is confronted with several alternatives, he chooses one and eliminates the others; in the

fiction of Ts'ui Pen, he chooses—simultaneously—all of them. He creates, in this way, diverse futures, diverse times which themselves also proliferate and fork” (33, NM Reader). My narrative, while not in the form of a hypertext or electronic work of literature, uses a fragmented non-linear structure to tell a story about how Borges' idea relates to our contemporary world of applications and devices. It suggests that, given the existing Big Data infrastructure and the incorporation of content creating algorithms, this second aspect of Ts-ui Pen's work might soon be applicable to the impressions documented about users by devices, applications and networks through actions in the modern world. In the world of my narrative, not only are these events and choices documented, but they are also used, like Ts'ui Pen's fiction, to create and show the multiple alternative possibilities and stories of my character's lives, the lives they never lived. In this sense, characters, social events, actions and inactions become the “forks” in my story, leading similarly to “diverse futures” and “diverse times.” Before detailing the Big Data infrastructure that inspired my narrative, it will first benefit us to understand the philosophical frameworks my characters inhabit.

“Techgnostic” Subcultures in *Multiverse*

While Albert has a background in Philosophy, in the year and a half since his studies he has lost touch with his passionate worldview, and has grown apathetic. Throughout the alternative reality fragments and events of the story we see him engage with a variety of digital subcultures, and thus embody, consider, ignore or overlook the various philosophies his fellow characters represent and the embedded meanings of his world and project (the *Multiverse* application). There are characters, such as Peter Hutchins, who represent threads of trans-humanist philosophy, as well as characters such

as the barista, or Albert's friend Paul, who take more critical and conscientious approaches to their use of technology, from New Age technopaganism to a theoretically informed maker culture. While the characters rarely debate these ideas in straight forward Socratic-style dialogues, their projects and actions, and occasional rants, embody these philosophies and provoke, impress and suggest worldviews for Albert as he navigates his own twisted technological rabbit hole. I will explore these various philosophies, and how they come across in the story, with reference to Erik Davis' *Techgnosis*.

Techgnosis gives a multifaceted picture of the simultaneous tracks of technological imagination and aspiration throughout key historical moments in technological progression. The work chronicles the often overlooked ways in which the desire for transcendence through technology has shaped and been shaped by the tools of a given culture. Davis shows how what he calls contemporary "technostics" are "surrounded by a complex set of ideas and images: transcendence through technology, a thirst for the ecstasy of information, [and] a drive to engineer and perfect the incorporeal spark of the self" (Davis, 100). He continues, "techgnosis is the esoteric side of the postwar world's new 'information self,' and like all such secret psychologies, its faces are carved out of both dark and light" (101).

While Davis is relatively open-minded in his explorations of the varied expressions of what he is calling techgnosis, he aptly describes the appeal of trans-humanist figures like Ray Kurzweil, and my character Peter Hutchins, writing, "it's the simultaneous commitment to cold hard reason and speculative fancy that makes their techgnosticism more compelling than most varieties found in the digital wing of the new age" (119). In the novella, Hutchins' implied track record of successful start-up

companies, his entrepreneurial spirit, and his deep understandings of and connections to the tech world as a whole, allows his wilder speculations about the coming Singularity, or the possibility that the universe is a simulation, to seem compelling to Albert. He in one of his rants he flatters Albert, by placing Multiverse in a continuum of innovations like consciousness simulation, or the technology of the Singularity:

This is why I find Multiverse exciting. These simulations, maybe they aren't all the same. Why would they be? The simulation programs would allow for some difference, I would think. The further we go down this line of thinking it starts to appear as if we—you and I—are actually on the cutting edge of this. We might not have the fully immersive visual simulations we will need, but we are close. We have the data, and we will learn how to script these simulations. Our algorithms are getting better each day, learning even to self-correct. That is crucial. As hardware becomes more advanced we can apply our scripts to virtual reality, augmented reality, neuro-implants, nanotechnology, technologies we haven't yet imagined. It's not far off. We're not far off. (Netsky, 47)

A competing philosophy, expressed differently in the characters of the Dreamcatcher barista and Paul, Davis calls, “technopaganism,” defined as an “attempt to reboot the rituals, myths and gods of ancient polytheistic cultures” within or aside digitally mediated environments (Davis, 187). This is manifested in the tea crafting business Dreamcatcher, aimed at helping those in the fast paced technology world reconnect with the earth through exotic and carefully crafted teas formulations, based on traditional and medicinal herbal rituals from around the world. Similarly, Paul’s references to seasonal and New Years rituals of ancient civilizations, the Virtual Reality experience of something like the mythic image of the Net of Indra and conversation with Albert within a Multiverse stream about Friedrich Nietzsche’s “The Myth of Eternal Recurrence” show how ancient myths and rituals have relevance to contemporary problems and philosophies.

Mircea Eliade, a scholar on the history of religions, writes that

The chief difference between the man of the archaic and traditional societies and the man of the modern societies with their strong imprint of Judaeo-Christianity lies in the fact that the former

feels himself indissolubly connected with the Cosmos and the cosmic rhythms, whereas the latter insists that he is connected only with History (Eliade, xxvii).

Paul's interest in cyclical notions of time (implied as inspired by Eliade's work), non-linear art projects, therefore serves as a contrast to the hyper linear anxiety of missed opportunities and alternate realities inherent to Albert's app. The figure of the happy philosopher in Nietzsche's myth, able to watch his or her life in eternal recurrence, similarly stands in direct opposition to Albert, as he indulges various departures and alternate storylines, never finding solace (Nietzsche, 258). It is only through Albert's delusional experience within Paul's non-linear themed VR project, after sleep deprivation due to obsessive use of his app, that he is able to begin to piece together his own story, with a glimmer of hope that he may return to the real world from his solipsistic trip into the *Multiverse* applications.

Big Data Infrastructure and Google Now as a Case Study

This reality of my narrative world, albeit absurdist to some degree, is intended to seem like it could be possible in a near-future time. The big data infrastructure of our contemporary technologies, in our social media, entertainment, communications and data analytic companies, has both shaped and employed my lead character Albert. Albert knows firsthand the vast quantities of data available to media institutions, and unconsciously has begun to live his life more according to algorithmic logic than intuition. The ways in which Big Data lingers over the story in *Multiverse* is informed by my research, some of which I will detail here.

Christian Rudder, co-founder of OkCupid and writer of *Dataclysm: Love, Sex, Race and Identity--What Our Online Lives Tell Us About Our Offline Selves*, reflects on the deep integration of data mining into the structure of the Internet, writing, "each page

can absorb a user's experience--everything he clicks, whatever he types, even how he lingers--and from this it's not hard to form a clear picture of his appetites and how to sate them" (Rudder, 18). This data is analyzed by humans and algorithms and put to further uses, including tracking, marketing and media production. As Philip M. Napoli shows, big data algorithms increasingly help organizations in two primary media production functions: "[1] as a demand predictor; and [2] serving as content creator." In the first case, information about "consumption patterns" and "preferences," might be used to determine the success of new entertainment productions on a platform like Netflix, or "demographic, social and political variables referring to "specific geographic communities" might be used to determine the demand for local news organizations, for example in the case of AOL's Patch. Similarly, "content farms" balance analysis of search terms, potential advertisement revenue according to specific search terms, and analysis of potentially competing content already available, in order to "estimate the demand for content on various topics, and then produce that content rapidly and cheaply in order to meet that demand." But, as Napoli further notes, algorithms have moved beyond pure demand prediction and into the realm of content creation, highlighting Narrative Science, "a start-up based around a software package that can generate complete news stories once it is fed the core data on which the stories will be based" (Napoli, *Media Industries*).

These dual roles have continued to influence our media technologies, with Spotify's Discover Weekly playlists, the partially algorithmic suggestion of elements in the Netflix series *House of Cards*, and in more obscure projects, such as the film *Sunspring*, a collaboration between Oscar Sharp, a filmmaker, Ross Goodwin, a

programmer, and his Artificially Intelligent screenwriting program (Benjamin). The film was authored by a “recurrent neural network called long short-term memory” that uses a body of work, or corpus, of 80s and 90s science fiction films and television shows, to create screenplays. I attended a screening of this film, and used it as loose inspiration for a scene in my novella (Newitz, *Ars Technica*).

While demand prediction and content creation represent foundational elements of my character’s world, the more existentially significant piece of the infrastructure remains in how Big Data algorithms predict, suggest and interfere in more personal events. In the process of documentation and algorithmic curation, the complexity and ineffability of human experience is, as Christian Rudder puts it, objectified by big data algorithms. Rudder writes, “All websites, and indeed all data scientists, objectify...The challenge facing sites and apps is thus to chop and jam the continuum of human experience into little buckets 1, 2, 3 without anyone noticing: to divide some vast ineffable process--for Facebook, friendship, for Reddit, community, for dating sites, love--into pieces a server can handle.” (Rudder, 19) I will show how these data impressions form the backbone for both real world big data algorithms, with a focus on the highly integrated augmented reality application Google Now, as well how this has influenced the infrastructure of the fictional Multiverse application in my narrative.

Google Now is not simply an application in isolation. It thrives, rather, as a background assistant, integrated with and accessed through other applications via a swipe by the user or its pop-up notifications and suggestions, what the company calls “cards” (Google Now Launcher). In a promotional video for the product, Google advertises that, “one swipe gives you the information that is relevant to you right now...Google now is

always one step ahead, so you can feel more confident in your day” (Introducing Google Now). This element of design, suggesting access to the service through a pop-up swipe and not an application icon, integrates the service into the fabric of the smart phone operating system as “always on” and achieves a different psychological effect from a traditional application that one opens or closes. More significantly, the advertised appeal to the consumer, that one can feel confident in Google’s suggestions and augmentations, reveals Google’s interest in becoming a trusted mediator beyond the scope of communication, search, geo-services, and advertising, and into the realm of choice, or human agency.

Google Now Cards, or Google’s recommendations that pop up through integration with other applications, offer a wide variety of predictive suggestions. One might receive music suggestions via a card prompting Spotify playlists, or restaurant and menu item suggestions via OpenTable. If a friend emails asking if you want to see a film, a Google Now Card might pop up with the Fandango listing of theaters, times and a trailer for the film. Or, if a user seems to be staying up unusually late, Azumio might prompt the user to go to sleep via Google Now. In these examples the cards might pop up based on a natural language understanding of Gmail markup, or other surveillance and tracked habit-based clues. Within the realm of Google Now we observe how algorithms are increasingly shaping choices about travel, consumption of food, entertainment and other products, even exercise, in real-time.

I have written the Multiverse application to similarly integrate with the other smartphone applications (mostly unnamed) to show both how these applications have shaped the actions, and therefore the “chance encounters,” in my story, as well as how

they might inform the “content creation” of alternate realities with a detailed understanding of behavior, preferences and social graph. For example, when Albert decides to ride a bus instead of a train because of his phone's suggestion to him, he is placed on a timeline in which he meets Peter Hutchins—essentially the initiating incident of the novella.

Applications like Google Now thrive by helping to integrate their usage into user habits. This is a science. Stephen Wendel, in *Designing for Behavior Change*, describes strategies for creating products that help users make changes in their lives, based on foundational concepts of behavioral psychology. These ideas form the persuasive structure of many apps that are integrated with Google Now, for example Luminosity, Runkeeper and HealthifyMe. Google Now Cards are designed to remind users of their goals within these apps, at the right time, but they also change a user's behavior with, and relationship to, the phone itself. Using Wendel's model, the CREATE - Action Funnel, we can understand certain structural design elements underlying a user's relationship to Google Now. The “CREATE” in Wendel's “Action Funnel” stands for Cue, Reaction, Evaluation, Ability, Timing and Execution of a behavior (Wendel, 39). For example, if Google Now pops up with a cue card connected to HealthifyMe, suggesting that I perform my morning workout how I react, evaluate the suggestion and judge my ability is still largely structured by the language and context of HealthifyMe, while the aspects of cueing and timing are being assisted by Google Now's predictive abilities.

Another model that can be used to understand how Albert becomes lost inside the Multiverse app is the Hook Model. Nir Eyal, in *Hooked: How To Build Habit Forming Products*, describes the “Hook Model” for developing products and platforms that

effectively produce habitual use in their users. The model cycles in a feedback loop from an internal or external trigger, to a performed action, to a variable reward for performing the action and finally to an investment. This last element is the most important for the formation of habits, as Eyal notes, “the investment occurs when the user puts something into the product of service such as time, data, effort, social capital, or money.” To ensure future use of the platform or product, this investment “implies an action that improves the service for the next go-around” (Eyal, 10).

My narrator’s relationship to the Multiverse application is more complicated than that of the typical consumer, as his trigger and investment are connected to his role within the company and his interest in impressing his friends and boss, but in general the feedback loop on display as he falls deeper into his trials resembles the logic of the Hook Model. His past choices, or the curiosity and regret related to a choice, serve as a trigger, the selection of a point of departure, or a proposed alternate reality, becomes the action, updates from an alternative reality serve as the variable reward and the continued interest in the development of alternate storylines solidify the investment.

We can see this happen in the story, for example in the case of Albert’s alternative timeline in which is his romantic relationship, which had ended a few years prior to the story, is ongoing. We see the trigger in his emotional connection and curiosity related to how a specific past choice, not to visit his college girlfriend while she was studying abroad, is perhaps linked to their eventual break-up. The Multiverse app confirms this, while simultaneously allowing him to see how things might have been different if he had chosen differently and visited. We observe his trip abroad, and how this helps their relationship continue throughout graduation, up until the current timeline, with Albert

checking in throughout the novella to continue this “story” with cycles of regret as a trigger, unexpected alternate reality details as the variable reward, and his continued interest and reliance on the app for updates as long-term investment (Netsky, 13).

My research into Big Data algorithms, content creation and the design of early augmented reality applications has thus informed the world my narrator lives in, the way he lives his life, and the absurdist app that structures the story. I have tried to show here how these elements of the fictional narrative have come out my research concern that addictive big data algorithms, increasingly tied into our experience of the world through our devices and computers as augmented reality, threaten human agency, autonomy and intuition.

Present Shock and Hypnagogic Hallucinations

As a reflection of this world of augmented decisions and big data analysis, Albert struggles with making intuitive choices. He over analyzes, to an occasionally absurd degree, the kinds of dilemma’s common to the digital age. Our applications, algorithms and instantaneous communication platforms supply the average smart phone or Internet user with ever growing lists of competing options for how one might spend one’s time, and operate as if one were capable of following through with each option. Media Theorist Douglas Rushkoff calls this *Digiphrenia*, referring to “the way our media and technologies encourage us to be in more than one place at the same time” (7). Similarly, across mainstream culture an phenomenon known as “the fear of missing out,” or FOMO, has become a widespread meme and key to understanding this particularly contemporary concern. While my character seems afraid of more than just missing out, suffering as well

from a kind of social anxiety, I try to show how digital technologies mediate these anxieties in psychologically harmful ways.

In this context, the Multiverse algorithm is offered as a remedy to the fear of missing out, an alternate reality social media stream in which digiphrenic paths can continue while one's real life path appears to remain consistently linear. In the story, the ways in which the Multiverse application shows Albert his alternate paths simply adds drama and story to the ways in which digital technologies already let us live in fragmented hypothetical worlds. For example, while the app is showing Albert what might have been if Albert was living in his hometown with his ex-girlfriend, the data that is suggested as helping the algorithm write this alternate time-line is the data that already exists. We see social media posts, photos from people who live in the neighborhood in which the app thinks Albert would be living, and in combination with story cues, Albert imagines himself there. Similarly, in the alternate timeline in which Albert travels home to visit his parents, the photos that draw him into this world are real photos, uploaded by his parents to their social media profiles. These cues, along with predictions about where they would eat or go on a walk, suggest a vivid scene to Albert, as he perhaps regrets not making the trip. These early Multiverse experiences suggest merely an immersive algorithmic dramatization of our already digiphrenic lives, simply making it easier to follow the alternative realities that digital platforms already suggest to us. As the Multiverse streams blur into memories and fantasies, they similarly become more imaginative and believable to Albert, but I intend for even these extreme moments to reflect the more surrealist and absurd possibilities of digiphrenia.

In the philosophical work *24/7*, Jonathan Crary illustrates a variety of the ways in which contemporary labor expectations, city structures, and “always-on” digital infrastructures have been slowly encroaching on an element of human life still yet to be fully consumed or nullified by their logic—sleep. He also shows how this “always on” logic has extended beyond the market, writing, “it is only recently that the elaboration, the modeling of one’s personal and social identity, has been reorganized to conform to the uninterrupted operation of markets, information networks and other systems” (Crary, 9). Social expectations and compulsions turn the monitoring of our own social online presences into its own job, deserving constant human attention and tweaking. Crary gives his own interpretation of our digiphrenic state, writing that, “in spite of the omnipresent proclamations of the compatibility, even harmonization, between human time and the temporalities of networked systems, the lived realities of this relationship are disjunctions, fractures and continual disequilibrium” (31). This disequilibrium shifts attention away from both the natural human rhythms that once influenced or guided many of our decisions, as well as away from a healthy and useful relationship to the tools as they are marketed, towards an almost managerial role in the big data feedback loop of suggested interventions previously described in the case of Google Now,

Passively and often voluntarily, one now collaborates in one’s own self surveillance and data-mining. This inevitably spirals into more fine-grained procedures for intervention in both individual and collective behavior...incalculable streams of images are omnipresent 24/7, but what finally occupies individual attention is the management of the technical conditions that surround them: all the expanding determinations of delivery, display, format, storage, upgrades, and accessories. (Crary 49)

Crary makes a unique argument in his book by returning to and highlighting sleep, and its related states from hypnagogia to dreams, as aspects of human experience

that have yet to be fully captured by the expansionist capitalist impulse. While military intelligence agencies work on extending the waking state, and pharmaceuticals and light pollution have radically altered sleep patterns, the necessity of sleep has remained despite it representing the anti-thesis of the always-on markets and networks. This, Crary suggests, gives sleep a unique power over the ubiquitous manifestations of these markets, including my focus, the expansion of algorithms into the realm of human agency.

Taking the reader back to the 1830s and 1840s, Crary shows how aspects of human vision, for example “retinal after-images, nervous and optical phenomena vividly discernible to the perceiver with eyes closed” inspired new kinds of research on the “temporalities of after-images.” This research created new consumer opportunities with the inventions of “the phenakistiscope, the zoetrope, and later a variety of other pre-cinematic entertainments” which allowed images to be captured, produced and consumed. (106, 107).

Less easily understandable or commodifiable, were hypnagogic images: “the multiform visual occurrences...that are unique to a state of consciousness hovering between wakefulness and sleep” let alone dreams. (107) While dreams were later influentially understood and perhaps confined within the limited contexts of individual desires and repressions in Freudian psychology, and continue to be explored through different frames by psychologists and different cultures all over the world, for Crary, they have another uncommodifiable significance as “an interval into which glimpses of an unlived life, of a postponed life, can edge faintly into awareness” therefore carrying psychological, social and political potency (127). Crary’s unique analysis, in addition to

personal experience and the influence of writers such as Franz Kafka and Charlie Kaufman, led me explore the role of dreams and hypnagogic hallucinations in *Multiverse*.

In the story the Multiverse application comes from Albert's dream, and ultimately, and ironically, serves as a kind of wake-up call. It is as if his unconscious mind is suggesting that if he is going to live his life the way he does, anxiously obsessing in digiphrenic apathy, he will be presented with a digital manifestation of this state, and be forced to work through it. His work on the app, ultimately results in sleep deprivation, delusion and withdrawal from society, until in a desperate moment he decides to go to the art opening of featuring his friend Paul's VR project. While I do not spell out what happens in exact detail, what I intend the reader to pick up on, given Albert's previous history with hypnagogic hallucinations (as described earlier in a Multiverse stream related to his breakup), is that his conscious awareness is alternating between the world of Paul's VR project and his own dream-like recent history. This adds a layer of untrustworthiness to the narration—but the dissolving of reality and self, for Albert, becomes part of the story. During the climax of multiple Multiverse scenarios towards the end, Albert finds out, while in a Multiverse stream, that a memory he had counted on to remember his true path may have in fact been a Multiverse stream itself (Netsky, 65).

This moment recalls, for example, the ending of Philip K. Dick's *A Scanner Darkly*, in which the main character, already lost between his dual roles as undercover DEA agent and drug addict, discovers that the farm he is working under the watch of a drug rehabilitation clinic is also growing the drug it's patients are addicted to, further blurring the reality and intentions of self, and external environment. In *Multiverse*, Albert becomes incapable of distinguishing alternate realities from true memories, although I

hint that there is hope for Albert through his realizations in Paul's VR Project. Paul's VR project suggests recurrence, cycles, and therefore helps to evoke cycles into Albert's hallucinated recent past spirals. Throughout the story, in the VR experience, his dream in which Multiverse is invented and his actual work at Multiverse the company, the prop of a black journal with the Writing Ball logo is consistent. This is meant to suggest a further level of surrealism, or dream-logic, allowing the story to take place less in the real world than in a hyper-real reflection of it.

Meaningful Coincidences in a World of Manufactured Synchronicities

As a somewhat mystifying "technopagan" provocation for Albert and a theoretical frame for readers of *Multiverse*, I have included references to Carl Jung's theory of *Synchronicity*. While I am not interested in providing a theoretical or empirical defense of Jung's idea, I am interested in how it might be used as an alternate frame to observe the problems that my novella addresses, namely how Big Data algorithms threaten human agency, autonomy and intuition.

Jung defines *synchronicity* as the meaningful coincidence of two or more events, which are not causally connected, or "the simultaneous occurrence of a certain psychic state with one or more external events which appear as meaningful parallels to the momentary subjective state-and, in certain cases, vice versa" (Jung, 25). For example, a dream image corresponds to a real-world event that could not have been causally related to the dream image. To experience a synchronicity is thus to feel a deep connection to one's world, and the meaningful connections between environment, community and psyche. I suggest, ultimately, that the ways in which Big Data algorithms, like Google Now, in their attempt to understand the consumer through surveillance data, and then find

meaningful moments to suggest products or actions, are using the potency, or the aura, of synchronicity-like experiences, as a veil to surveillance, the highly calculative mode of algorithms and ultimately, as we observed, to underlying market pressures.

Erik Davis, in his analysis of the work of Stanley Jeyaraja Tambia, Marshall McLuhan and Raymond Williams, similarly shows how causality and participation coexist and become tangled in contemporary digital technology, while also representing a dichotomy between primitive oral and high-tech modern cultures, writing,

Causality boils down to the pragmatic rationalism of science: the detached individual ego divides and fragments the welter of the world according to objective and explanatory schemes based on neutrality and instrumental action. In contrast, the world of participation plunges the individual into a collective sea that erodes the barrier between human agency and the surrounding environment. (Davis, 182).

Advertising, for Raymond Williams, is, like a false synchronicity,

a highly organized and professional system of magical inducements and satisfactions, functionally very similar to magical systems in simpler societies, but rather strangely coexistent with a highly developed scientific technology. (Williams, 185)

Williams, decades before smart phones and digital marketing, notes that in the selling of goods the staging of the discovery, or the offered “choice” to buy, is more important than the product itself, writing, “we have a cultural pattern in which the objects are not enough but must be validated, if only in fantasy, by association with social and personal meanings which in a different cultural pattern might be more directly available” (185).

Marketing, Williams argues, allows modern capitalism to function, by providing “definite indications of demand without which the expensive processes of capitalization and equipment would be too great a risk” (186). In our digital economy, data is prized as the new savior of marketing allowing the “magical” cues towards what Williams identified as

“social and personal meanings” to be more accurately targeted to each individual consumer’s preferences. Considering the near-ubiquitous “free” cost of digital services and applications, growth for such companies is often dependent upon integrating and developing ever more efficient avenues for, as Jonathan Crary notes, data-mining and advertising. Market pressure thus adds incentive to increase these suggested “choices” in applications and digital services, through notifications and embedded advertising, to consume a “relevant” piece of media content or buy a “related” product.

Thus, I argue that Jung’s notion of synchronicity, as a framework, can help us to understand what kind of human experiences the potency of these targeted and magical advertisements derive from, as well as offer a perspective of human experience and the world that, if cultivated, could help us guard against the magic of advertising. This of course is not the only alternative framework that can reclaim agency and power from advertisers, and certainly carries with it other problems and complications well covered in the field of psychology. Still, as I have suggested in my narrative, it might offer a lens for some, perhaps those loosely fitting described as “technopagans,” working towards a new “cultural pattern,” in which these targeted “social and personal meanings” are “more directly available” (Williams, 185).

Watching Albert navigate coincidences, dwell on past decisions, move between related dreams and memories, hallucinations and applications, I intend for the reader to be faced with certain questions. What kind of relationships do we want to the world, our communities and friends? How do our technologies encourage or discourage these relationships? While the Multiverse application illustrates the absurd impossibility of our digiphrenic lifestyles, Albert’s delusional experience of memories and alternative realities

in Paul's VR project shows how technologies may also be capable of reintroducing us to lost ideas or providing opportunities to escape technological solipsism by reconnecting with people.

In order to preserve human agency, autonomy and human intuition, we must learn, as I have shown, how applications track our behaviors and use elements of design to hook us into feedback loops of interruption and dependence. This critical reading of technologies, partnered with a reawakened sense of what a truly intuitive and participatory relationship to the world might look like, will be necessary as these applications and devices expand and encroach further into our lives. For the culture at large this means that in addition to fighting for schools and public institutions to teach students and citizens a high level of digital literacy, or an ability to operate the digital world with intention, knowledge and skepticism, our art must also challenge the technologies threatening these aspects of our humanity and the nature of the platforms that mediate our experiences.

A show like *Black Mirror*, for example, uses innovative storytelling techniques to tell provocative tales about humanity's relationship to technology. An episode like, "The Entire History of You," shows us a possible future, given our societies trend towards continually increased documentation of memories, of how perfect and immersive total memories will complicate our private and public lives, showing how jealousy and surveillance affect a couple after a social gathering. The show succeeds in its message by being both entertaining and thought-provoking, and has become a widely discussed cultural force. Another example, which utilizes a dual approach of both non-fiction criticism and art is, is the pop-up gallery exhibit by Mozilla and the Tactical Technology

Collective, *The Glass Room*. The gallery features demos for satirical Big Data driven technologies, provocative artifacts illustrating the threats of surveillance and cyber attacks, roaming “inGenius” informational guides and a Data Detox bar that teaches visitors about the world of Big Data and how to increase their anonymity online (The Glass Room). I believe this job of fighting for increased digital literacy and awareness is well suited to a dual approach of media criticism and creative expression, and I have submitted my project with the hope that it might contribute to this task.

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