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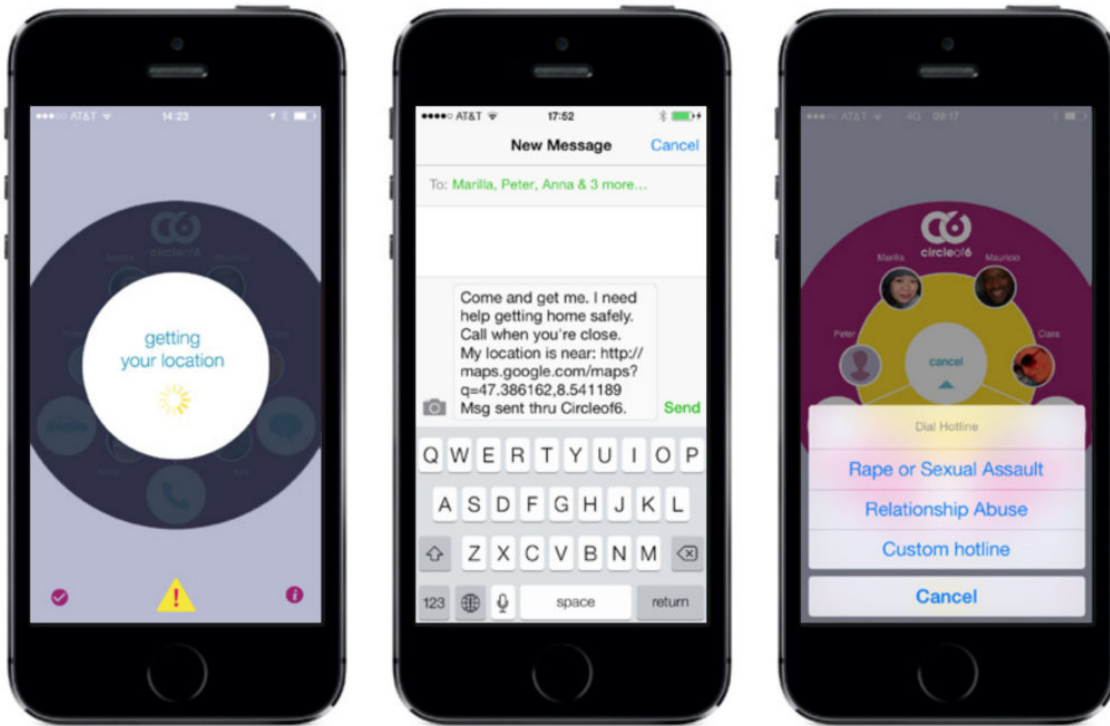
Exploiting a Dystopic Future to Unsettle Our Present-Day Thinking About Sexual Violence Prevention

Rena Bivens

After researching 215 existing apps designed to prevent sexual violence (Bivens & Hasinoff, 2017), I propose a fictional app called ‘Ultimate Witness.’ Using ‘Protect 2 End’ software, this factory-installed app analyzes real-time data recorded within a 10 foot radius, with the help of an algorithmically curated rendering of attitudes, behaviours, and biomedical shifts that signal future perpetration of sexual violence. Importantly, this is not a desired, future prototype – it is a speculative design (Disalvo, 2012; Forlano & Mathew, 2014). Alongside the app description, I examine what became possible in the future setting – what infrastructures, discourses, and social dynamics emerged – and how that future connects to the present. Based on critical extensions of historical and present-day expert discourses surrounding sexual violence, I use Ultimate Witness to open up space to think and talk about the kind of future worlds we would like to see – and those we may wish to avoid.

From **Circle of 6** (<https://www.circleof6app.com/>) to **LadiesSafe**

(<https://play.google.com/store/apps/details?id=com.appypie.appypie3349f4da0283&hl=en>) and the **YWCA Safety Siren** (<http://ywacacanada.ca/en/pages/mall/apps>), there are hundreds of mobile phone applications (or ‘apps’) designed to keep you safe from sexual violence. All you have to do is pick one and press download.



(<https://adanewmedia.org/wp-content/uploads/2018/04/bivens1.jpg>)

We can register these apps within a long history of designed interventions geared towards ‘ending’ sexual violence. Consider **female condoms with teeth** (<https://rape-axe.com/>) , **nail polish that detects date rape drugs** (<http://www.undercovercolors.com/>) , **anti-rape underwear** (<https://www.indiegogo.com/projects/ar-wear-confidence-protection-that-can-be-worn#/>) , belts with labyrinth-like closures, and – this next example is a bit extreme – **lingerie** (<https://www.bustle.com/articles/29655-indias-electric-shock-anti-rape-bra-society-harnessing-equipment-is-terrifying-and-necessary>) complete with pressure sensors covering the breast area that can deliver up to 82 electric shocks while sending text messages to the police and your parents with your GPS coordinates (Gibson, 2014; Wilkinson, 2013).



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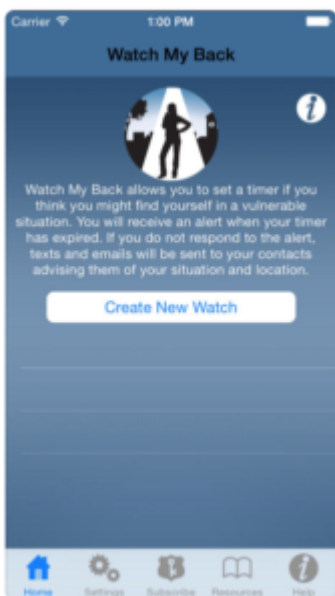


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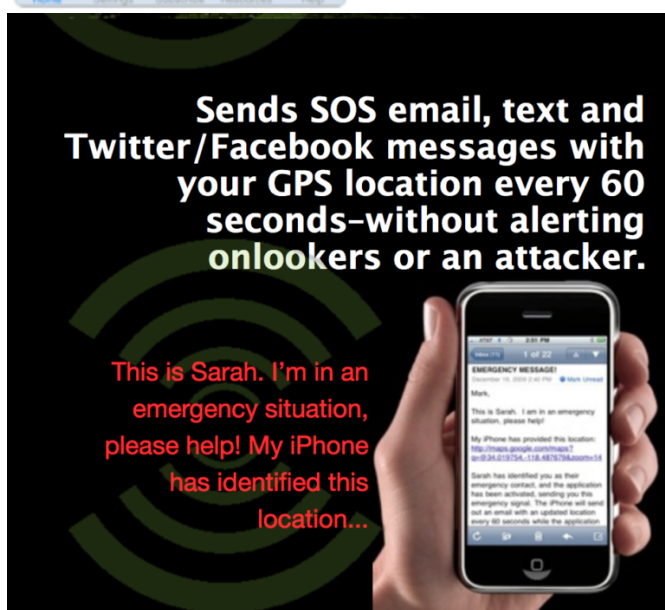
Scholars like Noble (2018), Balsamo (2011), Bardzell (2010), Wajcman (2010), and SSL Nagbot (2016) have demonstrated that design is a political act. Technologies always carry with them assumptions, goals, and values since they are never designed in a social vacuum. They are both shaped by society and play a role in shaping society. Drawing on scholarship from communication studies, science and technology studies, human-computer interaction, and design, we can ask questions about who the intended and unintended users are (i.e., potential victims, perpetrators, bystanders), which scripts (gendered, racialized, etc.) are baked into these designed artifacts, and what work they do in the world.

Recently, Amy A. Hasinoff and I **compiled a list of 215 apps**

(<https://www.tandfonline.com/doi/suppl/10.1080/1369118X.2017.1309444?scroll=top>) designed to prevent sexual violence (2017). We were curious what was being communicated by this entire set, or population, of apps. As a collective intervention, how have apps been designed to respond to the problem of sexual violence? Instead of analyzing each app as an individual tool or act of resistance, we answered this question by examining all features programmed into this field of design. Our findings indicated a strong orientation towards 'incident intervention' (74% of all 807 features in our sample). In other words, designers predominantly chose to program features that would alleviate *specific* incidents of violence, largely by 'alerting other people that an incident is happening' (Bivens & Hasinoff, 2017, p. 4). It was overwhelmingly victims (or potential victims) who were mobilized by designers since 94% of 'incident intervention' features were designed exclusively for this group. While the vast number of apps do not explicitly specify the gender of the victim or perp (72% leave the victim undefined while 95% leave the perpetrator undefined), there is still a tendency towards naming the potential victim as female (26%) and the perpetrator as male (4%). Also, no apps specified victims or perpetrators that exist outside of the male/female gender binary.



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As a collective intervention, we were disappointed by these design choices. Misconceptions about sexual violence that experts have been debunking for decades had been reproduced in and through these apps (Bivens & Hasinoff, 2017). Sexual violence experts have long argued that persuading perpetrators to stop assaulting might be a more effective prevention strategy, yet this field of design largely placed the responsibility on victims to prevent their own rape. Only 0.02% of apps in our sample targeted potential perpetrators. Also, perpetrators are rarely strangers; sexual violence usually occurs between people who know one another. However, the ‘incident intervention’ approach is oriented towards interrupting sexual violence by sending help to the scene. The most typical arrangement of features involves pre-loading the app with contact details of the user’s closest and most trusted friends and family members so that the user can activate an alarm which sends location coordinates, and

other potentially useful data such as an image or audio file. Collected data can also be used as evidence to later help convict the perpetrator. However, known perpetrators may use forms of coercion that would decrease the effectiveness of these features (e.g., abusing a power relationship and emotional manipulation). Some features involve asking friends or family to watch over the user via location-based data, or send an alarm when the user deviates from a pre-selected pathway. Others are designed to turn off when the user has entered a 'safe' space like home or work. Again, these features presume a sudden, unexpected attack, likely by a stranger. Hasinoff and I (2017, p. 15) argue that, collectively, this field of design imagines and promotes an understanding of sexual violence as 'an inevitable force of nature' that cannot be prevented but only 'avoided by vigilant and responsible individuals.'

Enter Speculative Design

Speculative design lets us step outside of the limits of our present-day society. It is an approach that relies heavily on imagination to conjure up new designs set in future worlds (DiSalvo, 2014). When we begin to imagine the future, technological developments are typically invoked. Futures presented to us from the realm of science fiction have helped forecast this imagined world. From universal translators to teleporters and hoverboards, futuristic technologies are seen as spectacular developments. We watch sci-fi films or read sci-fi novels in awe of the future societies depicted for us, yet at the same time we find ourselves struggling to unravel what social impacts result and whether we should fear these reconfigured societies or hotly anticipate them.

By imagining a fictional, future app that would 'end' sexual violence, speculative design exercises detach us from the present and encourage us to engage in future world-making practices. The point is not to predict the future but 'to better understand the present and to discuss the kind of future' that we desire along with – as the example I will soon share demonstrates – *the future worlds we wish to avoid* (Dunne & Raby, 2013, p. 3). In these discussions, we can consider what became possible in the future setting – what infrastructures, discourses, and social dynamics – and, importantly, how that future connects to the present.

Speculative designs can offer us a spectacle by being extreme. They can force us to pause, unsettling our assumptions and worldviews. However, as DiSalvo (2012) argues, spectacle alone is not enough. Speculative design should provoke discussion and debate, pushing us beyond our current ways of knowing, understanding, and

intervening in the world. Ranging from manufactured prototypes to mere descriptions, the intention is not to develop tangible design solutions. Instead, speculative design can be mobilized to help us critically reflect on the broader relationship between technological development and social change.

Ultimate Witness: An App to End Sexual Violence

Ultimate Witness comes factory-installed on every mobile device and cannot be disabled or removed. This app records and permanently stores a complete repository of detectable data within a 10 foot radius of the device, including the device user and anyone else within this range. Imaging and auditory technologies capture sound, still, and moving images based on XSC3 heat and light filament sensors. Biomedical technologies capture comprehensive data on heart rate, blood pressure, drug and alcohol levels, hormonal and adrenaline levels, as well as neural activity in the brain and physical movements (including 24/7 tracking and recording of eye movements).

All data is stored in an encrypted raw file format. Several copies of the data are sent through high-performance filtering and processing software programs. The most crucial filtration process is the Protect 2 End software program. This software uses a state of the art prevention algorithm that was initially based on 250,000 actual sexual violence cases brought to Canadian courts over the last few decades, focusing particularly on the evidence given to describe the events preceding the crime. Alongside this data, the algorithm is always adapting due to its machine learning capabilities, which permits the category of sexual violence to achieve maximum malleability. Protect 2 End analyzes audio and images for misogynistic language and incidences of rape culture, making links to an algorithmically curated rendering of expected attitudes, behaviours, and biomedical shifts that signal future perpetration of sexual violence. This data is continuously checked against historical data about the individual in question. Identity data sets, including but not limited to gender, race, socioeconomic status, and nationality, offer further alerting mechanisms tailored to the individual's social position.

Here's just one example of how it works: if someone hears a song like Blurred Lines, which normalizes sexual violence, a flag is raised on that individual's profile (a unique identifier that is associated with all devices known to be used by the individual). Later on, he casually objectifies a woman in a private conversation to a friend: another flag is raised. Let's say he goes out to a drinking establishment a few days later in the evening (as captured by time/date/GPS recording) and stares at a woman for more than 10

seconds, scanning her body and glancing repeatedly at her breasts and hips: more flags will be raised. If he then approaches the woman, a sedative will be delivered, rendering him unconscious within 2 minutes. Any identity-related mobility access devices (vehicles, doors, passports) and currency-related access (bank accounts, credit cards) associated with the individual become instantly inoperable. Authorities will be alerted and the immobilized would-be perp will be taken in for questioning at a local law enforcement facility. The flagged actions that led to his sedation would be revealed and a facilitator would take him through the appropriate unlearning exercises and isolation procedures.

What Work does Ultimate Witness do?

I am using Ultimate Witness to extend and magnify elements of our contemporary cultures surrounding sexual violence prevention. I considered a wide range of prevention efforts and broader technocultural contexts, including the intensification of datafication, surveillance, and computation-driven policing. Contemporary discourses that have taken shape on university and college campuses relating to sexual violence and rape culture have also influenced my thinking. As well, I am thinking through discussions over the past two years sparked by the Ontario government's 2015 report *It's Never Okay: An Action Plan to Stop Sexual Violence and Harassment* and Bill 132 (Sexual Violence and Harassment Action Plan Act) that required all Ontario colleges and universities to put together a sexual violence policy, including my own.

Ultimate Witness is also modeled as an extension of the field of design that Hasinoff and I encountered in our sample of 215 existing apps. Like those technological interventions that came before it, Ultimate Witness is not designed to reprogram attitudes, beliefs, norms, or values that function at the individual, interpersonal, community, or societal level to perpetuate sexual violence. There is no serious effort to reprogram the systems that generate and sustain the power relationships that enable perpetrators to commit sexual violence and escape sanctions. Instead, the strategy is to intensify surveillance, datafication, and extreme policing measures to improve apprehension rates as a preventative measure in and of itself, while covertly accumulating profit by selling data and identity profiles.

Sexual violence remains inevitable with Ultimate Witness, but there is a shift from interrupting sexual violence to avoiding it altogether. Ultimate Witness attempts to turn the social antecedents of sexual violence perpetration into measurable indicators. In this way, the app moves from the measurement of sexual violence that has occurred to

the measurement of future perpetration. The future of sexual violence becomes the technologically-manufactured, premature capture of the presumed antecedents of sexual violence. Whereas existing apps were oriented towards 'incident intervention' that aimed to interrupt a particular type of sexual violence (namely stranger assault), Ultimate Witness is only successful in its promise of a future free of sexual violence if it can accurately predict, measure, calculate, and monitor the factors that precede perpetration. This approach echoes preventative policing strategies that have disproportionately targeted marginalized groups, reifying implicit biases in the process. Predictive measures are prone to the possibility of generating the very identities (in this case, perpetrator or abuser) that the categorization seeks to observe, merely through categorization and measurement (Cheney-Lippold, 2017).

While everyone becomes an active user of Ultimate Witness by definition, it is perpetrators who are the intended user. This design choice explicitly reverses the outcome of our earlier study where victims were the primary target of design. On the surface, Ultimate Witness presents an open and non-discriminating orientation towards perpetrators. Underneath that surface, however, are the mechanisms that Ultimate Witness deploys to recognize and identify perpetrators. Relying on data about sexual violence from court cases is limited by the disciplinary, cultural, and structural domains of power that function to influence who reports, who is arrested, and who faces trial. Biases are already baked into these legal and judicial systems, and experiences of sexual violence in Ultimate Witness only appear if they are read as legible by these systems. This is intended to mimic the erasure of experiences of sexual violence that are not reported or otherwise made invisible to authorities and thereby have less capacity to influence policy. While most people do not report, those who do may also find their case to be deemed unfounded by the police (that is, dismissed as baseless). According to a recent study, one in every five sexual assault allegations in Canada is unfounded, which is twice as high as the unfounded rate for physical assault and much higher than other crimes (Doolittle, 2017).

The impulse towards translating the social world into data informed Ultimate Witness. Collecting, storing, and processing data is a common strategy to track and manage social problems. Governments and practitioners often advocate for a data-driven strategy since numbers are legible to both the public and funders, despite the downfalls that collection entails. In 2017, the Government of Canada announced a \$101 million-dollar federal response to gender-based violence. While the details are sparse, most of the funds (\$77.5 million) have been allocated towards a new Gender-Based Violence

Knowledge Centre housed within Status of Women, which will facilitate knowledge sharing, increased data collection, and aid efforts to address the ‘new frontier’ of ‘cyberviolence’ (Smith, 2017).

An interesting aspect of the speculative design approach is the capacity to play with temporal dimensions of a social problem. In this way, the history, present, and future of sexual violence can be reconfigured or alternatively arranged. For example, many in the anti-violence field champion the necessity of always believing survivors. This makes sense given the historical memory of anti-violence experts who can easily recall why the voices and experiences of survivors of sexual violence ought to be centered. Decades of anti-violence work were required to raise awareness and achieve legal reforms because survivors were not believed, or they were blamed for their own assault. Yet these are not the only histories and present-day realities. When we focus on issues like racialized criminalization practices and the relationship between anti-Black terrorism and the specter of Black rape – that is accusations against Black men, particularly by or in defense of white women – we find another reality: due process for the accused. At times, these perspectives – survivor-centered approaches and close attention to due process – appear to be in conflict. Instead of co-existing, they take up different amounts of space in the material-discursive practices surrounding anti-violence work.

Ultimate Witness aims to provoke a sense of fear and anxiety that may be productive in bringing some of these tensions and temporal relations to the surface. As a future-oriented speculative design that is explicitly (although only temporarily) detached from the present, there is potential to open up space for difficult conversations regarding how to navigate survivor-centric approaches and due process for the accused. By design, Ultimate Witness invites us to think of anyone – including ourselves and loved ones – as possible targets of a machine-driven accusatory mechanism. At the same time, the example included in the description closes off this possibility. While anyone can theoretically become a perpetrator in this future-world, the victim-perpetrator relationship is intentionally gendered in the explanation of how the app works. This echoes the dominance of the female victim – male perpetrator dyad within mainstream conversations about sexual violence, and was highly visible among the set of 215 apps we studied. Yet scholars have pointed out that continuing to rely on this dyad invisibilizes other forms of sexual violence, such as lesbian and gay experiences (Edwards et al., 2015). Ultimate Witness is thereby designed to simultaneously conceal and open up these difficult discussions, permitting multiple pathways for engagement.

Finally, Ultimate Witness is designed to create a flexible and adaptable category of sexual violence. The description intended to surface this anxiety, only identifying sexual violence after the far-reaching data collection capacities had been unveiled. Here I am gesturing towards the concerns – currently voiced only by a few scholars – regarding expanding terms. For example, Khan (2016b) argues that “[r]ape culture” has become a surprisingly elastic term.’ Khan (2016a) discusses the variety of examples that have been claimed as part of rape culture, including songs (e.g., Blurred Lines), sexualized advertisements, speaking invitations to defence lawyers, and calls for due process. Karaian (2014; 2017) has also been critical of the term ‘rape culture.’ Her work examines sexting and revenge porn, raising critical questions about the utility of equating non-consensual distribution with sexual violence. Since we are already engaging in critical debate about predictive policing, racial profiling, and algorithmic biases, Ultimate Witness extends these discussions to the realm of sexual violence to encourage deliberation on our contemporary conceptualization of the category of sexual violence.

Concluding Visions

It is a dystopic future world that is constructed here; a world that we would wish to avoid. If my use of speculative design is intended to disrupt the ways in which we think and talk about sexual violence, a dystopic design tends towards extending those aspects of our discourses and technocultures that are potentially problematic, making them more visible. By merely exposing these elements, the assumption is that we will be more aware of them and eager to discuss and dismiss any assumptions and ideas that we now wish to avoid. Recent commentary about films like *Blade Runner* suggests that ‘[a]t their best, dystopian visions ... are helpful self-preventing prophecies’ (Bankston, 2017). Could a dystopic speculative design be artfully deployed in a way that would shift our understanding of sexual violence as fundamentally sociotechnical and compel us to resist such a future?

Or, perhaps, would a utopic app better perform this work? A utopic vision could similarly conjure up a world without sexual violence, but actively build one that we would actually want to inhabit. We would then be forced to distill which ideas about prevention are essential for this future world and therefore which ideas we ought to focus on in the present.

At the same time, a dystopic/utopic distinction may be too simple. While many organizations and government strategies are committed to ‘ending’ sexual violence, is

there any utility to imagining worlds where we do not presume to be able to eradicate this problem? If there is, perhaps we could explore how to think differently about issues such as justice, victimhood, reduction, and recovery, and how to implement our future renderings into present-day action.

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◀ MOBILE PHONE APPS ▶ PEER REVIEWED ▶ RAPE PREVENTION ▶ SEXUAL VIOLENCE
◀ SOFTWARE DESIGN ▶ SPECULATIVE DESIGN

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