

BEYOND AIRSPACE SAFETY: A FEMINIST PERSPECTIVE ON DRONE PRIVACY REGULATION

Kristen M.J. Thomasen¹

This is a working draft – constructive comments/feedback welcome!

INTRODUCTION

No technology emerges in a social or legal vacuum.² The laws and norms guiding acceptable uses of new technologies help to shape the ways in which these technologies benefit or disadvantage different individuals and communities.³ Recently, the impact of drones on women's privacy has garnered sensational attention in media and popular discussions. Media headlines splash stories from drones spying on sunbathing or naked women and girls, to drones being used to stalk women through public spaces, to drones delivering abortion pills to women who might otherwise lack access.⁴ Yet despite this popular attention, and the immense literature that has emerged analyzing the privacy implications of drone technology,⁵ the ways in which the drone might enhance or undermine women's privacy in particular have not yet been the subject of significant academic analysis.

¹ Assistant Professor of Law, Robotics & Society at the University of Windsor, Faculty of Law and PhD Candidate in Law at the University of Ottawa, Canada. My sincerest thanks to John Popham, Sinziana Gutiu, and to Madeleine Elish and the other participants at the We Robot 2017 conference for their insightful and helpful comments on this paper, and a huge thank you to Joanna Pawlowski for her fantastic and lightning speed research assistance.

² "The twin fields of feminist science studies and the history of science clearly demonstrate that new technologies are not objective nor do they spring forth in a cultural vacuum" Corinne Mason and Shoshana Magnet, "Surveillance Studies and Violence Against Women" (2012) 10 *Surveillance & Society* 105 at 108; Ronald Leenes and Federica Lucivero, "Laws on Robots, Laws by Robots, Laws in Robots: Regulating Robot Behaviour by Design" (2014) 6 *Law, Innovation and Technology* 193 at 194.

³ For example, as professors Mason and Magnet (*supra* at 109) emphasize, "the history of surveillance technologies reveals that they also were developed in a cultural code rife with inequalities, and thus reflect those same inequities" and "as these computing technologies were developed in a cultural context of the persistent and widespread occurrence of violence against women, it is expected that these new technologies reflect these old inequalities and have resulted in the intensification of the surveillance and stalking of victims of violence."

⁴ The latter fitting more directly into the U.S. concept of 'decisional privacy' (see e.g. *Roe v Wade*, 410 U.S. 113). E.g. activists have demonstrated how drones can be used to deliver abortion pills in both Poland and Northern Ireland, where abortion is illegal, highlighting the potential of this technology for subversive uses in the future. See e.g. <http://www.cbc.ca/news/trending/abortion-drone-delivers-medication-to-women-in-poland-1.3132284>

⁵ See e.g. Froomkin, A. Michael and Zak Colangelo, "Self-Defense Against Robots and Drones" forthcoming (2015) 48 *Connecticut Law Review* 1; Calo, Ryan "The Drone as Privacy Catalyst" 64 *Stan L Rev Online* 29; Margot E. Kaminski, "Drone Federalism: Civilian Drones and the Things they Carry" (2013) 4 *California Law Review* 57-74; Villasenor, John, "Observations from Above: Unmanned Aircraft Systems and Privacy" (2013) 36 *Harvard Journal of Law & Public Policy* 457; McNeal, Gregory S. "Drones and Aerial Surveillance: Considerations for Legislators" *Brookings Institution: The Robots Are Coming: The Project on Civilian Robotics*, November 2014 Pepperdine University Legal Studies Research Paper No. 2015/3.; Rule, Troy, "Airspace in an Age of Drones" (2015) 95 *Boston University Law Review* 155; Troy Rule, "Airspace in an Age of Drones" (2015) 95 *Boston University Law Review* 155-208; Office of the Privacy Commissioner of Canada Research Group "Drones in Canada: Will the Proliferation of Domestic Drone Use in Canada Raise New Concerns for Privacy" (2013) at https://www.priv.gc.ca/information/research-recherche/2013/drones_201303_e.asp; Thompson, Scott and Ciara Bracken-Roche, "Understanding Public Opinion of UAVs in Canada: A 2014 Analysis of Survey Data and its Policy Implications" (2015) 3 *Journal of Unmanned Vehicle Systems* 1; Bracken-Roche, C., D. Lyon, M. Mansour, A. Molnar, A. Saulnier, and S. Thompson, "Surveillance Drones: Privacy Implications of the Spread of Unmanned Aerial Vehicles (UAVs) in Canada" (2014) Report for the Office of the Privacy Commissioner of Canada; Holden, Paul D.M. "Flying Robots and Privacy in Canada" (forthcoming) *Canadian Journal of Law and Technology*;

This paper seeks to contribute to the growing drone privacy literature by examining some of the ways in which the technology is apt to impact women's privacy. The paper ultimately argues that drone regulators cannot continue to treat the technology as though it is value-neutral - impacting all individuals in the same ways. Going forward, the social context in which drone technology is emerging must inform both drone-specific regulations, and the ways in which we approach privacy generally. This paper is framed as a starting point for a further discussion about how this can be done within the Canadian context and elsewhere.

First - a brief note on terminology. 'Drone' is a colloquial term now commonly used to refer to remotely piloted aerial vehicles that range in scale and function from military weapons to children's toys. This paper is not focused on the use of the technology in military or international operations.⁶ Instead, this paper is concerned with the devices that are commercially available to individuals, companies and domestic law enforcement (i.e. non-military devices). These drones are typically small in size, often weighing up to a several kilograms. They may be equipped with a variety of additional sensors like high-resolution cameras that are either already installed at the point of sale, or added to the device by the operator. Drones of this size and function can also be manufactured at home. This paper considers the current, proposed or anticipated uses of the technology by private individuals, commercial entities and/or domestic law enforcement.

With this technological focus in mind, this paper will first explain why these domestic-use drones in particular raise gendered privacy concerns, and why a gendered analysis is relevant to thinking about the regulation of the privacy implications of the technology. The paper goes on to examine how women have long faced differential access to privacy in public spaces compared to men. This has arisen both from a gendered history of the legal understanding of what privacy *is*, and from the subsequent inadequate legal and normative protection against the kinds of intrusions that primarily affect women. Specifically, the second section of the paper considers how gendered notions of modesty have undermined women's privacy in public space – a space where women already face gender-based intrusions upon their privacy, which may be further exacerbated by drone technology.

The paper goes on to argue that the current approach of Canadian and U.S. regulatory agencies – which focus primarily on physical safety concerns associated with drone use, largely to the exclusion of a nuanced approach to privacy issues - incorrectly treats the technology as though it is value-neutral. The current regulatory approach does exactly what feminist technology critics caution against. It focuses on the artefact (the physical drone), while overlooking the broader cultural and social practices associated with drone technology, and the social context into which it is introduced.⁷ This narrow focus obfuscates the ways in which drone technology can reproduce, enhance, alter, or ameliorate existing social inequalities through, among other things, its impact on privacy.⁸ The paper concludes by arguing that drone technology in particular (though not exclusively) requires a more nuanced approach to regulation that takes into consideration social

Cavoukian, Ann, *Privacy and Drones: Unmanned Aerial Vehicles* (Toronto: Information & Privacy Commissioner Ontario, 2012).

⁶ On the politics of the military drones see e.g. Anna Feignbaum, "From Cyborg Feminism to Drone Feminism: Remembering Women's Anti-Nuclear Activisms" (2015) 16 *Feminist Theory* 265-288; Lorraine Bayard de Volo, "Unmanned? Gender Recalibration and the Rise of Drone Warfare" (2016) 12 *Politics & Gender* 50-77; Tyler Wall and Torin Monahan, "Surveillance and Violence from Afar: The Politics of Drones and Liminal Security-Scapes" (2011) 15 *Theoretical Criminology* 239-254; Derek Gregory, "From a View to a Kill: Drones and Late Modern War" (2011) 28 *Theory, Culture and Society* 188-215.

⁷ See e.g. Judy Wajcman, "Feminist Theories of Technology" (2010) 34 *Cambridge Journal of Economics* 143-152 cautioning against exactly such an approach.

⁸ See e.g. Linda Layne, *Feminist Technology* (UI Press, 2010)

context and the differential impacts of the technology on individuals and groups. Such perspective is relevant to the current and ongoing debates about drone regulation,⁹ particularly in light of the sometimes granular ways in which the drone's gendered impact has already come under scrutiny in popular discussions. A gendered perspective can provide a critical lens through which to identify some of the difficult privacy challenges raised by drones – not only for women – at a time when the laws guiding the permissible uses and designs of the technology continue to influence the trajectory of innovation.

SECTION I: THE 'SUNBATHING TEENAGER' AND DRONE PRIVACY REGULATION

As alluded to above, news stories about drones spying on “naked”, “topless” or “sunbathing” women and girls make regular headlines,¹⁰ as do drones peering into women's homes, apartments, backyards, or over swimming pools.¹¹ Anecdotally, it can be difficult to avoid these stories when following popular discussions about drones. These themes also appear in some of the academic writing on drone privacy.¹² On the other hand, similar stories about drones spying on men – particularly in a state of undress – are relatively rare.¹³

In a 2016 post on the online news website Slate, law professor Margot Kaminski labeled this recurrent theme the “sunbathing teenager narrative” – alluding to the fact that these stories often involve drones flying over women, particularly young women, in a state of undress. Kaminski questions, “with all we know about the complexities of information privacy,” which is deeply engaged by drone technology, “why is the female sunbather the story that keeps capturing attention?”¹⁴ To try to explain why this narrative might be so popular, Kaminski refers to the old tale of Lady Godiva, whose husband, Count Leofric, claimed he would lower oppressive taxes on the residents of Coventry, England the ‘day she rode naked through the streets on horseback’. As the tale goes, she did exactly that. Out of respect for their heroine's modesty, the city folk averted their eyes; all but one man, the Peeping Tom - who was promptly punished for his offence of

⁹ Transport Canada is currently reviewing new regulations for drones in Canada, including seeking community input on a set of proposed new rules. These rules do not deal with privacy or other social implications of the technology, as discussed in the section below. See: <https://www.tc.gc.ca/eng/civilaviation/opssvs/proposed-rules-drones-canada.html>.

¹⁰ E.g. <http://dailycaller.com/2014/06/24/pervy-nerds-get-their-hands-on-a-drone-and-use-it-just-how-you-d-expect/>; <http://www.mirror.co.uk/news/uk-news/peeping-toms-using-drones-spy-7642394>;

<http://globalnews.ca/video/2167054/drone-caught-spying-on-vancouver-woman-sunbathing-topless>. Many online reports of these stories also, disconcertingly, choose to post the video; I have not cited to these. The posting of this voyeuristic footage to the Internet raises even broader concerns and challenges for women's privacy, and connect drone privacy challenges to discussions about, for instance, revenge porn (see e.g. Danielle Keats Citron and Mary Anne Franks, “Criminalizing Revenge Porn” (2014) 49 Wake Forest Law Review 345)

¹¹ E.g. <http://www.dailymotion.com/video/x2q8a65>;

<http://www.popularmechanics.com/flight/drones/a25543/shoot-down-drone/>

¹² Gregory McNeal, “Drones and Aerial Surveillance: Considerations for Legislators” (2014) Brookings Institute; Troy Rule, “Drone Zoning” (2016) 95 NCL Rev 133. Both cited for this point in Margot Kaminski, “Enough with the “Sunbathing Teenager” Gambit” (May 17, 2016) Slate Future Tense,

http://www.slate.com/articles/technology/future_tense/2016/05/drone_privacy_is_about_much_more_than_sunbathing_teenage_daughters.html

¹³ A Google search for “drone spies on man” (from Canada at the time of writing) reveals one story from Utah about a couple who spied on a series of people including one man in his bathroom; and then a number of stories about husbands spying on their cheating wives. Meanwhile, the same search with “woman” reveals multiple pages of applicable search results. http://www.huffingtonpost.com/entry/peeping-tom-drone_us_58a6847fe4b045cd34c03e56

¹⁴ Margot Kaminski, “Enough with the “Sunbathing Teenager” Gambit” (May 17, 2016) Slate Future Tense, http://www.slate.com/articles/technology/future_tense/2016/05/drone_privacy_is_about_much_more_than_sunbathing_teenage_daughters.html

undermining the noble woman's honour. Kaminski goes on to explain the contemporary drone connection with the Lady Godiva tale:

The sunbather disrupted by drones is a Lady Godiva story, of sorts, without the tax policy. A young woman expresses liberation by wearing a bikini in her backyard or on the beach. Everyone generally follows social norms and refrains from staring for too long, or taking photos or video. But the hovering drone breaks that agreement and must be punished, just like Tom. Often it's dad who does the punishing, but sometimes it's just a Good Samaritan. Law isn't very helpful.

Ultimately, Kaminski argues that this gendered trope is a distraction; "it provides a woefully incomplete account of the kinds of privacy concerns that drones raise," ignoring for instance, the significant impact that drones might have on informational privacy; the implications of facial recognition payloads for anonymity; risks relating to cybersecurity and hacking; and so on. She expresses concern about the possibility that legislators will focus on protecting the modesty of sunbathing teenagers, while ignoring the potentially far more widespread and problematic impacts that drones can have on informational privacy.

I agree with Kaminski that policymakers need to consider the broader range of privacy issues raised by the recent proliferation of drones. However, I also believe that this 'sunbathing teenager' trope, which Kaminski has helpfully identified and named, itself reveals important privacy concerns arising from the growing domestic popularity of drone technology. While Kaminski is right that lawmakers would be foolish (and sexist) to focus drone regulations around out-dated norms of women's modesty, this gendered privacy narrative nevertheless reveals a deeper issue that lawmakers *should* be concerned about – that the technology is particularly adept at taking advantage of weaknesses in privacy protection that exist in large part because the early origins of the doctrine did focus on women's modesty as central to women's privacy (and privacy generally). To ignore this broader issue risks overlooking some of the ways in which drone technology may (arguably will) exacerbate privacy intrusions experienced by women. The following sub-sections explain how the modesty theory understands and protects only a limited notion of privacy, and how this antiquated notion of privacy influenced the early development of privacy jurisprudence. The next section of this paper builds on this background to examine how this early reliance on modesty has affected privacy protection today, and what this means for women's privacy in the context of growing drone use.

The Modesty Theory of Privacy

Lady Godiva's ride through city streets aside,¹⁵ the modesty theory of privacy that implicitly underlies the 'sunbather' narrative is grounded upon a traditional expectation of a woman's confinement and seclusion within the home.¹⁶ When she is confined or secluded in such a way, she ought not be interfered with or gazed upon by others – particularly uninvited men (including where that gaze is mediated by a drone).

¹⁵ Let us not forget that Lady Godiva was a British noblewoman with considerable class and race privilege to protect her.

¹⁶ Historically, "women's privacy" brought to mind notion of peaceful seclusion within the domestic sphere. See also Anita Allen, *Uneasy Access: Privacy for Women in a Free Society* (Rowman & Littlefield, 1988) at preface. Feminine modesty forced a kind of "obligatory, social disappearing act that shield[ed] a woman in the mantle of privacy": Allen, *Uneasy Access* at 20.

A central problem with this understanding of a woman's "privacy" is that it is narrowly limited to protecting her from intrusions in circumstances where she is concealed, secluded, and behaving virtuously. Accordingly, in order to have protection, a woman must become invisible - modesty norms required that women "exhibit speech, dress, and behaviour calculated to deflect attention from their bodies, views, or desires."¹⁷ Protection of this state of being does little to actually protect a woman's experience of privacy (e.g. her access to an invasion-free home life did not fall within the modesty framework due to her traditional role as subservient housekeeper and mother).¹⁸ Nor would this theory protect a woman perceived by traditional norms to be immodest - one who ventures into public, engages in sexual activity outside of marriage or enters the workforce.¹⁹ The modesty theory of privacy bestowed a heavily class, race, and sexuality-limited protection against visibility and interference by others, reliant upon on a woman's self-enforced concealment and seclusion in the marital or family home, and her meeting antiquated standards of virtue.²⁰

The 'sunbather' narrative has undertones of this modesty theory of privacy; as pointed out by Kaminski - the drone that flies over a woman in her backyard or in her home, invading her privacy and undermining her modesty (and most importantly; undermining the man of the house's control over who can see her), is deserving of punishment - often by the young woman's father. As will be further discussed below, though, the same has not been the case where a drone is used in a similarly invasive way in a public space - again echoing this understanding of privacy as based on concealment, seclusion and invisibility. While a modesty-based analysis of a woman's right to privacy seems antiquated now, the next sub-section examines how this notion shaped the early development of privacy jurisprudence, which through precedent, has an echoing effect today.

Modesty within Privacy Jurisprudence

Professor Anita Allen has highlighted the role that traditional norms of female modesty and virtue played in the early development of the American privacy tort (which provides the foundations for the development of the Canadian common law tort as well).²¹ These norms of modesty laid the ground work for how the courts have now come to understand the scope and limits of privacy protection. For instance, in the paper "How Privacy Got its Gender", Allen and co-author Erin Mack identify the "outmoded normative assumptions about female modesty and seclusion" at the core of the tort's early development through an examination of early privacy tort cases, as well as the foundational paper "The Right to Privacy" by Samuel Warren and Louis Brandeis.²²

For instance, in laying the groundwork for the protection of a man's right to a "private home" and "family life" (i.e. the famous "right to be let alone"), Warren and Brandeis rely on a line of cases in which parents and husbands are found to have rights of recovery against male seducers

¹⁷ Anita Allen and Erin Mack, "How Privacy Got its Gender" (1991) 10 Northern Illinois University Law Review 441 at 444.

¹⁸ Allen and Mack at 477.

¹⁹ Allen and Mack at 477. This problem is notably still prevalent in sexual assault trials in Canada and the U.S. See e.g. <http://www.cbc.ca/news/politics/justice-robin-camp-judicial-council-1.4017233>

²⁰ Allen and Mack, at 444.

²¹ E.g. see *Jones v Tsige*, 2012 ONCA 32.

²² Samuel D. Warren and Louis D. Brandeis, "The Right to Privacy" (1890) 4 Harvard Law Review 193; "Warren and Brandeis were not critical of the ways in which homelife [...] and norms of female modesty contributed to women's lacking autonomous decisionmaking and meaningful forms of individual privacy." Allen and Mack, "How Privacy Got its Gender" at 477.

of their daughters and wives²³ or where the shame and dishonour caused by a daughter's seduction is judicially remedied.²⁴ Intrusions upon a woman's modesty were framed as an offence to her husband or father deserving of compensation (rather than as an offence to her control over her own body or environment, solitude, or anonymity). These are among the early cases that set out the scope and boundaries of the "right to be let alone" in Warren and Brandeis' famous paper – which ultimately underscored the development of the American privacy tort. Allen and Mack observe that "women appear in Warren and Brandeis' article as seduced wives and daughters", while the implications of a "private home" and "family life" for women, and in particular women's privacy, go completely overlooked.²⁵

Allen and Mack also refer to numerous tort cases where the courts went remarkably far to compensate a female plaintiff for a privacy loss, on the reasoning that any intrusion that amounted to a loss of her modesty should be actionable.²⁶ Allen and Mack determine from the reasoning in these cases that the basis on which male judges rationalized such large remedies was a "paternalistic, patriarchal concern for feminine modesty and virtuous seclusion"; not a concern for a woman's equal "right to be let alone" or her right to benefit from the values that privacy protection can afford.²⁷ Were that to be the case, then the many intrusions upon a woman within the marital or family home would also be protected.

Women's modesty, and her concealment from the gaze of strangers within the home, has also factored into the development of constitutional privacy protections. For instance, Professor Jeannie Suk examines the central role of women's modesty in several recent U.S. Fourth Amendment precedents.²⁸ In *Kyllo v United States*, which involved the use of a Forward Looking Infra Red device by police to examine the amount of heat emanating from a home, Justice Scalia centres his concerns about the invasiveness of this technique on the potential visibility of the "lady of the house taking her bath and sauna."²⁹ Suk elaborates that this focus on the *lady* in her sauna (which appears nowhere in the facts of the case), "evokes the privacy interest of the man [of the house] entitled to see the lady of the house naked and his interest in shielding her body from prying eyes. Privacy is figured as a woman, an object of the male gaze."³⁰

Suk explains how the 'lady in the bath' evokes concerns about prying eyes lusting after a man's wife; the threat to the woman's virtue by the suggestion of sexual infidelity in the eyes of the voyeur.³¹ Anxiety about an intrusion into the man's home "can be expressed as anxiety about female

²³ As a reflection of the principle of non-interference with a man's family relations. Allen and Mack at 458.

²⁴ As proof of a historical regard for human emotion in law. Allen and Mack at 458.

²⁵ Allen and Mack at 459 and 466: Warren and Brandeis were "not critical of the ways in which homelife [...] and norms of female modesty contributed to women's lacking autonomous decisionmaking and meaningful forms of individual privacy." To underscore this point, Allen directs us to their contemporary, Charlotte Perkins Gilman, who emphasized that the appeal to the 'privacy of the home' overlooked (or took for granted) that someone therefore needed to maintain that home, and that women had been relegated to that role; that there was not actually much privacy in the home for women, between children, other family members, servants, etc; and that because of male authority over the home domain women confined to that home lacked decisional privacy over marriage, sex and reproduction. "Women's lack of meaningful opportunities for individual privacy is tied to their economic role. To have real privacy, women would have to be freed from their limited role in the economy as mere housekeepers and mothers": Allen and Mack, summarizing Gilman, at 468.

²⁶ "Typical judges were likely to be strongly influenced by pervasive notions of a need to take special care to preserve women's modesty as among their chief virtues." Allen and Mack at 462.

²⁷ Allen and Mack at 464.

²⁸ Jeannie Suk, "Is Privacy a Woman?" (2009) 97 Georgetown Law Journal 485-513

²⁹ 533 US 27 (2001)

³⁰ Suk at 488: highlights other examples from the United States Supreme Court.

³¹ "Kyllo's lady in the bath draws on a complex of cultural associations that emanate from this canonical story: the prying eyes of legal elders who violate the private boundary of a home and lust after a man's wife; the predication of

sexual virtue. A meaning of a man's home as his castle that emerges here is the need to shield his wife's body from other men's desire."³²

While such explicitly gendered rhetoric has not appeared in the Canadian constitutional privacy cases, the judicial protection of privacy on the basis of concealment within the sanctity and privacy of the home – developed through reference to the U.S. case law including that cited above – certainly does exist here too.³³ And, a recent Ontario Court of Appeal (ONCA) decision also echoes this notion that only that which is (modestly) secluded from the prying eyes of a peeping Tom is protected.

This ONCA case, *R v Jarvis*, involved a highschool teacher who photographed and filmed young women students in his highschool covertly using a pen camera.³⁴ The focus of the footage was on the women's cleavage. Jarvis was charged with voyeurism, an offence with three elements, including that the accused surreptitiously (non-consensually) observed or made a recording of a complainant, in a context where the complainant has a reasonable expectation of privacy, and that the observation was sexual in nature. The majority of the court held that the Crown failed to prove the second element of the offence. The students had no reasonable expectation of privacy in the parts of their bodies that were visible to everyone.³⁵ The majority contrasted this with the hypothetical example of 'upskirt photos' where an accused uses a camera affixed to a shoe or other low vantage point to covertly take pictures under women's skirts.³⁶ Women in these cases can expect privacy vis-a-vis the parts of their bodies that are concealed, by virtue of this concealment. Rather than premise the *Jarvis* complainants' expectation of privacy around, for example, the social circumstances in which the filming occurred, or the right of young women not to be filmed by men in a position of power over them (regardless of whether this is done openly or secretly), or the young women's right to control information about themselves, the majority in *Jarvis* relied on concealment as necessary to any expectation of privacy against sexual observation. Notably, this decision has been appealed to the Supreme Court of Canada and will be heard in 2018.

While explicit judicial reliance on modesty as the standard by which to assess a woman's privacy seems antiquated today (though hardly absent from judicial reasoning³⁷), this theory nevertheless laid much of the ground work for the current understanding of the scope of privacy protection. And consequently, it failed to lay legal groundwork for protection against common invasions of privacy experienced predominantly by women. In other words, privacy laws were not designed by or for women; the role of women within the development of privacy jurisprudence has

well-ordered domesticity on the woman's virtue, gravely threatened by the suggestion of sexual infidelity, even rape, enacted in the voyeurs' observation of her naked body; the restoration of domestic order qua legal order by punishment of the gaze." Suk at 490.

³² "If in the adage [a man's home is his castle] the home is envisioned as a barrier against intrusion, we have seen that anxiety about intrusion can be expressed as anxiety about female sexual virtue. A meaning of a man's home as his castle that emerges here is the need to shield his wife's body from other men's desire. To neglect or decline to do so is to prove himself unworthy to be the man of the castle, unworthy of that domain of privacy to which a man in his home is entitled." Suk at 491. See also I. Bennett Capers, "Unsexing the Fourth Amendment" (2014-2015) 48 U.C. Davis Law Review 855.

³³ See e.g. *R v Plant*, [1993] 3 SCR 281; *R v Tessling*, [2004] 3 SCR 432; *R v Patrick*, [2009] 1 SCR 579; *R v Gomboc*, [2010] 3 SCR 211. But see *R v Spencer*, [2014] 2 SCR 212 recognizing constitutional protection of at least anonymity in some circumstances in public.

³⁴ *R v Jarvis*, 2017 ONCA 778.

³⁵ *Jarvis* at para 108.

³⁶ *Jarvis* at para 98.

³⁷ Reliance on notions of modesty necessary to women's protection from unwanted advances still notably arises in sexual assault trials in Canada and the U.S. See e.g. <http://www.cbc.ca/news/politics/justice-robin-camp-judicial-council-1.4017233>

been as wives, daughters, and lovers of the (cis, heterosexual, home-owning, white) men whose interests shaped the development of the doctrine.

The lasting impact of the modesty theory of privacy may in fact reconcile the different legal outcomes in a number of popular drone privacy stories. On the one hand, aggressive measures taken to disarm a drone flying over private property and purportedly exposing women (particularly young women) to the gaze of a male stranger – to the extreme of shooting down the drone over a residential area - have been deemed socially if not legally acceptable (as already emphasized by Kaminski). Meanwhile, though, no legal protection was offered to a woman who felt a similar sense of intrusion on a public beach – her aggressive response to the drone operator led her being charged and ultimately convicted of criminal assault.³⁸ Similarly, the privacy concerns of a sex-worker who was filmed with a john by a vigilante with a drone were not raised in reports about the incident – even when the vigilante posted his video online; meanwhile she was sentenced to a year in prison based on the drone footage.³⁹

The next section of this paper explores how the gaps in legal protections of privacy outside the realm of seclusion and modesty (particularly in public space) have an inequitable impact upon and amongst women, and how several features of drones make the technology particularly adept at taking advantage of some of these legal gaps.

SECTION II: DRONES AND GENDERED PRIVACY INVASIONS

As noted, one central implication of the traditional modesty theory of women’s privacy (which is rooted in seclusion within the home) is that in public space, individuals enjoy considerably less, or no, privacy. Feminist privacy scholarship has expounded upon the implications of this for women - particularly with respect to harassment on public streets, a form of privacy invasion that is overwhelmingly targeted at women, yet underprotected in law. This section first describes how the features of the drone make the technology especially adept at engaging the privacy of individuals in public space generally. It then draws from feminist privacy literature (that builds on the discussion of the limits of the modesty theory of privacy set out above) to demonstrate how women’s experiences of privacy in public are underprotected in ways that drone technology is apt to exploit. This section provides the basis for the final section of the paper, which argues that drone regulation requires broader consideration of the social implications of the technology, including the ways in which it might differentially impact some individuals and groups.

Privacy-Invasive Drone Features

Drones have several features that combine to present fairly unique privacy challenges, relative to other surveillance technologies.⁴⁰ For instance, two of the most significant physical features of the drone that challenge privacy are also two of its most fundamental features - the fact that drones fly, and that they do so without a human on-board. The aerial nature of drone technology permits an operator to access potentially unexpected vantage points of the ground below, compared to ground-based or stationary tools of observation like CCTV cameras or cell

³⁸ <http://www.wdrb.com/story/30354128/judge-dismisses-charges-for-man-who-shot-down-drone>;

<http://www.nydailynews.com/news/crime/conn-woman-attacked-teen-drone-seeks-probation-article-1.1836545>

³⁹ <http://www.independent.co.uk/news/world/americas/prostitute-caught-on-drone-camera-having-sex-with-elderly-man-pleads-guilty-a6960946.html>

⁴⁰ The following two paragraphs are drawn from my prior work: Kristen Thomassen, “Flying Between the Lines: Drone Laws and the (Re)Production of Public Spaces” in: Eric Hilgendorf, Uwe Seidel (eds) *Robotics, Autonomics, and the Law*, 205 - 226

phone video. Also since there is no human on board, the drone can be smaller than a manned aircraft, and can be operated in areas that are too dangerous or difficult for a manned craft to access. This unmanned aerial nature also makes the technology well suited for longer-term monitoring and tracking, to the extent that fuel sources permit.⁴¹ Furthermore, since drones can be purchased at relatively low costs (depending on the sophistication of the device), and are widely accessible on the consumer market, they can be put to wide-scale use by a variety of operators.⁴² These features and capabilities, among others, can combine to cause a ‘panoptic’ chilling effect on individuals on the ground below.⁴³ The technology not only can collect enormous amounts of information from the ground below, it can also *feel* invasive and enter into one’s personal space.⁴⁴

It is of course possible that over time people will become accustomed to drones in the sky, such that this panoptic effect eases. However, another legally important feature of drones – the fact that they operate detached from a human pilot – raises further challenges for privacy and accountability. An individual may feel that a drone has invaded her privacy, but if she cannot identify the operator – because the pilot was located at a distance – then she may not know whom to pursue, or through which legal mechanism.⁴⁵ Furthermore, an individual might not know what information a drone is collecting or for what purpose, which makes it difficult to know which legal remedy, if any, is available. This uncertainty may also serve to compound the panoptic implications discussed above.⁴⁶ The drone’s detachment from the pilot therefore disempowers the observed; she has no immediate way to gain more information about the drone’s operation or operator.⁴⁷

Drones & Women’s Experience of Privacy in Public Space

⁴¹ Battery power in many commercially accessible drones allows the device to stay aloft for up to approx. 30 minutes. As battery technology progresses or other fuel sources are developed this may of course change. However, for now, the more popular drones would not be capable of long-term monitoring; some more sophisticated drones may be able to stay aloft for longer. Meanwhile, corporations hoping to use drones for delivery have recommended infrastructural changes in cities, including battery re-charging stations, that would allow for longer flights:

<http://mashable.com/2016/07/19/amazon-drone-docking-stations/#bgnNomp9tOqH>.

⁴² Simple drones with built-in cameras can be purchased for \$50CAD. More sophisticated drones cost in the thousands of dollars, which is still quite inexpensive relative to a manned aircraft. The implications of this accessibility could mean considerably more surveillance in public. See e.g. Woodrow Hartzog and Evan Selinger, “Surveillance as Loss of Obscurity” (2015) 72 Washington and Lee Law Review 1343.

⁴³ Roger Clarke, “Understanding the Drone Epidemic” (2014) 30 Computer Law & Security Review at 230-246. As Professor Roger Clarke explains, “drones actually bring back the sense of physical superiority of the observation-point over ground-dwelling individuals.” Echoing this sentiment, Professor Ryan Calo has described drones as representing “the cold, technological embodiment of observation.” Ryan Calo, “The Drone as Privacy Catalyst” 64 Stan L Rev Online 29 at 34.

⁴⁴ As perhaps exemplified by the breadth of recent news stories involving individuals shooting at drones, or otherwise seeking to disable them.

⁴⁵ See e.g. Froomkin and Colangelo, “Self-Defense Against Robots and Drones”, *supra*.

⁴⁶ *Ibid*. Uncertainty about a drone’s mission and owner played a significant role in an encounter leading to one of the first U.S. criminal cases involving a drone (see e.g. http://www.slate.com/blogs/future_tense/2015/10/28/case_against_william_merideth_for_shooting_down_a_drone_is_dismissed.html).

⁴⁷ This could also result in individuals taking dangerous self-help measures in response to drones. As Froomkin and Colangelo, *supra* explain at p. 33: “the less the victim knows about the robot spy, or suspected spy, the more that its surveillance is likely to seem a threat. And the more that the surveillance seems a threat, the more that the victim will seek not just a judicial remedy – uncertain, likely time-consuming and costly, and probably much too late to undo the harm – the more that the victim will seek a self-help remedy.” See also: Ciara Bracken-Roche, “Domestic drones: The politics of verticality and the surveillance industrial complex” in *Power and space in the drone age* Korf, B. and Klauser, F. (eds.) special issue, *Geographica Helvetica* (2016)

In her book *Uneasy Access*, Anita Allen demonstrated ways in which women experience too much of the wrong kinds of privacy, and not enough of the right kinds of privacy. Section I touched on some of the *wrong* kinds of women's privacy – gender-biased standards of modesty that stem, at least in part, from seclusion within the home and invisibility from strangers. The wrong privacy has also included the ways in which privacy doctrine has historically shielded domestic abusers from legal accountability, by protecting the 'sanctity of the home' at the expense of women seeking state assistance or protection from their (predominantly male) domestic abusers.⁴⁸

Meanwhile, women continue to lack what Allen refers to as the right kinds of privacy – decisional autonomy, particularly over marriage, reproduction and sex, (which were traditionally seen as part of "family life", over which men had decision-making authority), as well as the ability to seek replenishing solitude outside the confines of the home. In other words, women in particular lack privacy in public, due especially to the disruptions caused by sexual harassment in public spaces and the workplace.

Allen defined "privacy in public" as the "inaccessibility of persons, their mental states, and information about them to the senses and surveillance devices of others."⁴⁹ She explains that "seclusion, achieved through physical distancing, and anonymity, achieved through limited attention paid, are the forms of inaccessibility that significantly constitute privacy in public."⁵⁰ Through different cases, the Supreme Court of Canada has similarly (sometimes implicitly) recognized that there can be some expectation of privacy in public – either through an expectation that encounters with others in public will be fleeting/limited in temporal scope⁵¹; will be anonymous⁵²; and/or that observations and personally-identifying information collected in public will not be widely shared.⁵³

However, access to and the importance of this realm of privacy have been, and continue to be, gendered. The public realm, as Allen describes, can be a place of private tasks, where women can alleviate or escape the stresses of home or employment. However, intrusions into one's solitude or 'right to be left alone' – e.g. by street harassment - can "break the flow of thought and distract a woman's attention, utterly without purpose, from her own concerns."⁵⁴ Private tasks and repose are replaced with experiences of leering, insulting, prying and offensive touching.⁵⁵ These unwanted intrusions have the effect (if not the intention) of silencing, intimidating and objectifying women when they enter public space,⁵⁶ and often leave women with little legal or normative recourse, fearing a dangerous altercation, the desire to avoid embarrassment, or a lack of time, money or unlikelihood of success in seeking police or legal intervention.⁵⁷ Viewed individually, these privacy invasions can seem *de minimis*, and perhaps receive little or no legal protection in part for this

⁴⁸ E.g. Catherine MacKinnon, *Feminism Unmodified: Discourses on Life and Law* (Harvard University Press, 1987); Elizabeth M. Schneider, "The Violence of Privacy" (1990-1991) 23 Connecticut Law Review 973.

⁴⁹ Allen, *Uneasy Access* at 123-24.

⁵⁰ Allen, *Uneasy Access* at 123-24.

⁵¹ *R v Wise*, [1992] 1 SCR 527.

⁵² *R v Spencer*, *supra*.

⁵³ *Aubry v Éditions Vice-Versa Inc.*, [1998] 1 SCR 591; restraints on collection of information – including in public – for commercial purposes are also set out in *PIPEDA*, SC 2000, c 5.

⁵⁴ Allen, *Uneasy Access* at 128.

⁵⁵ Allen, *Uneasy Access* at 128. This does not include such encounters as striking up a conversation or flirtation: "The privacy-diminishing intrusions that are to be condemned as morally disrespectful and harmful have little to do with genuine personal interest in the women who are victimized" Allen, *Uneasy Access* at 133. Precisely the kind of encounter that could not (likely) be mediated by an anonymizing technology.

⁵⁶ Allen, *Uneasy Access* 131: Women do not enjoy the same privacy in public as men do.

⁵⁷ "Regardless of the consequences of the intrusions, we feel we can do little as individuals even about the egregious intrusions suffered in public places. We fear dangerous altercation, we wish to avoid embarrassment, and we haven't the time or money to seek police or legal protection."

reason.⁵⁸ But when their frequency is considered, the impact of these invasions on women's access to privacy is cumulatively significant.⁵⁹

For example, Canadian and U.S. statistics show that women's experience of street harassment is widespread – near universal by some estimates.⁶⁰ Additionally, public harassment is experienced significantly differently amongst women. For example, in the United States, African American women not only experience quantitatively more street harassment, but it is qualitatively different, rooted in histories of slavery and sexism.⁶¹ Furthermore, verbal or physical harassment can escalate into more intrusive, dangerous or violent forms of public harassment, including stalking and rape, which are also experienced differently at intersecting axes of marginalization.⁶² Women can also face non-consensual filming and photography of their bodies and activities, sometimes accompanied by the sharing of these images online, which not only interrupt their enjoyment of public space, but also disempower them by undermining their control over information about themselves.⁶³ By interfering with a woman's safety, security, repose, solitude, and even her anonymity, and her control over images of herself, street harassment, stalking and other sexual violence in public constitute (at least) invasions of a woman's privacy in public space, against which she might have little normative or legal recourse.

These existing conditions of inequality will impact and be impacted by the development and adoption of new technologies like the drone.⁶⁴ Drone technology certainly does not cause street harassment or stalking, nor is it a necessary condition for these invasions of women's privacy. But the technology is integrating into a social context in which street harassment and stalking are already a moral and social - if not legal - problem for women. So, it is necessary to consider how the technology might impact that social context – and how that social context might (or should) impact the development and regulation of the technology.

⁵⁸ Allen, *Uneasy Access*; Cynthia Grant Bowman, "Street Harassment and the Informal Ghettoization of Women" (1993) 106 *Harvard Law Review* 517.

⁵⁹ Allen, *Uneasy Access*; see also Jena McGill and Ian Kerr, "Reduction to Absurdity: Reasonable Expectations of Privacy and the Need for Digital Enlightenment" in *Digital Enlightenment Yearbook* (IOS Press, 2012) on the problem of reviewing a series of small privacy invasions independently, rather than as a whole.

⁶⁰ E.g. A study by Cornell University found that 85% of women in the United States experience street harassment before the age of 17. The study also indicated that 50% of women under 40 have been groped or fondled in the last year, whereas 77% of women have been followed by a man or a group of men. Over half of the respondents noted changing their clothing or behaviour due to concerns over street harassment. <https://www.ilr.cornell.edu/news/street-harassment-statistics>; <https://www.slideshare.net/iHollaback/street-harassment-statistics-in-canada-cornell-survey-project-2015-48200467>; See also this online study by Stop Street Harassment: <http://www.stopstreetharassment.org/resources/statistics/sshstudies/>. Similarly, 88% of Canadian women report their first instance of street harassment before the age of 17. <https://www.slideshare.net/iHollaback/cornell-canada>

⁶¹ See e.g. Deirdre Davis, "The Harm that has No Name: Street Harassment, Embodiment and African American Women" (1994) 4 *UCLA Women's Law Journal* 133; Deborah M. Thompson, "The Woman in the Street: Reclaiming the Public Space from Sexual Harassment" (1993) 2 *Yale Journal of Law and Feminism* 313.

⁶² Stalking is the fifth most common violent offence committed against women in Canada. Canadian women are three times more likely to be victims of stalking than men, perpetrators are most often men: http://www.women.gov.on.ca/owd/english/ending-violence/sexual_harassment.shtml; Indigenous people in Canada are twice as likely (7%) as non-Indigenous people (3%) to have experienced some form of stalking, and young women aged 15-24 reported the highest rates of being stalked: <http://www.justice.gc.ca/eng/rp-pr/cj-jp/fv-vf/har/part1.html>; http://ywcanada.ca/data/research_docs/00000354.pdf. Similarly, in the United States women of colour will experience higher rates of stalking - 1 in 4 American Indigenous women will experience stalking, and 1 in 5 African-American women will experience stalking: <http://www.wgac.colostate.edu/stalking-statistics>.

⁶³ E.g. <http://www.cbc.ca/news/world/upskirt-photos-not-illegal-u-s-court-rules-1.2562395>

⁶⁴ Torin Monahan, "Dreams of Control at a Distance: Gender, Surveillance, and Social Control" (2009) 9 *Cultural Studies Critical Methodologies* 286 at 289.

On one hand, the combination of several key attributes of drone technology – in particular its dislocation from the operator, and related anonymity of the user of the device, as well as the ‘silent observer’ nature of the technology – might actually discourage its use for some forms of street harassment, which often entails a more personal interaction between the harasser and woman, and the assertion of the power dynamic between them.⁶⁵ These features though, also make the drone more apt for use in escalated forms of harassment like stalking where the stalker can remain anonymous and harder (potentially) to identify – not to mention more capable of accessing unexpected or difficult to shield vantage points. Drones have in fact already been used for exactly these reasons.⁶⁶ Additionally, the dislocation of the drone from its operator deepens the power imbalance between the harasser and the woman whose privacy is invaded. Where there is already little legal or social recourse for a privacy invasion by a person, the drone adds a further informational and accountability barrier – a woman might not know who is operating the drone, why, or how to prevent it.

Furthermore, the nature of the drone as an anonymous observer could have an acutely objectifying impact – there is no social interaction intended, the object of the observation is entirely objectified.⁶⁷ In this case, rather than reducing its potential for harassment, the drone’s unique combination of features might simply change the nature and experience of harassment. Perhaps then it is unsurprising that stories are already proliferating about drones being used to sexually harass, stalk, and objectify women in public.⁶⁸ Concern about women’s public harassment and privacy can be distinguished from the ‘sunbather narrative’ focus on women’s modesty, as here the focus is on the invasion into a woman’s personal privacy in the form of her right to repose, inaccessibility, and anonymity - rights that are also central to men’s privacy in public space, and not on her duty of modesty.

Further consideration and empirical work is needed to better understand and unpack how this emerging and potentially prolific technology will impact women’s privacy in public. None of the above discussion is intended to suggest that drones may not be used the same way against men. However, the social context and deeper history of sexual violence, stalking and objectification of women, particularly in public, cannot be overlooked. While drone technology – and the surveillance payloads that can be attached to it – will engage the privacy interests of both men and women in public spaces,⁶⁹ gender - intersecting with race, colonialism, sexuality, class, disability, and age - continues to be an important determinant of one’s ability to expect and assert personal privacy outside the home.⁷⁰

⁶⁵ See e.g. Thompson “Reclaiming” at 327-328. This of course assumes that the drone is not equipped with a microphone. There is no good reason to assume this limitation in the future.

⁶⁶ https://broadly.vice.com/en_us/article/9kqjip/several-women-in-this-rural-town-say-they-were-stalked-by-drones?utm_source=broadlytwitterus

⁶⁷ E.g. Laura Mulvey, “Visual Pleasure and Narrative Cinema” (1975) 16 Oxford Journals 6 (setting out the concept of male gaze); Hille Koskela, “‘The Gaze without Eyes’: Video-Surveillance and the Changing Nature of Urban Space” (2000) 24 Progress in Human Geography 243; Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective (1988) 14 Feminist Studies 575-599.

⁶⁸ <http://jezebel.com/of-course-women-are-getting-sexually-harassed-by-drones-1576526357>;
<http://www.cbc.ca/newsblogs/yourcommunity/2014/06/sexual-harassment-by-drones-a-growing-concern.html>;
<http://www.cbc.ca/news/canada/newfoundland-labrador/drone-following-st-john-s-woman-1.3874380>.

⁶⁹ However, these types of informational invasions, and their consequences, are also heavily based on gender, race, class, age, disability, and so on. See e.g.: Monahan “Dreams of Control at a Distance”; Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Duke University Press, 2015); and the collection by Rachel E. Dubrofsky and Shoshana Amielle Magnet (eds) *Feminist Surveillance Studies* (Duke University Press, 2015).

⁷⁰ Anita Allen, “Gender and Privacy in Cyberspace” (2000) 52 Stanford Law Review 1175.

Privacy Consequences of Drones as a Tool to ‘Protect Women’ in Public Space

A further privacy issue that should be considered in the context of drone privacy regulation may soon emerge in light of the very statistics about women’s experiences in public spaces cited above. Drones have recently been suggested as a tool to help protect women, in particular from gender-based violence in public. Two such examples include the use of drones as personal streetlamps, which can be summoned through a cell phone application and which would follow an individual around when they feel unsafe.⁷¹ A second such suggestion is to use drones to monitor public spaces perceived as high risk for crime – in particular, the New Delhi, India police force plans to use small surveillance drones equipped with night vision and thermal imaging cameras as a means to crack down on rape.⁷² These proposed uses, among other similar proposals by both state and private actors, could very well have beneficial outcomes for women. But, such proposals must be subjected to a critical analysis before their acceptance and widespread adoption, particularly where the justification for this drone usage is the purported ‘protection of women.’

As professors Corinne Mason and Shoshana Magnet observe,

it is a difficult task to critique surveillance technologies aimed at ensuring women’s safety against abusers. When made visible as anti-violence tools, technologies of surveillance appear to be uncontroversial to a range of actors. [... but] by overlooking the complex ways that surveillance practices and technologies are entrenched within the prison industrial complex, one might miss key challenges that surveillance technologies pose to anti-violence strategies. Whether it is smartphones, iPhone applications, Google maps, or home surveillance, feminist surveillance studies scholars must investigate the ways that existing inequalities may be exacerbated by their use.⁷³

Drone privacy scholarship must be attentive to the ways in which the protection of one marginalized group could be co-opted to justify, for example, increasing public surveillance, or surveillance of particular people/places.⁷⁴ For instance, the construction of the ‘woman as a victim’ in need of protection can lead to her own forced surveillance. Professors Wesley and Gaardener highlight the difficult trade-off women can experience between wanting to feel safe while accessing the outdoors, and their discomfort with the increased surveillance that can accompany this desire.⁷⁵ The potential of a self-summoned drone lamp that tracks one’s location will perhaps encompass this difficult balancing in the future. This is not to mention that as the technology becomes more prolific and accessible, women may lose any real choice in the matter. For instance, were a woman to avoid the purportedly helpful surveillance and then experience violence in public, law enforcement, courts

⁷¹ <http://www.designboom.com/technology/fleetlights-direct-line-drone-app-11-18-2016/>

⁷² <http://www.csmonitor.com/World/Global-News/2014/1211/Will-drones-keep-India-s-women-safe-from-rape;>
<https://www.wsj.com/articles/taser-explores-concept-of-drone-armed-with-stun-gun-for-policeuse-1476994514>

⁷³ Corinne Mason and Shoshana Magnet, “Surveillance Studies and Violence Against Women” (2012) 10 *Surveillance & Society* 105 at 114-116: “we argue that assertions that surveillance technologies keep us safer from violence as they help police to arrest perpetrators [are] deeply problematic. Rather, they may only further the criminalization of victims of violence through mandatory arrest policies for women, or women may avoid even those technologies explicitly designed to help enable police surveillance of their abusers for fear of a criminal justice outcome”.

⁷⁴ Dubrofsky and Magnet “Introduction” at 1. The “racist imagining of violence as key to communities of colour justifies new forms of surveillance by the state in ways that facilitate the disproportionate criminalization of communities of colour” – Dubrofsky and Magnet “Introduction” at 8.

⁷⁵ J Wesley and E Gaardener, “The gendered “Nature” of the urban outdoors: Women negotiating fear of violence” (2004) 18 *Gender & Society* 645-663.

or social circles might question why she resisted the helpful technology – a form of tech-driven victim blaming.

Furthermore, North American history is replete with examples where the fear of victimization of white women has justified racial discrimination, criminalization and surveillance of marginalized groups - including women.⁷⁶ Compounding upon this discriminatory outcome, such narratives can serve to further justify a state refusal to surveil or criminalize those who abuse members (again, including women) of these marginalized groups,⁷⁷ such as the Canadian government's refusal to investigate the murders of Indigenous women and girls,⁷⁸ while simultaneously supporting state surveillance of Indigenous women.⁷⁹

While, again, drone technology is not the cause of, nor does it necessitate, this outcome, the technology is well suited to facilitate and expand state surveillance, particularly when coupled with the seemingly beneficial promise of improving women's security. This is supported by, among other things, the drone's relatively low cost (both to acquire, and to operate relative to police foot or helicopter patrol), capacity to enter into otherwise difficult to access areas, and the increasing autonomy of the device permitted by on-board software that requires less skill training to operate.⁸⁰ In other words, the drone overcomes many of the resource barriers that would ordinarily such surveillance. Accordingly, assessing the increased state use of drones through a feminist lens requires consideration of the ways in which drones – potentially utilized with the goal of protecting of women – may actually increase the surveillance of women in public, particularly, marginalized women.⁸¹

Furthermore, deeper consideration of whether this use of drone technology will actually have the effect of protecting the women it purports to protect is needed. Professor Hille Koskela's analysis of the effectiveness of CCTV cameras used for this same purpose reveals a number of concerns, including that these volume-less cameras failed to protect women from verbal assaults, and that the cameras transformed into a form of voyeurism for the predominantly male security personnel.⁸² One could imagine with the drone's dislocation from a human intervener that human intervention in a crime would have, at least, a time-delay and as noted above, an objectifying impact on the individual being observed.⁸³

⁷⁶ See e.g. Constance Backhouse, *Colour-coded: A Legal History of Racism in Canada* (Osgoode Society for Legal History, 1999)

⁷⁷ E.g. Mary Louise Fellows and Sherene Razack, "The Race to Innocence: Confronting Hierarchical Relations Among Women" (1997-8) 1 *Journal of Gender, Race and Justice* 335 at 342-344); Jane Bailey, "Gendering Big Brother: What Should a Feminist Do" (2015) available on SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2605481.

⁷⁸ Jane Bailey, "Gendering Big Brother: What Should a Feminist Do" (2015) available on SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2605481; Amnesty International, "No More Stolen Sisters: The Need for a Comprehensive Response to Discrimination and Violence Against Indigenous Women in Canada" available at: <http://www.amnesty.ca/sites/amnesty/files/amr200122009en.pdf>.

⁷⁹ Andrea Smith, "Not-Seeing: State Surveillance, Settler Colonialism, and Gender Violence" in *Feminist Surveillance Studies* 21-38.

⁸⁰ <http://www.metronews.ca/news/canada/2015/03/19/canadas-police-forces-taking-to-the-sky-with-drones.html>; <http://www.wired.co.uk/article/surrey-police-uk-largest-drone-trial>

⁸¹ "Feminists who engage with Big Brother need to be mindful of the ways in which responses to the kinds of surveillance of most relevance to the privileged may fail to address or even worsen the kinds of surveillance disproportionately experienced by the "other" due to the underlying discriminatory tropes that make them targets in the first place." Bailey at 17.

⁸² Hille Koskela, "Video Surveillance, Gender, and the Safety of Public Urban Space: "Peeping Tom" goes Hi-Tech?" (2002) 23 *Urban Geography* 257.

⁸³ Delegating crime intervention to the drone itself raises a host of other questions beyond the scope of this discussion. See e.g. https://motherboard.vice.com/en_us/article/dallas-shooting-bomb-robot-legal-analysis

Finally, the assumption that video or other evidence collected by a drone would assist a complainant in the event of violence in public must be critically assessed. For example, digital evidence in criminal prosecutions of sexual violence has not consistently been treated by courts as beneficial to the complainant or prosecution. In her examination of several recent Canadian cases, doctoral candidate Alexa Dodge explains how even digital evidence that seems to confirm a complainant's testimony (or substitutes for it where she cannot remember) could be used against her in ways bolstered by rape myths.⁸⁴ She gives as one example the case *R v JR*, where an accused is seen on a surveillance camera grabbing the complainant's breasts and buttock. The judge at first instance concluded that the complainant was unclear or ambiguous on the video about whether she was consenting to the touching – the video was interpreted as contradicting her verbal testimony.⁸⁵ This decision was later overturned. But it nevertheless underscores Dodge's observation that while digital evidence may be assumed to be "static and lacking human bias,"⁸⁶ and therefore worthwhile evidence for the prosecution of crime, its use is never truly objective, particularly when it is interpreted by another individual in different circumstances.⁸⁷ This is not to mention the fact that criminal prosecution – particularly one which involves the display of video evidence of the crime – might not be the preferred or desired recourse for a complainant. Yet the existence of such video evidence may, ultimately, take that decision away from her. The justification of increasing public surveillance to protect women should therefore be subjected to further critical analysis on the basis that the purported evidence obtained from drones might not even serve the purpose of protecting women, particularly if scrutinized with attention to the impact of pervasive cultural rape myths.

Summary

The goal of this section has been to highlight some of the ways in which drones in particular might engage women's privacy. The examples of the gendered implications of this emerging technology are non-exhaustive and each will merit deeper analysis if/as drone technology is more widely adopted. A further observation that can be drawn from the above discussion is that the experience and personal consequences of privacy invasions and surveillance in public space have been known to members of subordinated groups, including women, for a long time.⁸⁸ While the drone has been seen as a 'privacy catalyst'⁸⁹ – a tool with the potential to draw greater social attention to the value and precarity of privacy protections – the real advantage of this catalyst is that the technology may cause members of empowered groups, who (possibly by virtue of a privileged status) have not been subject to significant privacy invasions and surveillance, to become increasingly aware of the personal and social consequences of such monitoring.⁹⁰ Critically though, any response prompted by an increased recognition of the importance of privacy must be comprehensive of the differential experiences of privacy vis-à-vis drones, for that response to be

⁸⁴ Alexa Dodge, "The digital witness: The role of digital evidence in criminal justice responses to sexual violence" 0 *Feminist Theory* 1-19.

⁸⁵ Dodge "Digital Witness" at 10; and see *R v JR*, 2016 ABQB 414 overturning the discussed youth court decision.

⁸⁶ Dodge "Digital Witness" at 3.

⁸⁷ "The act of looking can never be neutral" Dodge at 10 citing Katherine Biber, *Captive Images: Race, Crime, Photography* (Routledge, New York: 2007) at 119); Haraway "Situated Knowledges" *supra*.

⁸⁸ "The fact of the matter is members of subordinated groups have known the powers and technologies of surveillance for some time. For these groups, surveillance is and always has been inescapably noticeable because it is part of everyday life." Bailey at 4. See also Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham NC, Duke University Press: 2015).

⁸⁹ Calo, "Drone as Privacy Catalyst" *supra*.

⁹⁰ "Suddenly members of empowered groups who haven't been used to being under surveillance are realizing that they're subject to monitoring and profiling and they don't like it one bit." Bailey at 9.

meaningful. Drawing on this examination, the final section of this paper considers whether and how these differential implications can be addressed through the current North American approach to drone regulation.

SECTION III – REFLECTING ON THE ‘SAFETY-FIRST’ FOCUS OF CANADIAN AND U.S. DRONE REGULATION

Having considered some ways in which drone technology might differentially affect women’s privacy, particularly in ways that might not be addressed under privacy laws of general application, the current section examines Canadian and U.S. drone-specific regulation to assess whether and how some of these differential outcomes might be addressed within the regulatory framework.

First, this section identifies a North American ‘approach’ to drone regulation – namely, identifying the general themes and priorities in the regulation of drones, and how regulations purport to apply to the technology itself, and the social contexts into which it is adopted. My goal here is not to set out a detailed summary of all drone laws in Canada and the United States, many of which are in a state of frequent flux, but rather to draw out some generalizations that will be helpful for the subsequent analysis, in light of issues raised in the preceding section. This section then goes on to explain why the value-neutral approach to drone regulation taken by these regulators will not sufficiently address the ways in which this technology can negatively impact individuals, beyond their personal physical safety. Finally the section argues that such social impacts of the technology need to be better addressed not only in technology-neutral privacy laws, but also through the rules that regulate drone design and permissible uses.

The North American Approach to Drone Regulation

In regards to the Canadian and U.S. approach to drone regulation, the first observation that both Canada and the United States appear to accept that drone technology is ‘here’ to stay. While in both countries there are some significant regulatory limits on widespread drone use, the federal governments of both Canada and the U.S. take the position that drone technology will bring economic benefits to society as a whole, and that it is worth having and encouraging for further adoption.⁹¹ Accordingly, we are not presently operating within a regulatory space where the object of regulation is perceived to need preventative prohibition (at least, not anymore). This is significant in the sense that, while regulators might strive to address and minimize risks associated with the technology, ultimately there is an expectation and a pressure to increasingly permit non-risky uses.

Another important aspect of drone regulation in the context of risk-assessment is a predominant focus on safety. In both Canada and the U.S., the primary regulators of drone

⁹¹ See for example: “Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems” <https://obamawhitehouse.archives.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safeguarding-privacy-civil-rights-and-civil-liberties-in-domestic-use-of-unmanned-aircraft-systems> (acknowledging the transformative economic potential of drones, while also recognizing the need to safeguard privacy, civil rights and civil liberties); Canadian Aviation Regulations Advisory Council “Notice of Proposed Amendment (NPA): Unmanned Air Vehicles – Executive Summary” <http://wwwapps.tc.gc.ca/Saf-Sec-Sur/2/NPA-APM/doc.aspx?id=10294> (“The rising sales and evolving technology of unmanned air vehicles (UAVs) make them a rapidly growing part of the aviation industry [...]Transport Canada seeks a balanced approach to both safely integrate UAVs into Canadian airspace and encourage innovation within this important new subsector of civil aviation. At the same time, it is important to recognize the unique risks UAVs and UAV users of varying degrees of aviation expertise, pose to other airspace users.”)

technology are federal safety agencies – Transport Canada and the Federal Aviation Administration respectively. The specific rules promulgated by these agencies unsurprisingly focus on safety, particularly with respect to other airspace users, as well as people, animals and property on the ground.

In both countries, drone regulations vary according to the operator of the drone (state agencies, commercial operators, recreational users, journalists) - though these distinctions are beginning to disappear - and according to the size of the drone (smaller drones are subject to less regulation than larger drones). In both countries, recreational users (those who fly drones for personal reasons, not for commercial or research purposes) were largely unregulated for a long time, though this is also beginning to change.⁹² Commercial drone operators (who put their drone toward a business purpose) have traditionally been highly regulated. The extent of regulation has not been predicated on the purpose of the operation (beyond the commercial versus recreational distinction), nor on the types of surveillance or other payloads attached to the drone.

For safety reasons, flights over populated or established areas, and flights near airports are generally more restricted than those over open fields or unpopulated spaces. Both countries restrict drones from certain airspace, including near military installations, prisons and in national parks. While these safety rules have some beneficial consequences for personal privacy – particularly by limiting the use of drones in populated areas – privacy is not the central philosophy of drone regulation. Accordingly, as the safety of drone technology improves, some of these laws that currently consequentially protect privacy will likely change.⁹³

In Canada, privacy concerns raised by drones have received relatively little attention from drone regulators, beyond a general call for drone operators to “respect the privacy of others” and “avoid flying over private property or taking photos or videos without permission”.⁹⁴ By contrast, the privacy implications of drones have received more attention in the U.S.⁹⁵ For example, the National Telecommunications and Information Administration (“NTIA”) has developed voluntary drone privacy guidelines, to which the FAA refers operators. These primarily recommend notifying individuals whose data might be collected, and collecting the minimum amount of information necessary.⁹⁶ In a press release corresponding with the implementation of new drone rules in June 2016, the FAA advised that it will act to address privacy considerations and provide drone users with

⁹² Transport Canada recently adopted fairly stringent limits on recreational use, after a long period where recreational users were largely unregulated: <http://business.financialpost.com/fp-tech-desk/increased-risk-to-aviation-safety-new-rules-introduced-for-recreational-drone-use-in-canada>

⁹³ *Ibid.*

⁹⁴ See: <https://www.tc.gc.ca/eng/civilaviation/opssvs/flying-drone-safely-legally.html>; Transport Canada also released a video on privacy and trespassing associated with drones. The script is the following: “If you’re using a drone in your backyard, avoid flying over private properties or taking photos or videos without permission” <https://www.tc.gc.ca/eng/mediaroom/uav-privacy-and-trespassing-7654.html>; <http://www.ctvnews.ca/canada/transport-canada-to-introduce-new-drone-regulations-1.2732227>

⁹⁵ In 2016, the Electronic Privacy Information Center (“EPIC”) began a lawsuit against the FAA over their rules governing the use of commercial drones. EPIC argues that the FAA is obligated to consider privacy issues, since Congress directed the FAA to develop “comprehensive” rules surrounding drone safety in the US airspace <http://www.zdnet.com/article/faa-sued-for-lack-of-drone-privacy-rules/>

⁹⁶ NTIA best practices can be found at:

https://www.ntia.doc.gov/files/ntia/publications/voluntary_best_practices_for_uas_privacy_transparency_and_accountability_0.pdf). The best practices can be summarized as: drone operators are to inform anyone affected by their collection of data (like photographs), securing the data, and limiting how the collected data is used and shared. The best practices also advocate for not collecting data unnecessarily or where a subject has a reasonable expectation of privacy. The FAA takes the approach that it cannot regulate data gathered by drones, as it also cannot regulate data gathered by hand-held cameras. See also: <https://iapp.org/news/a/the-faas-de-facto-drone-privacy-standards/>; <http://www.fcagroup.com/flcaj/flcaj-articles/new-faa-drone-regulations-little-protect-individual-privacy-rights/>

“recommended privacy guidelines” as a part of a registration process.⁹⁷ Privacy practices are couched as a way to ensure the economic success and social integration of the technology, for commercial and non-commercial operators.⁹⁸ While these are positive privacy ideals – to date they provide no actual legal recourse for individuals negatively affected by drone use. Indeed, accountability and recourse for privacy concerns have not been the primary focus for either of the national regulators.⁹⁹

In the United States, and to a lesser degree in Canada, other levels of government have also begun to regulate drones in relation to privacy. Often these laws purport to reaffirm or confirm that the existing privacy laws of general application apply to drones, including mandating prior judicial authorization for state agents, and that drones should not be used to invade a reasonable expectation of privacy. Notably, these laws do not address the existing gaps in legal protection in public space that leave many forms of gendered privacy invasions un- or under-protected against. Some state laws permit self-defensive action against drones over private property, though not in public space.¹⁰⁰ Nevertheless, the validity of many of these laws can be challenged given the primacy of federal jurisdiction in both countries.

Implications of the Safety-Based Approach to Drone Regulation

Having set out some general themes in the approach to drone regulation, this sub-section examines this regulatory approach. None of the drone laws in Canada or the U.S. are explicitly gendered – there are no laws restricting or mandating particular gender-driven access to or use of drone technology. However, as Langdon Winner has famously observed, artefacts, like the drone, have politics¹⁰¹ – and regulatory frameworks that fail to consider these politics may permit the perpetuation of inequalities through those technologies.¹⁰² Even though the laws regulating drones appear to be gender neutral, these regulations can in fact obscure the gendered impacts of the technology.

For instance, the primary regulatory focus on safety presumes that this technology presents the same types of risks (physical injury and property damage) of the same level of importance to everyone. This approach fails to take into account the other ‘politics’ of the device – such as lending an operator a degree of anonymity, or perpetuating an informational and power imbalance between the operator and the object of observation (who might not be able to locate, or stop, the operator), or enhancing the feeling of objectification to an individual being observed by a drone - which can have different meaning for different people. It is quite feasible that for some, physical safety from a drone is not the first priority or concern for regulation. For instance, prevention of easier forms of harassment, intimidation or voyeurism permitted by the technology – and the subsequent

⁹⁷ FAA Press Release: https://www.faa.gov/news/press_releases/news_story.cfm?newsId=20515

⁹⁸ NTTA best practices:

https://www.ntia.doc.gov/files/ntia/publications/voluntary_best_practices_for_uas_privacy_transparency_and_accountability_0.pdf.

⁹⁹ Transport Canada, for example, has a webpage where individuals can report unwanted drone encounters, however it is primarily concerned with drones flying near other aircraft or airports, not with privacy complaints:

<https://www.tc.gc.ca/eng/civilaviation/opssvs/drone-incident-report-form.html>

¹⁰⁰ [http://dronelife.com/2017/02/07/drone-privacy-rules-responsibilities/;](http://dronelife.com/2017/02/07/drone-privacy-rules-responsibilities/)

<http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx>

¹⁰¹ Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology*, University of Chicago Press, 1986 and "Do Artifacts Have Politics?" (1980) 109 *Daedalus*. See also, Bruno Latour, “Where are the missing masses? The sociology of a few mundane artifacts”, in Wiebe E. Bijker and John Law, *Shaping technology/ building society: studies in sociotechnical change*, (MIT Press, 1992) 225–258.

¹⁰² Wajcman, *Feminist Technoscience*; Deborah Johnson, “Sorting Out the Question of Feminist Technology” in Linda Layne, Sharra Vostral, Kate Boyer, *Feminist Technology* (University of Illinois Press, 2010).

publication of information emanating from such encounters - might be a higher or equivalent priority, at least at the point of encountering the device. Prevention of state sanctioned pervasive surveillance in public spaces (including those that would be hard to access on foot, or expensive to access by manned aircraft) might be the predominant concern for others.

Furthermore, the regulatory approach does not explicitly distinguish between different social contexts in which drones might be operated. While regulations can apply differently in populated versus unpopulated areas (which has the consequence of treating different social contexts differently) these regulations are not designed with social context in mind and do not distinguish between different social contexts arising in populated/unpopulated areas. They are also subject to change as the technology becomes safer. Additionally, drone regulations do not consider the impact of different payloads in different contexts or on different individuals. Regulations instead focus on regulating the artefact (the 'drone' as an unmanned vehicle that takes to the airspace), rather than how it integrates into society. Accordingly, the particular politics reflected by the technology go unaddressed.

Of course, as discussed above, the FAA and other levels of government particularly in the United States, have begun to turn their attention toward privacy. This is a positive step in terms of addressing some of the social concerns that drones raise. However, to date this has generated little actual legal or normative protection or recourse, particularly for the kinds of privacy invasions that disproportionately affect women. The next section sets out some initial steps for moving forward.

Preliminary Responses to these Regulatory Challenges

Recognizing that the primary responsibility for drone regulation in both Canada and the United States falls to safety agencies, this section sets out some possible next steps toward addressing some of the differential impacts of drones within the current framework. However, without a broader rethinking of both privacy law (particularly in public space),¹⁰³ and the system for drone regulation, these recommendations are limited in their scope and impact. In fact, the ultimate solution would be the dismantling of the systems of oppression that lead to these differential privacy experiences, and other inequities and injustices.¹⁰⁴ This section simply sets out some preliminary ideas for how regulators might start to re-balance the attributes of drone technology, through regulation, so as to address a broader range of concerns beyond airspace safety.

First, regulators can place greater emphasis on developing mechanisms for accountability.¹⁰⁵ Namely, they develop requirements that help to rebalance the informational and power imbalance between the operator of the drone and the individual encountering the drone, which would subsequently provide an avenue for redress and future prevention. This may admittedly be a difficult task technologically. For example, while drones could be required to bear the equivalent of a licence plate, which can aid with identifying the operator – how can regulators ensure that it is visible from a distance or while the drone is in movement? Emitting information from the drone to, for instance, a cell phone application could be useful, but presumes that individuals experiencing negative encounters also own and carry a phone. Similarly, listing all drone flights on a website would be useful, except to those without regular access to the Internet. Providing a mechanism or reporting

¹⁰³ If privacy laws of general application do grow to recognize more of the privacy harms that primarily affect women, this would be a positive development – perhaps one that can be encouraged by greater diversity on the bench. See e.g. Madam Justice Bertha Wilson, “Will Women Judges Really Make a Difference?” (1990) *Osgoode Hall Law Journal* 507.

¹⁰⁴ bell hooks, *Feminism is for everybody: passionate politics* (South End Press, 2000)

¹⁰⁵ Accountability need not and through a feminist lens in particular ought not to always involve state actors and the judicial system: Allen etc

outlet for drone encounters, or even, a dedicated investigator or mediator, could also further this endeavour though would either be resource-heavy, or potentially ineffective. Professor Michael Froomkin and Zak Colangelo have suggested mechanisms to address the information imbalance between the drone operator and an individual encountering a drone, as a means for reducing uncertainty about the device. For instance, a drone could be equipped with coloured lights or other markers to inform individuals about the drone's capabilities (e.g., whether or not it is filming).¹⁰⁶ This may also help to address the power imbalance between the operator and the observed by giving the observed greater awareness relating to the encounter - though this still must be accompanied by a recourse mechanism to address the privacy harm.

None of these suggestions definitively address the issue of gendered privacy invasions. But at least these combined factors could begin to address some of the attributes of drones that risk worsening the state of public privacy for women.

Regulators can simultaneously focus on increasing public participation in all stages of the regulatory process - developing mechanisms for intervention at both the design phase and in the contexts of sale and use.¹⁰⁷ One mechanism for this can be to adopt a “critical feminist technology assessment”, extending existing technology assessment procedures by, “first, giving voice to the full range of interested groups in technological design and, second, starting from a critical debate about what and whose needs are to be met, rather than from existing technologies.”¹⁰⁸ In other words, focus on democratizing the technology from the “outside in.”¹⁰⁹

As a final observation, regulators can also adopt policies and targets to enable women to increase their technical competence and access to drone technology.¹¹⁰ There are already numerous endeavours targeted at increasing women's involvement in the industry, as well a number of women in prominent positions within the drone industry.¹¹¹ Nevertheless, men still heavily dominate the drone industry.¹¹² Greater diversity of voices both within and without industry can help to democratise the technology from both the inside and out. However, encouraging women into the industry cannot be the sole or primary solution to addressing the issues raised in this paper. First, it places an expectation on women to accept the system as is and learn to adapt to and within it – a system that some women may perceive as socially harmful.¹¹³ Simply encouraging women to become more involved with technology that is largely shaped by and for men does not necessarily bring about more egalitarian or feminist technology. Second, while becoming increasingly affordable, drone technology is still a luxury to many, who may not have the financial or time resources to dedicate to entering into an industry, particularly out of a ‘gender obligation’. Encouraging more women to become involved with the technology from a technical or policy perspective will be a

¹⁰⁶ A. Michael Froomkin and P. Zak Colangelo “Self-Defense Against Robots and Drones” (2015) 48 Connecticut Law Review 1.

¹⁰⁷ Faulkner “Technology Question in Feminism” at 91

¹⁰⁸ Faulkner at 91

¹⁰⁹ Faulkner at 91

¹¹⁰ Faulkner at 91

¹¹¹ <http://fortune.com/2015/07/01/women-drone-industry/>; <http://thedronegirl.com/2015/02/06/in-eliminating-gender-stereotypes-in-the-drone-industry-its-not-enough-to-passively-wait-for-others-to-change/>

¹¹² Drone vendors target men: https://www.buzzfeed.com/zarastone/disarming-the-drone-gender-gap?utm_term=.vbLd20NQ5V#.yiaXK9nVBE; Men buy 90% of civilian drones. In a meeting of drone hobbyists, all present, with the exception of one individual, were men. Most drone enthusiasts and most civilian drone professionals are men. In a recent drone film festival, out of 330 submissions, only 11 films were submitted by women.

Advertisements lack women, or treat them as bystanders. There is an unconscious bias that women do not fly drones: <https://www.inverse.com/article/10294-men-buy-90-of-civilian-drones-and-that-s-big-trouble-for-a-growth-industry>

¹¹³ Faulkner

positive development, but cannot be the sole solution to addressing differential impacts of the technology.

CONCLUSION

This paper has drawn from feminist privacy scholarship in order to consider some of the potential gendered ways in which drone technology might engage privacy law and norms. The non-exhaustive list of examples has included - revealing that the traditional norms of women's privacy as rooted in modesty persist today, if not explicitly in the legal framework, certainly in popular discussions of drone technology. Furthermore, this narrative risks undermining the ability of women to assert privacy in public spaces, particularly in response to persistent gendered invasions of their privacy, which can be exacerbated by the attributes of drone technology. Yet, finally, a purported concern about women's safety in public could simultaneously lead to greater surveillance by drone technology – both of and amongst women – further engaging and worsening experiences of privacy in public space. When assessing the Canadian and U.S. approach to drone regulation, in light of these concerns, it becomes apparent that the current approach treats the technology as value-neutral, rather than as a system embedded with particular politics. Regulatory agencies should place greater emphasis on addressing some of the politics of the drone – for instance, by working to eliminate the power imbalance caused by the drone's dislocation from its operator (among other possible responses), by bringing more voices into policy and regulatory discussions at the development, sale and use phases, while also increasing women's involvement in the industry and in the use of the technology. Ultimately, though, the most rewarding solution to many of these concerns will come from broader social and legal change.