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Episode 10: Robots, Regulation, and the Changing Nature of Public Space

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Guest Speaker: Kristen Thomasen
Interviewers: Ronald Cheung, Sean Cousins

TRANSCRIPT

Ronald Cheung: Hi everyone and welcome to the *OLR* Podcast. My name is Ronald—

Sean Cousins: And my name is Sean.

Ronald Cheung: —and we are two Associate Editors on the *Ottawa Law Review*. This episode is part of a series where we interview authors who have published articles with the *Ottawa Law Review*.

Today we will be speaking with Kristen Thomasen about her article, titled "Robots, Regulation, and the Changing Nature of Public Space," which was published in Volume 51, Issue 2 of the *Ottawa Law Review*.

Just a reminder, the *OLR* is an open access journal, and this article is accessible on the *OLR* website; so, if you have not done so already, you can access the article there.

Sean Cousins: Kristen Thomasen is an Assistant Professor at the Peter A. Allard School of Law at the University of British Columbia, where she teaches Robotics Law & Society and Tort Law. Her research covers a range of technology law topics including robotics, artificial intelligence, and privacy. Her most recent article, "Safety in Artificial Intelligence and Robots Governance in Canada", was published in the Canadian Bar Review's special 100th anniversary volume.

In addition to her research and teaching, Kristen frequently shares her expertise in the media, and serves as a member of the Legal Expertise Committee of the Foundation for Responsible Robotics and the International Committee for Robot Arms Control.

While Kristen now works at UBC, she also has a close connection to Ottawa. She earned both her JD and her PhD in Law at the University of Ottawa. Between completing her JD and her PhD, Kristen was a law clerk at the Alberta Court of King's Bench, and then at the Supreme Court of Canada for the Honourable Justice Rosalie Abella. Kristen holds an Honours BA in Anthropology from McMaster University, and an MA in International Affairs from Carleton University.

Ronald Cheung: Robots are an increasingly common feature in North American public spaces. From regulations permitting broader drone use in public airspace and autonomous vehicle testing on public roads, to delivery robots roaming sidewalks in major US cities, the laws regulating North American public spaces are opening up to robots. In many of these examples, the growing presence of robots in public space is associated with opportunities to improve human lives through intelligent urban design, environmental efficiency, and greater transportation accessibility.

However, the introduction of robots into public space has also raised concerns about, for example: the commercialization of these spaces by the companies that deploy robots; increasing surveillance that will negatively impact physical and data privacy; or the potential marginalization or exclusion of some members of society in favour of those who can pay to access, use, or support the new technologies available in these spaces.

Laws that permit, regulate, or prohibit robotic systems in public spaces will in many ways determine how this new technology impacts public space and the people who inhabit that space. This begs the questions: how should regulators approach the task of regulating robots in public spaces? And should any special considerations apply to the regulation of robots *because* of the public nature of the spaces they occupy?

Sean Cousins: Kristen Thomasen's paper argues that the laws that regulate robots deployed in public space will affect the public nature of that space, potentially to the benefit of some human inhabitants of the space over others. For these reasons, special considerations *should* apply to the regulation of robots that will operate in public space. In particular, the entry of a robotic system into a public space should never be prioritized over communal access to and use of that space by people. And, where a robotic system serves to make a space more accessible, lawmakers should avoid permitting differential access to that space through the regulation of that robotic system.

Okay, welcome Kristen, we're excited to have you joining us today on the *OLR* podcast. Your research touches on some really interesting areas of law & technology, and I think I speak for Ronald and I both when I say the article you published has been quite popular with the *OLR* Podcast team here.

Kristen Thomasen: Oh, thank you very much. Thanks for having me on.

Sean Cousins: So we wanted to start with your time at the University of Ottawa. You completed your PhD at the University of Ottawa, where your dissertation focused on public space privacy intrusions that are facilitated by robots and artificial intelligence. And so we were wondering how you first became interested in this area of research?

Kristen Thomasen: I became interested in this area back when I was in law school at Ottawa, so I did my JD at Ottawa as well. And I started my JD with a huge interest in online privacy, and especially on social media. And through that I became connected with Ian Kerr, who was just an absolute wonderful professor, human being who was at University of Ottawa, and I was so fortunate and continue to be so grateful that he essentially became my mentor and friend. And… when I was in law school, I had the privilege of being a research assistant with him through — I can't remember the name now — but there's an RA process to get into tech law at University of Ottawa, which I fully recommend to anyone who's in law school at Ottawa now.

And he was really ahead of things in terms of robotics, automation, thinking about this long before sort of… the very broad focus that we're starting to see increasingly now today. And so through

doing research with him, I was exposed to a range of different kinds of legal issues and, you know, engaging a range of different kinds of robotic systems and automation and my interest has continued to grow and so that's ultimately what led me into my PhD in this space and then I've just sort of continued from there. So I give a lot of credit to Ian and his foresight in terms of how significant automation is gonna become — and is now. Like, we can really see it now, especially for the law, for our legal rights, for how, you know, we vision justice. And yeah, that was how I got into this area.

Ronald Cheung: That's amazing to hear, Kristen. And to provide a bit more context to our audience and the different topics we're about to dive into, can you explain to the audience what "public space" means in the context of your paper, and why is that relevant and important?

Kristen Thomasen: Absolutely. So when I started thinking about, you know, robotics, and particularly… the spatial and legal importance of robotic systems, I was sort of starting from a place of "oh, well, public space is just, you know, space that's not private property, right?" And then I started digging into this more deeply and there's a lot of — there's a really rich and incredibly interesting literature and… area of thinking in what is called "Law and Geography". It's an interdisciplinary area of study that looks at this intersection of law with space, with the people and the things that exist in that space. And it's incredibly fascinating. And as I sort of dug into some of the thinking and theorizing in that space, I came to a better understanding, I would say, of what actually makes a space a public space. And so you see this in the paper a little bit as well.

But, you know, first of all, there's the legal designation. So… that instinct of thinking, you know, is a space a public space? Public space isn't private property with all these private rights to exclude, trespass rights, other sort of policing and enforcement rights that are — can be associated with — owning private property. You know, there's truth to that for sure. But the legal status of a space as a public space is only a component of whether or not that space is truly a public space in the meaning or sense that, you know, members of the public get to use and make access to that space.

Another important aspect of a public space is its actual physical accessibility. So, you know, you could have a "public park", but if it's fenced off and the fences are all locked, which is something that we… have seen here — I live now in Vancouver — that we've seen here in Vancouver in some parks on different occasions, that space is no longer truly a public space. There might not be a private owner who can tell you that you're trespassing, but the space itself is no longer physically accessible. So physical barriers — the actual ability to access and use the space — is also a component of that understanding of whether a space is public.

And then something that… is examined quite deeply in Law and Geography, but something else that is really important to assessing whether a space is a public space, is how behaviour and conduct is regulated within that space. So if conduct or activities or interactions or things — items, like robots — are regulated in a way that actually exclude people or things — but, you know, I'm more interested in sort of the people and our lived experiences — so could be the operators of robots systems, or it could be people in different contexts, if they are excluded from that space, that actually

reduces the sort of public nature or public understanding of that space because people have been excluded and marginalized. So it might be public for some and less public for others.

If we're really thinking about public space as, you know, a communal and shared space that's open for all of us to use. And I think, you know, the pandemic has certainly reminded us of how important it is that we have these sort of shared, communal, outdoor spaces. And so, yeah, thinking about it through sort of those different layers of what makes a space a public space, I have found to be really helpful — and especially in the research that we're talking about today.

Sean Cousins: That's great. Yeah, I would say… for me, reading your paper as well, this was my first introduction to thinking about public space this way. And it was interesting thinking about how a space can be more… more or less public, and it's not just about who owns the space or that it's designated as public, but what are the different rules and regulations that apply and how might those apply differently to different people or different activities that are being undertaken in that space?

So we have a few questions about changes since 2020. Your article with the *Ottawa Law Review* was published in 2020. And since then, some of the projects that planned to introduce robots into public spaces in Canada, which you mentioned in the article, such as Toronto's Smart City, have been rejected or otherwise cancelled. So what are you seeing now as the current trends around robots in public spaces in North America, and have any new or interesting projects or use cases emerged in the last couple of years that you think listeners should know about?

Kristen Thomasen: It's a great question, and a lot has changed, and a lot has stayed the same since… the pandemic. And 2020, I mean, during the pandemic, certainly… I was paying close attention because what else was I doing? I was paying close attention to the ways that robots and robotic automated systems were being used to respond to the… realities, I suppose, or the concerns around the pandemic. So, I mean, an obvious example of this is — this isn't fully a public space in the way that I talked about, but was, you know, we saw this growing use of robots in hospitals, to avoid doctor-to-patient contact, there could be like a telepresence robot or something operated in between, and you know, something that was really notable to me was the use of different kinds of automated systems like drones to surveil public spaces and tell people to maintain social distance or to go home after a curfew, which felt very dystopian, I think, to a lot of people. Certainly to myself.

And so we saw… that this idea that automation can distance people, I think, really highlighted during the early stages of the pandemic, but we haven't seen that, thankfully, I think, we haven't really seen that continue, at least not as sort of overt and obviously, over the the years that have followed. I would say, though, you know, not so much in the — I know your question is about what new systems might we see, but I would say that what I really noticed taking a turn since the pandemic is on the one hand, what I mentioned before, this real sort of embrace or different understanding of the value of a lot of public and communal spaces and also the value of being able to gather in safe ways, or safer ways.

But then also, a real turn… this is anecdotal, but my observation, especially in Canada, has been a real turn in how municipalities and other sort of government bodies think about public space and

this is — I'm jumping a little ahead, but this is something that I talked about in the paper. This way that lawmakers and policymakers understand public space can really shape how they regulate things that happen there. And I've really noticed quite a rise in the vision of cities as like, well, we own public spaces, so we're going to decide who gets to be there, how people get to use it, we can kick people out using trespass laws, analogous to what a private property owner would use. I personally find that very concerning. And I think that's something that really grew in the pandemic and has now continued on.

But in terms of actually thinking about the systems, I think, at least in Canada, we've sort of seen the end of the drone hype cycle, which I find nice. Like, there was a period of time where drones were very sort of clickbait-y in the media, and there are a lot of, sort of really hyped up stories about drones but now, you know, we're seeing, I think, more of… an integration of drones, through drone laws, drone regulations into airspace, in a way that is more gradual and a little more constrained than what I think some of the hype had us worried about before the pandemic.

We've certainly seen a lot more sidewalk delivery robots introduced in sort of experimental ways in Canada, a little bit of expansion of the testing of automated vehicles, although that too has been more gradual than I think the early hype would have wanted people to imagine. And the last sort of big development, at least in Canada — big to my mind, interesting and important, I think, to my mind — was a legal development. There was a sidewalk robot delivery company operating in Toronto — maybe there were more, there was at least one — and it prompted the city council to consider whether or not they should be regulating how sidewalk robots operate on and interact with people on, on public sidewalks.

And just very briefly, I mean, you can find more online certainly about what happened here, but the city council was really open it seemed to hearing from affected stakeholders, including accessibility groups that — that really, you know, portrayed for City Council the concern that public sidewalks would become less public or not accessible to all members of the public in an equitable way. If you have these large, clunky… sometimes prone to failure sidewalk robots operating all over downtown Toronto public sidewalks. And City Council actually put in sort of a temporary pause on the presence of those sidewalk robots in the city.

So, it's sort of the opposite of what I know you're asking, but it was a really interesting legal development, especially considering it seemed to really be framed around the idea that public sidewalks should be for everyone, and if something's going to interfere with that, we need to think closely about how we regulate that. And it didn't strike me as, like, "this is a permanent ban," it seemed very much more like "this is a temporary measure until we can figure this out, so that it can be more equitable, or whether it can be more equitable." Those are some of the things that I really noticed; I think the biggest of which is this shift in how lawmakers think about you know, what is public space and how they should regulate it.

Sean Cousins: So in your article, you also speak about a number of potential benefits to having robots in public spaces, and also a number of potential risks or downsides. So I think that example you just shared about delivery robots and the sidewalks is a good example. What do you see as the

key benefits being touted by those who want robots in public spaces, and what are the key downsides or risks that we need to be aware of?

Kristen Thomasen: I think, well… right now, or over the past decade or so, actually, I would say those who have been most vocally touting the value of robots in public space have often been commercial industry. And I would say that usually the benefits there are really framed around sort of commercial or profit based goals. So I've seen a lot with all different types of systems, I've seen a lot of promotion of like, "oh, things can be more efficient," you know, "we can take delivery trucks off the road and replace them" — with sidewalk robots, or automated vehicles, or drones, or whatever the case may be.

But really framed around sort of… an efficiency; replacing human workers with robotic systems. Those kinds of goals and supposed benefits. I would say a lot of those benefits really deserve to be questioned and examined closely and whether or not that's, you know, I can — with the consideration of whether or not that's just a commercialization of what should be a space for everybody. There's a bit of a discussion in the paper, if folks read it, about this vision that sidewalks are meant — like there's one vision that sidewalks are meant to help people get efficiently from one business to the next. And, you know, I hope many would pause and step back and think: "is that really what sidewalks are for?" Like, sometimes sidewalks are for gathering, or for meeting up with friends, or for going for a casual stroll — not necessarily driven in any way by commercial interests or profit.

So I think the most sort of vocal group have been pushing… that approach to the benefits. But I think that there are a lot of really interesting ways that robot systems being introduced into public space change — and bring benefits to — the use of public spaces. And the most… obvious example that jumps out to me has been the use of drones for journalism and for citizen journalism. So the ability to gain access to footage that… previously would only have been available to, say, like a large news company that might have owned a helicopter or… policing agencies that would have a helicopter or access to an airplane, is now more accessible to individuals who can operate smaller and far less expensive drones. I mean, I'm not trying to say drones aren't still expensive, but certainly a lot less than a helicopter. And so that has been a really interesting development in my mind.

And then, of course, there's also a lot of really interesting sort of hypothetical, and I think, near future, promising applications of robotics. I've seen a lot of different types of research geared towards accessibility. As a person who had twins and pushed around two children in a stroller for a long time… I've seen some research initiatives that are really directed at making cities more accessible with wheels, and I think that there's a lot of promise in that kind of work. It really depends on what is the ultimate goal. Like, is the ultimate goal actually accessibility, or is the ultimate goal profit and commercialization and efficiency? And I think we can be pretty critical about approaching some of those projects and thinking about "will this really benefit *the public*, or is this the use of public space to benefit a company?" And I'm not saying that cannot happen, that obviously does happen already in public space, but just that I think there needs to be a lot of care and consideration, especially from policymakers, around what is the actual benefit that might come from this and is that in the public interest?

There's a bit of a risk of a… "public space is just there for the taking, it's not privately owned, so, you know, companies or commercial interests can use it however they see fit." And I think there's… I'm happy to recommend readings, but there's a lot of really interesting critical work on this vision of public space as property, or approached with a colonial mindset that we see echoed in some of, in some of these promotions of different robot systems, but I think there's a lot of genuinely interesting work going on as well.

Ronald Cheung: And I think — I'm pulling a quote from your article and I think the readers, the audience, can have a better understanding of what you have just discussed. So your quote says, "the entry of a robotic system into a public space should never be prioritized over communal access to and use of that space by people. And, where a robot system serves to make a space more accessible, lawmakers should avoid permitting differential access to that space through the regulation of that robotic system." Are you able to elaborate on these two points for the audience and perhaps provide one or two examples of where you see issues that might arise?

Kristen Thomasen: Absolutely. So these are sort of the two — this is almost like the framework, or like the two big takeaways that I suggest, based on this examination of how robot regulation can make public space more or less accessible, or more or less public, sorry, which can include access, but there's a whole range of ways in which that… publicness can be affected.

And so with the first, so this idea that a robot system should never be prioritized over communal access to and use of space by people... there are a range of different examples of… how that has arisen already with different robotic systems. There's a couple of examples from the U.S. that are in the paper. And there's also a lot of hypothetical examples that we can imagine and how this might happen. What I would say as sort of the more straightforward example is… we could imagine things like human conduct, so the conduct of people in public spaces, being regulated in a way that is meant to either protect these expensive robots that are operating in space, that is meant to purportedly protect people *from* robots that can sometimes do things that are unexpected and that might be harmful, or that is meant to sort of surveil or criminalize people who might try to interfere with robot systems and public space.

These are all regulations — or these would all be examples of regulations — that almost seem neutral in terms of public space/public access on their face, because it's really just about regulating conduct vis-à-vis a robot from what might seem like a very good motivation, like protecting physical safety. But when you take that breakdown that we talked about earlier of what makes a space more or less public, the ways in which behavior and conduct can be regulated in public space actually reduces the public nature or public dynamic of a space. You can imagine things like, if people's conduct is being regulated on sidewalks in order to create more predictability for sidewalk robot systems. I have not seen an example of that, specifically, but it's sort of a hypothetical that could be imagined in the near future. That regulation might really have a negative impact on the public nature of space. We lose this ability to use and have some spontaneity on public sidewalks.

You know, we have seen, especially in the United States, a lot of instances of either new regulations or just strict enforcement of existing regulations against people who have interfered with robot systems. So... automated vehicles or sidewalk robots, or these policing robots called "Knightscope." If anyone's seen them, they're like a large cone that rolls around and has cameras on it, and a few instances of those being vandalized. And so these would all be examples to me where, even though it might not be the intention behind the regulations, the regulations are actually prioritizing the system and protecting the system rather than thinking about, you know, "what do people want in the space?", or "how do people make use of this space?", "what's an equitable approach to this space?", which might mean actually excluding the robot instead of excluding or heavily regulating people.

Sally Applin has some great work, she's an anthropologist on the ways that robots interfere with people's ability to just use and make use of space and how robots call on people to do a lot of work for them. Like when sidewalk robots get caught on a bump in a sidewalk, a person now has to move it out of the way to keep it going, otherwise it blocks the whole sidewalk. So thinking about rules that allow sidewalk robots to operate, but don't take into account the impact on people, fall into that category.

The second proposal is where a system makes a space accessible, that system shouldn't be differentially regulated in a way that allows some people to get access and not others. At least not without — I concede, of course, that there could be scenarios under, like, a section 1 of the *Charter*-type analysis where there might be a legitimate justification in a particular case, but it shouldn't be the default that if a robot is the reason people can access a public space that only some people get to use that robot in certain ways and not others. So again, that'd be an example where what seems like just the regulation of a robot actually becomes the regulation of a public space altogether.

And I think drones and access to airspace is a really important example there. So, you know, most of us can't access airspace. Of course, you could rent a helicopter, or if you're incredibly wealthy, you might own like a plane or something that allows access to airspace. But most people can't really access… a low airspace without some kind of technical system, and drones have really become one very obvious example of how people can now make access to low airspace. And so I cite in the paper some examples — the readers can get more details if they want to look at that paper — but where drones have been used to collect video footage over protests, particularly in the United States, and have sometimes collected video footage of police brutality against protesters.

In particular, there's an example of the use of a drone by a citizen journalist at Standing Rock in North Dakota during the #NoDAPL resistance movements, when police used water cannons on, on the people who are sat there resisting this oil pipeline… late at night in November when that would have been freezing cold. And the video footage had a really important impact on the public's response to what was happening at Standing Rock. And the FAA, which is the United States' equivalent of our Transport Canada, which regulates drones and airspace, imposed these limitations so that only certain drone operators could access public airspace with a drone and not others, effectively limiting citizen journalists, protesters, the Indigenous communities that live in Standing Rock, or others that had come to resist this oil pipeline from accessing airspace, but allowing police

to use drones to access airspace for surveillance purposes. And they did allow one non-local journalist to use a drone. And so that, to me, that was an example of this differential regulation of a robot system, and it was sort of framed as like, "oh, we're just regulating drones, it's not like we're excluding people from public space" — I'm paraphrasing, they didn't say that exactly, but it was sort of framed in that way.

But if you break it down, if you break down what makes a space public in this sort of Law and Geography approach that I have proposed, you can start to see how this is actually excluding people from a public space — a space that is, in theory, there for everybody. And airspace is very heavily regulated in terms of what you can do in that space. And I think airspace might, in the near future, this is my... my thinking, might become an increasingly important and significant public space and hopefully will push us towards, as a society, deeper thinking about what it means for airspace to be a public space. But yeah, that would be one — to me, that felt like a really clear example where differential regulation actually excludes people from a space and imagining something similar to that happening on the ground. You know, it'd be — it would feel to me very clear that it would be infringing on First Amendment, in the US, or in Canada, you know, our freedom of expression rights that are protected under the *Charter*, so, yeah.

Sean Cousins: Great. Yeah. I think an interesting aspect of the drone example that you speak about as well is that drones actually kind of made airspace a public space in the first place, in the sense that there was more access to airspace for… everyday people who have money for a drone. And then we see this regulatory response. And it seems in a lot of the examples you're giving, the regulations or the... thinking about how public space is affected is happening after the fact because these technologies are being introduced and developed so quickly.

And I was wondering if you find that the people who are developing and promoting robotics projects in public spaces, if they, during the development stage of these technologies are... if you find that those people are consciously engaging with these ideas, these broader legal or social questions about the nature of public spaces, or if it's mostly just a conversation that happens after the fact and is maybe pushed forward by people who are not the ones who are introducing these robots into public spaces?

Kristen Thomasen: Yeah, it's a great question. And I'm, I would say just from my research, so it's not to say there aren't other examples out there that I'm not aware of, or where maybe it's not public knowledge what the developing company was was thinking about, but from a lot of the examples that I've seen, rather than there being sort of a, what seems like a thinking about or a deep engagement about public space and the value or importance of public space, what I see more of is examples where developers have really tried to push, either through lobbying or through other efforts, to sort of grab a public space for themselves, so to speak.

So an example of that is, in the US, a number of cities were regulating sidewalk robots following lobbying from a sidewalk robot company. And the laws that were designating what size and what speed and what sort of appearance the sidewalk robot had to have were very much premised around this one particular company's design, seemingly with an eye to excluding, potentially, some other

companies. Like, the weight would fit with the weight of this one company's product and would be less than, you know, a heavier competitor's, so now the competitor is technically not allowed to operate because the sidewalk law says that they have to be under a certain weight… that's one example.

But there are cases where, we sort of see this approach to public space, which to me very much sort of contravenes the idea of public space as this… communal and shared area for the public benefit or public interest. So I have heard from municipalities that they have looked at this research and thought through this research in… the development of their municipal bylaws, which is, first of all as a researcher, incredibly exciting and wonderful to hear. But secondly, you know, it doesn't surprise me that it would be the policymakers who would be thinking more deeply about, you know, "what is this space?", "what do we want it used for?"

It's sort of the higher level theory of the space, I guess you could say? It doesn't surprise me that that would be the case. I mean, I'm happy to hear that it's the case because I don't think it always is, but I haven't seen an instance — again, not to say there isn't one out there — but I haven't seen an instance where a robot designed by… a commercial company, at least, was really done with a view to public space.

That said, I mentioned earlier that there are some different research projects that I've seen that are underway, where the technology hasn't necessarily been introduced yet, that are more driven by either non-governmental research, like NGO-type research or university-type research, that are more driven by the notion of making public space more accessible or easier to navigate the... physical barriers that exist in public spaces. So I think that exists, but I suspect it would vary from company to company whether developers are really thinking about that deeply.

Ronald Cheung: And expanding on that point exactly, as you said, it's private companies, it's private developers that are introducing these robots into public spaces, rather than government, right, rather than municipal bodies or federal government bodies. Given that these projects are often promoted for the public interest and are capable of addressing these barriers to access, what legal obligations do you foresee that these private commercial entities must incur in order to see that their projects proceed?

Kristen Thomasen: Yeah, I think that's such a great question, especially when a project is promoted and facilitated through law in the public interest. There ought to be a tort law type answer to this, I think at least in part, like responsibility where something goes wrong or somebody is injured, whether that be a physical injury or another kind of harm, including where somebody's experienced exclusion from public space due to the presence of the robotic system or the way it's worked, or maybe failed to work properly.

You know, there have been instances, for example, in the United States where someone was injured by — I don't know why sidewalk robots are really on the top of my mind today but that's the example I'm thinking of — where somebody was injured by a sidewalk robot and had a very difficult time getting any — even getting an answer from the company, let alone getting any sort of

compensation or accountability. And then, of course, we've seen again, mainly from US examples, but we've seen instances where automated vehicles that are being tested on public roads have injured or sometimes killed pedestrians. And again, in those cases I tried to follow as closely as I could with what was available publicly, and we often see that the company will settle with the family of the pedestrian or with the pedestrian themselves if they're injured but not killed. But it raises a lot of really important questions to me about who gets to use public space and… through what kind of consultation mechanism do they go to use public space to advance or further research and development that is maybe proposed to be in the public interest, but that is ultimately — especially when it's done through sort of a commercial entity — that is ultimately geared towards profit and profitability.

So, in those automated vehicle examples, it's pedestrians and it's other drivers of the road who are taking on the risk without really having any meaningful opportunity to consent or agree to that. And it's the company that's going to benefit as the car improves in its skills and abilities to navigate around public space. I've done some work on a project that's still sort of forthcoming with a roboticist from the US. Her name is Cindy Grimm, and we've been thinking about things like taxing and financial contributions from companies that use public space in order to engage in their research and development processes. And how do companies — how might law be one of perhaps... many other mechanisms to ensure that companies that are earning profit are sending that profit back to the public, especially if the system is permitted or promoted in the basis that having this system is going to be in the public interest.

Just to make that a little more concrete what I'm saying: things like automated vehicles are allowed to test on public roads because there is this sort of overarching vision that automated vehicles are in the public interest and having better automated car technology is in the public interest because it'll reduce traffic accidents, it will reduce injuries and fatalities due to driving. And, as a side note, I would say there's been some really interesting critiques of that assumption — it's not really proven. It's more of like a hypothetical, like "oh, it's common sense that automated vehicles will reduce collisions." So I mean, if any listeners are interested in thinking more deeply, you can find some really compelling critiques of that.

But thinking more about how the public actually benefits and, really importantly, something that we are not seeing, at least not in Canada, is how does the public get to have any input or say into what kind of systems are introduced into public spaces? I guess, in theory, it's through voting for your city council? But it's hard to do that when a lot of this is sort of hypothetical or near future. And so I think having more mechanisms for getting a sense of what is important in different spaces will be crucial to actually having systems that are in the public interest. The Toronto sidewalk robot example, I think, is a really nice example of listening to and hearing the public's concerns and then using the law to respond to that in a meaningful way.

Sean Cousins: That's great. And just digging a bit deeper into some of these projects that are in the public interest, potentially. One of the examples that's maybe more directly in the public interest, potentially, compared to, say, self-driving cars, where the benefit is a little more, maybe high level or abstract at this point, is… some of these projects which focus on increasing accessibility of spaces.

For example, I don't know if this was in Canada or somewhere else, but there was an example in the paper of robotic systems which can assist people with vision or mobility impairments in crossing busy streets. So projects like this — knowing that in Canada, individuals have existing legal rights to barrier-free public spaces, do you think that using robots to make spaces more accessible would further these rights? Or could it potentially undermine that existing legal right to a barrier-free space, or perpetuate ableism?

Kristen Thomasen: I think that's a really important question. And I think it's a question that we, as those working in the law or interested in the law, or… as members of the public, need to keep asking when it comes to these proposals and when it comes to the legal response to these proposals. I think a big risk with robot systems, in this regard, is that the promises that they're offering, like the sort of potential or benefit that they're offering, is very individualized. So the proposals make it almost like an individual responsibility or choice to use or gain access to a robot as an aid.

And the big risk here, to me, in my eyes, is that it turns away, or it may threaten to turn away focus from... the bigger structural, architectural, and systemic changes that are needed to actually ensure access in a range of different ways to public spaces. So it should never be the case, in my mind, that instead of having an actually accessible, barrier-free space, people are expected to just use robots to navigate the barriers that exist, or the barriers that might be constructed with a justification that, "oh, we'll just use robots to overcome those barriers." And this would kind of track with my first caution that we were talking about earlier, that robot systems should never be prioritized over human access to spaces. If robots are now making the space less public to people who could otherwise use it without a robot, just by the existence or presence of this option, like, "oh, you could just use a robot to do this, so we don't need to design the space in a more human centric way," I think that that raises a lot of concerns.

Especially because robots have a lot of limits that I don't often see discussed in a lot of the research about their benefits, which — I'm not denying their benefits by saying this, I'm just sort of contextualizing them — but I mean, I have a drone and I've had the opportunity to interact with a number of other robotic systems. And I would say there's a lot of opportunity for failure; battery power is limited. Many systems would need access to the internet and that's not always guaranteed. There's security concerns when you start integrating robots more into day to day life, and none of this is even talking about the broader… planetary impact of building more and more robots that is more of a systemic concern as well. So… I think there is a lot of promise. This is not to say that there isn't opportunity to use automation in ways that can be really beneficial to people for a whole range of different purposes or functions. But I think your question really goes to an important consideration that needs to be front of mind when we're talking about robots making spaces more accessible, which is "is there any risk that this is actually going to substitute for proper systemic or social change that would truly make a space more accessible to people and that would really, much more thoroughly and equitably, fulfill that right to barrier-free spaces?"

Ronald Cheung: Thank you, Kristen. And speaking of concerns, so you mentioned concerns of security concerns, planetary impacts… you also mentioned about privacy concerns in your paper, about the use of the robots in public spaces. And going beyond just regulating physical privacy, and

the presence of robots in the public space, what — can you speak about the state of the law regarding the collection and use of data to perhaps maybe train these robots or to develop these robots and that process and some concerns that you have with that?

Kristen Thomasen: Absolutely. So the state of the law with respect to privacy in public is very… interesting? And as you can tell from my inflection, maybe not always in the best way? I would say in terms of like commercial operators — so right now, *PIPEDA*, the *Personal Information Protection and Electronic Documents Act*, regulates commercial collection and use of information. At least, that's the federal regulation, and then there's a lot of nuance to that... commercial collection and use of information. But that's the primary statute that regulates that. And it does apply whether you're in public or in private space, so it's not spatially limited like a lot of other laws are, which I'm happy to talk about in a second.

And so that's important. *PIPEDA* is likely going to be replaced soon… Bill C-27 is under review within the federal government right now and if it passes — so if it's adopted — it will amend and change some of what exists right now, in terms of… the regulation of commercial data collection and processing. And in particular, there are allowances for collecting anonymous information or information that's not personal information. So it's not connected to an individual. That is something that is… tricky, it's complicated, because of the way AI systems are able to analyze large amounts of data and identify patterns and identify and make predictions. You know, draw out insights about data and information.

There is… some rightful concern that even if your information is not directly connected to you, it can still have a serious impact on you when that information is collected and analyzed and used in different ways. So there are some legal considerations around how commercial entities collect and use information. But stepping back from the specific legislation, I — a lot of my work focuses on privacy in public spaces, including… my thesis was focused on privacy and public space, but in tort law — and other than that sort of exception that some of this commercial data collection law applies even when you're in public space, much of our law in Canada, at least in the common law system, really draws a designation between public and private, where, you know, I'm paraphrasing, and there's nuance to it and, you know, if you're very, very interested, you could certainly read my thesis if you wanted a long read.

But just to state it quickly, there's an idea that once you've stepped out into public, you sort of consented to the fact that everyone can see you and so can collect and use your information in different ways — with nuance and with some exceptions, but that's sort of a broad generalization. And I think that mindset really is noticeable in how a lot of developers of robotic systems think about how they're going to get the kind of data that they need to train systems that are meant to operate in public space. And so what I mean by that is, like, stepping back even from specific rights, there's this sort of mindset, again, that I've mentioned already that, you know, "well, I can just go and test this car," let's say, "in public space, because it's public and so I should just be able to go and test it." And by virtue of that approach or mentality, every person who's out in public space has now become a part of your test or your experiment, whether it's through the collection of their information for the sake of training, whether it's through actually putting them at potentially physical

risk if the vehicle functions improperly — malfunctions and causes them an injury, or whether it's just through being implicated in the testing process. And that… mindset, to me is really… you know, it is sort of reflected in our law. Like that when you go out into public space, you've sort of agreed to certain things, like being seen by other people.

But that law, a lot of those theories of law were created long, long, long, long, long before we had the kinds of data collection and storage capacity that we have today. And so I think this is an example of where bigger, theoretical rethinking of our rights and how we share spaces is really important. And as a researcher, I've engaged with sort of the research ethics guidelines for university researchers in Canada, and I'm not saying that that necessarily has to be a template, but it's really interesting to see how university researchers have these obligations to think really mindfully about who's involved in the research, getting consent, making sure that there's a return… some kind of benefit goes back to people, even if it's more of a collective public benefit. And I think that kind of thinking is a much more… almost collaborative way of thinking than what we see right now, which is a much more like… for lack of a better word, a much more entitled thinking, like, "I can just go ahead and do this because the law doesn't say I can't." And I think that that's going to become increasingly concerning if we do see more and more research and development-type testing happening in public where we members of the public become a part of that corporate development process.

Ronald Cheung: You know, you touched on artificial intelligence, and you touched on the self-driving cars and other autonomous robots. We know that you recently published an article titled "Safety in Artificial Intelligence and Robots Governance in Canada," which was published in the Canadian Bar Review. And one obvious link that we see and whenever — I think most people think about AI and robots are these self driving cars that seem to have been popping up more and more in the past year or so, what further issues do you foresee when we think about regulating AI-powered robots in our public spaces?

Kristen Thomasen: I would say something that's been really interesting in observing Canada's approach to regulating different types of automated systems is that AI has been treated as though it's distinct from robots, from different kinds of robot systems… and the robot systems that we see mainly being regulated and introduced in Canada right now are, for the most part, being regulated like analogies to other existing, but not as heavily automated, systems. So automated vehicles are being regulated like cars. And, you know, I can understand that analogy, I'm not necessarily saying, "oh, we can't do that, that's wrong." But what's really interesting to me is that automated vehicles on the road are regulated like cars, but now AI is… you know, that's a very broad term, so like the wide scope of different kinds of systems that the term AI refers to, is… You know, in the same bill that's looking at replacing the existing commercial data regulation, privacy regulation — *PIPEDA* — that same bill, Bill C-27, is also… also has a component which is a law to regulate commercial development and use of artificial intelligence. And something that I've been thinking about since that bill was introduced is how interesting it is, to me, that it's treating AI almost like something separate from robotics. Maybe that's not what the regulators intended, but that's at least how I've seen a lot of this conversation and examination of the bill evolving.

But the reality is that a lot of these robot systems that we're talking about, like you said, are… automated and raise the concerns, or challenges, or benefits, or promises for public space that we've been talking about *because* they operate on some form of automating software which would fall, usually, within the broad scope of what we now call commonly artificial intelligence or, colloquially, artificial intelligence. And so a lot of this legal development is going to affect robots in public space. Or, at least, I think it ought to. And so I think that at least one of the further issues that arise when we think about regulating AI-powered robots in public space is going to be one of legal… the issue might be one of legal confusion, perhaps? You know, trying to think about how these different legal regimes apply to a system that fits within more than one legal regime and how do those regimes interact with one another? Does one supersede another in any circumstance?

Questions like that… I think we might see the legal sphere potentially getting more and more complicated, which for in-house counsel at robotics development companies, this means a lot of work. For me, as a legal academic, the most important thing that stands out to me is how and where do our rights, our collective and individual rights, come out and how do we ensure that they're protected when there are a series of overlapping legal regimes that might apply to a particular kind of system?

So something that is really fascinating is to see how lawmakers, policymakers, members of the public are thinking about AI, are thinking about robots, are thinking about the overlap of AI and robotics, and what all of that is going to mean in terms of how we think about regulating these systems. Right now, I'd say… we have silos. Like, to all the legal audience, law student audience, how we approach first year law in these silos of tort law, contract law, criminal law, even though they overlap a lot… maybe I can make this analogy that we're seeing something similar like AI law, drone law, automated vehicle law and all of them overlap in different ways, but we don't really see that overlap considered or discussed. At least I haven't seen it publicly — that's not to say that people aren't thinking about it. And it'll be interesting to see how that develops.

Sean Cousins: That's great. Yeah, I think a lot of really interesting things to think about looking forward. And we have one final, forward-looking question for you. When you think about the future uses of robots and AI in our public spaces, what potential benefits do you feel most optimistic about?

Kristen Thomasen: Yeah, I mean, my really quick answer is examples like the use of drones for journalism or citizen journalism… I find that really interesting. Also the use of drones for medical aid. I'm focusing on drones, I think, because we see a lot more real-world examples now of the use of drones, there's lots of near future examples that are interesting too. But you know, drones being used to deliver medication rapidly, to respond to things, you know… I used to live in the North Shore of Vancouver, if anyone's familiar with it. There's a lot of search and rescue activity that happens up in the mountains and the ability to use drones to do that really quickly. There's a lot of really promising ways that this low airspace access can be used, you know? And so I find a lot of that really fascinating. And really, I feel optimistic about some of that, especially when it's coming from this public interest place. My honest answer — I don't want to leave us on a pessimistic note, I promise I'll try to turn it into something more positive — but I am increasingly pessimistic in some

ways about... I mentioned earlier the planetary toll that the development of a range of different automated technologies is taking, and increasingly taking, especially when we start to talk about, like, "let's get more robots and more AI and more big computer systems." There's a significant impact that is transnational. So we in Canada don't always see or feel the impact that is happening when we start to talk about more automated vehicles, for example, but it is happening and it is affecting others, especially in the Global South. So I have a pessimism around the idea of… this explosion of robots and automation as benefiting the Global North to the detriment and harm to the Global South.

Something, you know, if I can turn it in a more positive way for a final note, so it's not just ending on sort of a pessimism, but something… that I see a lot of and I feel really excited about reading and seeing all of these ideas, is that more and more people are taking a transnational and critical perspective to AI and robotics. I haven't seen it necessarily reflected in the law and policymaking that we have so far in Canada, but I certainly see a greater attention to, awareness of, and openness to the sort of transnational impacts of automated systems, the inequitable global impacts of automated systems… And I think that that seems to be growing in both attention and… how seriously people are taking those concerns. So I think that that is a positive that I would say, in terms of our bigger thinking around AI, seems to be just continually expanding and getting more critical, and I think that that is really important.

Sean Cousins: That's great, thank you. And, of course, the article we've been discussing today is available on the *OLR* website. But just wrapping up, if our listeners are interested in reading more of your work, where should they find you online?

Kristen Thomasen: I have — I've tried to post open access and free versions of articles up on SSRN. If there's anything that anyone can't access… through a journal or whatever the case might be, there are pre-print versions there. So you can find me on Social Sciences Research Network. I would say you can find me on Twitter/X, but I am increasingly not on there, so it would be haphazard. And I have a website that's under construction, but it's just kristenthomasen.com. And it'll be, you know, up and running soon!

Sean Cousins: Perfect. And I just wanted to give you one last opportunity if you have any concluding thoughts that you wanted to share with our listeners before we wrap up this podcast.

Kristen Thomasen: Yeah, I mean, I just want to say thanks for having me on, and I guess a concluding thought or message would just be something that's come up in the conversation, which is just to kind of… always be questioning: whose benefit is this actually for? In whose benefit is something being promoted? And will that actually materialize? And I think, for those of us who are in the legal sphere, what role can law play as one of many different important mechanisms in guiding some of that process of… hopefully pushing what we are seeing in terms of automation and new developments in the public interest, and in an equitable public interest?

Ronald Cheung: Well, thank you so much, Kristen, for taking the time to meet with us today and to discuss all about AI and robots in the public space. And thank you again, everyone at the *OLR* is so appreciative of your time and your continual support to the *Law Review*.

Kristen Thomasen: Thank you.

Sean Cousins: This concludes this episode of the *OLR* Podcast. I would like to thank our guest, Kristen Thomasen, for speaking with me today. Also, thank you to the *OLR* Podcast Committee for preparing questions for this episode, editing, and transcribing this episode in both English and French. Lastly, thank you all for listening!