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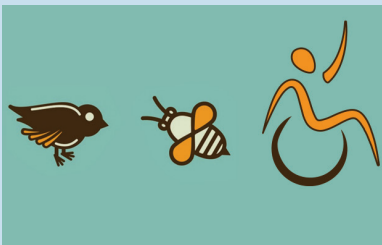
... what it's all about

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Much to celebrate!

By Ruth Marzetti



2020 marks the year in which we proudly celebrate our Technology for Living (TIL) program's 50th anniversary.

This coincides with TIL hosting the 6th Annual Simon Cox Student Design Competition. TIL has partnered with academic institutions from across British Columbia to create teams of bright-minded students and some of our TIL peers, people living with disabilities in their home, to design innovative, real-life solutions to further increase independent living at home. It is an amazing opportunity for students to go through the entire process of working on a project in tandem with the people who will actually use these products, in a step-by-step, iterative manner.

While there are many great entries every year, we also take the opportunity to award prizes to the top designs. The winning entries will be celebrated on Sunday, 3rd May at the Morris J Wosk Centre for Dialogue in downtown

Vancouver between 11AM and 3PM.

Students are able to enter their projects in four categories and the winners earn prize money up to a total of \$5500. In past competitions, we have seen some exciting entries, and I know we will be introduced to some brilliant new ideas this year.

The competition is named after Simon Cox. Simon started out as the first manager of the TIL Program 30 years ago. In 2006, when TIL and PROP (the Provincial Respiratory Outreach Program) joined forces under the umbrella of BCITS (now Technology for Living), Simon became the organization's first Executive Director. Throughout his 30-year career, Simon passionately pursued one goal in particular: to find technological solutions to enable people with limited movement and severe physical disabilities to live at home. His philosophy continues to be the foundation for all that TIL stands for: always looking for new solutions to enable people to better live in their own home by utilizing emerging technologies. It was an obvious choice to name the prestigious award in his honour.

This year's competition promises to be an exciting occasion. Keep your eyes and ears open as you will hear more about the Simon Cox Student Design Competition in other media the closer we get to the event. Everyone is welcome, so please come and join us. A scrumptious lunch is provided!



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TFL peers holiday tips from around the world



L-R: Paul Gauthier and Ken Kramer

Blue Hawaii

What's the first thing that springs to mind when you think of Hawaii? Pristine, crystal-clear waters and waves crashing against the shore? Absolutely! What's a visit to Hawaii without enjoying a day at the beach? For sun-bathers, wave-surfers, and people-watchers: Waikiki Beach has it all. For visitors living with a disability, there are free beach wheelchairs available fitted with massive tires to navigate the sand and get you down to the water's edge, even into the water if that's your desire! Alternatively, you can wheel on the hardened sand just like Paul & Ken are doing here. Either way, beach days are a must! Just don't forget the sun protection.



Ean Price

Three country whirlwind tour

Ean Price, Innovation Specialist for Technology for Living, visited 3 countries in January. He was impressed how accessible public transport is in **Japan** and appreciated the amount of accessible attractions surrounding major train stations. Tokyo will be the host of the 2020 Olympics/Paralympics. While accessibility is overall an issue in **Cambodia**, the people are absolutely delightful and helpful: they went as far as building a 7-foot ramp for him to use. Accessibility is hit-or-miss around Bangkok (**Thailand**) but a wheelchair accessible riverboat trip in a small village was stunning. Another highlight which needs to be mentioned: the flavourful food in Thailand is incredible!



Detained - A First

It wasn't Nancy's first trip. She is a seasoned traveler. Imagine her surprise, after having spent a wonderful time on the island of Hawaii, arriving at the Air Canada check-in desk to return home to Vancouver and being told: "You're not medically cleared to travel on this flight. You're not showing up in our system." Thirty-six hours later she was finally informed her tickets were booked under an expired Air Canada medical desk reference number! Error fixed, still flabbergasted, she finally made it back to Canada.... already thinking about her next vacation.

BITS & BYTES FROM TIL

Opening and closing blinds has been an ongoing topic of interest for our members.

In the past, TIL used innovative but labour-intensive solutions which tended to be prone to error. With the rise of smart home technology in the homes of our members, TIL has been searching for a more cost-effective and easier-to-install smart blind control.

TIL has now started testing the SOMA smart blind system. SOMA smart blinds will work with some but not all pre-existing blinds. If any of our members are interested in smart blind control, please contact TIL to see if the SOMA system will work for your blinds.

CONTACT US!

We are always happy to discuss any member's needs. Simply phone us at ☎ 604.326.0175 or send an email to ✉ TIL@technologyforliving.org

TIPS & TRICKS

TIL installed a smart voice ecosystem in your home, you are using Google Nest Mini but Google doesn't hear you when you are calling from your bed? TIL has created a 3D-printed Google Nest Mini holder attached to an arm that is connected to your bed. The Google Nest Mini can now move closer to you and hopefully will hear you now!

Contact TIL if this could be helpful to you!

TIL welcomes SwitchBot

By Wayne Pogue



TIL has been installing home eco-systems at a growing rate in members' homes during the last few years.

Today we want to introduce you to an innovative smart technology that is set to boldly change how our members are able to independently operate devices within their home: the SwitchBot.

You wouldn't be far off to call this SwitchBot a little robot. When activated, the SwitchBot extends and presses its very short and surprisingly strong mechanical arm on many types of mechanical switches found in a home, flipping them on or off. The small arm is housed in a white plastic box that measures 42.8mm x 36.5mm. This box is attached with double-sided adhesive tape to the switch you want to access remotely.

Set up

One easy way to control an individual SwitchBot is to set up a Bluetooth connection via the SwitchBot app (available for Apple and Android devices) from your phone, tablet, or smart watch. Once a SwitchBot is paired with the SwitchBot app, users can control the switch by touching an icon in the app. It is possible to use a SwitchBot without going any further than this.

However, the real magic begins when you introduce a SwitchBot Hub Mini or SwitchBot Hub Plus to the system. Accessing a SwitchBot via either of these two hubs, you can operate any of the paired SwitchBots via the internet, leaving the limited range of the Bluetooth environment behind. You can also operate a SwitchBot via a hub by voice commands if you are using Google Home, Amazon Echo, Siri, etc.

In case you are wondering: the difference between the Hub Mini and Hub Plus are strictly visual. TIL has found the SwitchBot Hub Mini to be as effective as the Hub Plus. The Hub Mini is also more compact and cheaper.

Potential uses

We can think of many applications for SwitchBots in our members' homes. We know some people will want to use it to turn on their coffee machine at a certain time! An excellent idea for some but this may not be a benefit for our members, as it is still difficult to get the coffee from the pot to the cup!

Some ways the SwitchBot can really have a positive impact on the independence of our members:

- » Turn on/off rocker style light switches if it is not feasible to replace existing light switches with accessible light switches or if they have old style wiring (no neutral)
- » Press up/down arrows on a thermostat
- » Press switches on fans
- » Press (some) garage door opener buttons
- » And more...

If you are a TFL member, give us a call and let's discuss your SwitchBot ideas or needs!

INHALE/ EXHALE WITH PROP

VAPING

Wherever you go, people seem to be vaping. In Canada, the increase in vaping amongst young people is especially significant. The Canadian Cancer Society reported an increase in vaping among 16-19-year-olds of 74% from 2017 to 2018. In comparison, statistics showed a decline in youth tobacco smoking until 2017.

The long-term effects of vaping are not yet fully understood but concerns are arising around the so called 'popcorn' lung and its possible connection to vaping. 'Popcorn' lung is frequently used to describe a scarring of the airways. Until further studies are conducted, potential treatments for the growing demographic of vaping individuals remain uncertain.

CONTACT US!

If you need respiratory advice or support please contact the PROP team at
📞 1.866.326.1245

IDEA CORNER

HEIGHT AND BREATHING – WHAT'S LUNG GOT TO DO WITH IT?

Did you know that height and gender play a role in breathing? Taller people usually have bigger lungs and men usually have larger lungs than women. BiPAP and ventilator settings are based on lung size and client comfort. If you have questions about your settings, please contact PROP.

What do Ventolin, Atrovent and Flovent have in common?

By Karla Kuzmich

Answer: All three can be taken using an MDI 'puffer' and can help make breathing easier.



Metered Dose Inhaler
(MDI)

If you have a lung infection, your doctor may have prescribed these respiratory medications for you to take on a short-term basis. If you have asthma or COPD, your doctor may have recommended that you take the medications on a long-term basis.

If you use these medications, do you know that there are techniques or tricks to make the medicine work better for you?



Spacer

The first trick we want to share is how to get the most out of your puffer medication: use an aerochamber or 'spacer'. A spacer helps to deliver the medication to your lungs where the effect is greatest. Spacers even have built-in whistles to coach you when you take the medication.

Question: When using a spacer, do you want to hear the whistle blow?

Answer: No. The whistle means that you inhaled too fast. If you are using a spacer and hear the whistle, try to breathe in more slowly next time.

If you don't have a spacer, ask a respiratory therapist at your local hospital if they can provide you with one. You can also purchase a spacer at most pharmacies for a small fee.

The second trick to using your puffer is to breathe in slowly. If you breathe in too quickly, the medication will stick to the back of your throat and not reach your lungs.

The third trick is to hold your breath after each puff. This can be baffling because the directions on the prescription usually say to take two puffs. PROP suggests you take the medication by inhaling one puff deeply and hold your breath for five to ten seconds. After exhaling the first puff, proceed to take a second puff, inhaling deeply and holding your breath again for another 5 to 10 seconds.

The last trick PROP recommends is to gargle with water or mouthwash after you use the puffer. This is definitively necessary when taking Flovent, but we also recommend it after using Ventolin and Atrovent. Gargling after using puffers helps to get rid of any medication in the mouth and throat. After gargling, spit out the water or mouthwash.

If you have any questions about using your puffers, contact PROP, ask a pharmacist, or ask a respiratory therapist at a clinic/hospital for help. You can also find instructional videos on the internet.

Catheterization? Not so fast!

By Arjo



I am not a doctor and sharing my experiences is not meant in any shape or form as a substitute for medical advice. Please consult with your physician before making any changes to your catheterization routine.

It has been more than 20 years since I sustained a C5 Spinal Cord Injury (SCI). But a warning uttered by a health care professional at the time has remained at the back of my mind ever since: an overfilled bladder can cause Autonomic Dysreflexia (AD) and should be drained as soon as possible to alleviate this condition.

How does my bladder get overfull without me knowing about it?

The spinal cord contains cells that send and receive signals from your entire body. Thanks to these signals, we can, among other things, control the body's ability to empty our bladder. But since my injury, these impulses do not reach my brain. Because there is nerve blockage at the injury level, my body doesn't respond as it would normally.

Nonetheless, the nerves still try to send signals back to the brain saying it is time to urinate even though the message can't get past the damaged part of the spinal cord. That can make my body do the "wrong" thing and send my nerve responses

into overdrive, causing my blood vessels to react to these faulty signals. In response, they become narrower, which in turn can increase the blood pressure to dangerously high levels. And high blood pressure can cause heart attacks and strokes.

Drain the bladder

The advice to drain the bladder is a generally accepted practice to keep AD in check. AD causes the blood vessels below the level of the SCI to constrict and the blood pressure to spike. In other words: the brain cannot correct the situation and the blood pressure can increase to seriously dangerous levels.

As a person living with a C5 SCI, I often can't tell whether my bladder is almost full or overfilled. Sometimes, to my own surprise, I find myself draining up to 600 ml. If I were to follow the generally accepted advice, I should proceed to drain the urine as fast as possible.

However, I found out the hard way that there are additional factors to bear in mind when it comes to drainage.

Problem solved, right? Not so fast.

Logic dictates: if the bladder is emptied and the pain stimulus removed, the blood pressure should return to normal. Except that change does not take

AUTONOMIC DYSREFLEXIA (AD)

- » Autonomic dysreflexia (AD) is a potentially life-threatening medical emergency affecting people with spinal cord injuries at the T6 level or higher.
- » It's important for at-risk individuals to know their baseline blood pressure values and to communicate to healthcare providers how to identify and manage an AD emergency.
- » Some signs of AD include high blood pressure, pounding headache, flushed face, sweating above the level of injury, goose flesh below the level of injury, nasal stuffiness, nausea, and a pulse slower than 60 beats per minute. Symptoms will vary based on the individual.
- » For the most part, AD can be prevented. Keep catheters clean and adhere to your catheterization and bowel schedules.

place *immediately*. The heart continues pumping slowly, at restricted volume, while the arteries have already relaxed. This potential new scenario may now cause low blood pressure, leaving the individual to feel lightheaded and dizzy, even up to the point of fainting. I have found myself out of commission up to half an hour, the time required for my blood pressure to adjust after using the catheter.

I especially remember one evening when I emptied a particularly overfull bladder and my blood pressure just crashed. I leaned back, put my feet up, and had a cup of water with salt to boost my blood volume.

The condition persisted. I leaned forward, chest on my lap, while two people massaged my leg muscles to assist my blood flow. Nothing helped. This was scary and I called 911.

Thanks to the professional intervention, I recovered. However, I was informed that an enzyme called troponin was found in my blood, indicating stress on the heart muscle. A cardiologist informed me that I had not sustained lasting damage, but I should have known that draining the bladder too quickly can be just as bad as letting it get too full!

It's more complicated

This was complete news to me. I tried to learn as much as possible about this latest piece of information. Many sources emphasize the danger of AD due

to an overfilled bladder, but I couldn't find any mention of the danger of draining the bladder too quickly.

High blood pressure is generally considered a dangerous thing. However, I have come to understand it only becomes destructive if it keeps happening over a period of time - days, months, etc. A body can tolerate considerable elevations in blood pressure for short durations of time. It makes sense to me thinking about athletes who, during intense workout periods, can experience very high blood pressure.

While surfing the internet, I came across another recommendation: elevating a patient's head can help lower cranial blood pressure. Personally, I believe a distinction is necessary here between newly-injured SCI patients who will be most often lying in a hospital bed and a person years post-injury who most of the time will be sitting upright in a wheelchair.

Get to know your bladder well

For many years, I tolerated unnecessary drops in my blood pressure after rapidly emptying a very full bladder all in one go. Now, after changing my catheterization regimen, I feel like I have added years of happiness to my life.

Good bladder maintenance and good blood pressure to you!



Omar's got you COVERED!

Hello there. I am Omar and I am going to talk about stuff that matters to me, a young and level-headed wheelchair user, if I say so myself. You will get to know me very well over the next while as I aim to be writing a regular column for the Balance. This may possibly throw some folks off balance (pun intended) but new perspectives keep us all fresh and excited.

Who am I? Your new best buddy who doesn't do cheesy stories about 'perfect people's lives,' and who doesn't talk 'fancy.' Oh, and I am also a twenty-six-year-old quadriplegic guy living in Vancouver, BC.

This is going to be a unique column from where I am standing (sitting). I hope you will enjoy reading my 'buddy to buddy' banter as much as I am going to enjoy writing it!

What do I want to talk about in this column?
The everyday stuff that touches lives of young people with a physical disability, like me.

I can't promise that everyone will always think what I am going to write about is 'appropriate.' But what do you expect? I am 26, eh? The folks who will want to read what I write about: you know who you are.

So, here is my plan: I will be sharing personal tips that make my life a lot easier, a lot more rock 'n roll and I think they can be useful for my readers, too. I will write about personal, sensitive topics, and also touch a lot on technology relating to a young, super cool wheelchair user's life. Basically, whatever comes to your mind has probably also come to my mind, so don't worry: "Omar's got you covered!"

Ok, let's get to it!

Dating & Sex

People living with a physical disability want to date. Let's just put that out there and let it sit for a moment. Is this thought novel to anyone? Maybe a bit too 'edgy' for some? Did anyone honestly think wheelchair users only deal with exciting challenges like bad weather or not being able to find an accessible parking spot? In all fairness though, we actually have to roll the extra mile every single moment of our life! So, what do you think: is it difficult, nearly impossible to do the romance thing? Is it?

Check out Omar's tips before you commit to an answer:

- » Unless you're Chris Hemsworth or Scarlett Johansson, dating can be challenging and petrifying for anyone, and I am talking about every freaking human being on Earth. Believe me: you're not alone on this crazy ride.

- » You know what? Wheelchair users date all the time. Disability is NOT a barrier to having a relationship, if you are into relationships. There is nothing new or weird about it.
- » Omar says: don't change for anyone! Spend time and focus on finding the someone who accepts you for who you are. For everyone there's someone. Keep at it. It's worth it.
- » There's no perfect first (or second or third) date. So, chill out and enjoy the 'ride'- it can be genuinely fun!

After you have digested my hard-earned tips, work a bit on yourself! Maybe begin a new hobby? I am serious! This can be totally helpful for starting conversations or finding a common interest. Nobody likes boring conversations, so be fascinating already! Two more pieces of invaluable advice: be positive and don't be afraid to make a move.

Everyone is afraid of rejection.

How to deal? Practice, practice, practice.

**The next "hook-up" is just around the corner...
you get my point!**

Now we've warmed up, gotten to know each other a bit better, let me ask you the next question:

Why do you think birds are chirping away every morning? I tell you what I think: sex! And, believe you me, this is absolutely not just about making a "mini-me or mini-you". Sex is FUN and sex is healthy. It can restore your energies, both mentally & physically. It can make you feel awesome.

People living with a physical disability 'do it! And, we love it! However, anyone can use some tips & tricks to step up your game between the sheets or wherever you may find yourself.

Check out some ideas that worked for me:

- » When you go to bed with someone, especially if it's the first hook up: try to chill! I know you're worried about performance and all that jazz. But to all you lovers out there: it's supposed to be fun. So, crack some jokes, play some stimulating music, and relax folks.
- » Sex is about chemistry, but it is not a chemistry class! Experiment but don't get stuck on looking for perfect test results. If you think using pills (or other alternatives) may be the ticket to bliss for you: the first couple of times, keep track of how long it takes to get you up and running. Talk to your doc about this.
- » Educate your lover. Talk about what you like to do and what you like to have done to yourself. If you are into kinky stuff, how do you suppose your partner will know

about it unless you open your mouth? You want to go off the beaten track? Then share your ideas and desires with your partner. Talking about sex goes a long way to actually make sex the best ever.

- » All roads lead to Rome and there are just as many ways to reach orgasm. Don't get trapped by the idea there are certain spots you have to check off to get off. Rubbing anywhere on your body can make you feel sensations. Try ears, neck, chest... whoa! Your satisfaction is going to go through the roof when you hit the right spots!



Talk to other people living with physical disabilities, don't just take my word for it! Actually, I have some special people in mind that you might want to talk to if you are looking to move from spring feelings to a summer of love: WAGS of SCI. It's a fantastic organisation founded by my two friends, Elena Pauly and Brooke Pagé. They have done extensive research and created a global network of couples where one partner lives with a spinal cord injury. This is an incredible resource. You think I have stuff to say about sex? I bet they have heard it all and will have an answer to any question you can throw at them about love and making love.

Go ahead and follow them:

Instagram: @WAGSofSCI or go to wagsofsci.com

That's it for me. Any input or feedback?

Give me a shout at info@technologyforliving.org

The rise of the robot carer?

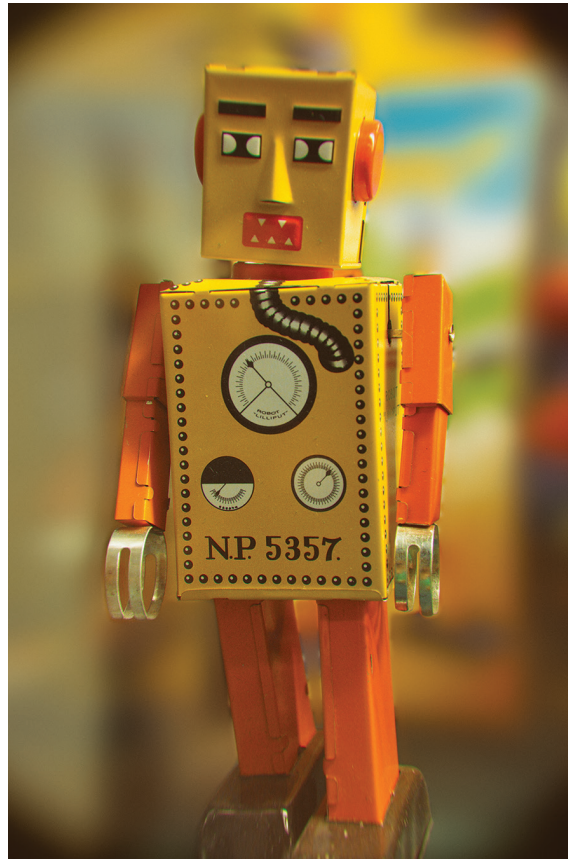
By Britt Permien with input from Ean P., Nancy L., Zosia S., Omar A., and Terry L.

Most people prefer to live in their own, private space: their home. But for people living with a disability, there are hurdles to living at home that may often feel unsurmountable. Even after successfully assembling a care team, nothing is totally guaranteed. The memory of the narrowly avoided transit strike in the Lower Mainland is a recent example. A blog post by a Technology for Living (TFL) member (<https://technologyforliving.org/news/one-transit-users-opinion/>) highlights poignantly the way even things like the use of transportation touches critical aspects of living at home: dependable access to a caregiver.

Having full-time care in your daily life in order to be able to live at home is possibly the most daunting challenge for many of Technology for Living's members. Family is often not an option as the care required frequently needs to be instantly accessible and around the clock. To some members, it feels like a high wire act of balancing sufficient funds to pay for a care team or moving into an institutional setting and abandoning their home.

One avenue that offers the possibility of a technological solution is being vigorously explored, especially in Japan: robotics. While the main impetus for these developments is elder care, Seina Fujimara of Tmsuk Co, a robotics company based in Kyoto, explains: "The needs and requirements are practically the same for caring for the elderly and people living with a disability."

Ean P, Innovation Strategist for TFL, has recently returned from a trip to Japan where he visited the National Museum of Emerging Science and Innovation in Tokyo. He is ready for more robotic help in the home: "I already use robotic



devices to increase independence, many set up by Technology for Independent Living (TIL). Overall 'characteristics' in a robot would be the same ones I am looking for in a human carer, including trust, reliability, attention to detail, and being a quick learner. A robot would need to demonstrate the ability to adapt to unique situations without hesitation."

Robotics research and development are huge in Japan. A Reuters report citing the International Federation of Robotics reported that the global market for nursing care and disabled aid robots, made up of mostly Japanese manufacturers, came to US\$19.2 million in 2016.

But, by 2035, the domestic Japanese industry alone is looking to grow to US\$3.8 billion. Japanese companies are working on the most advanced, non-military robots in the world. As Fujimura explains, this growth, based on the urgent need to deal with the problem of Japan's aging population and declining birthrate, is pursued as a viable option for care solutions for people who need it: "There is an urgent need to create a working environment with a small number of people and a low burden. We are aiming for a society where robots and humans coexist. However, at Tmsuk Co we don't believe that robots can ever completely replace humans."

Sowan, a current model of a robot designed by Tmsuk Co for use in care facilities, is meant to help free up staff time rather than replace staff. *Sowan*, and others like it, are being developed under the umbrella term 'Robot as a Service' (RaaS). Tmsuk Co advertises *Sowan* as an 'automatic rushing robot', reducing the burden on caregivers and trying to provide peace of mind for care facilities, residents and their families.

Overworked staff and understaffing are a constant worry in care facilities argues Alexander Huang, founder of Aeolus Robotics (<https://aeolusbot.com/>). He believes robots will be able to help people living with disabilities and the elderly to perform household chores while working



in tandem with human caregivers, allowing caregivers to focus on the emotional care aspects. At the moment, the Aeolus robot is being tested within a Japanese care facility (<https://youtu.be/J2jDpHslnPY>). How feasible it would be to downscale this type of technology for a private home remains to be seen.

Ayumi Kihura, a Japanese woman in her mid-forties, is like many of her friends a single child. She is banking on companies like Tmsuk Co to provide a robotic solution for helping care for Japan's aging population sooner rather than later. Ayumi can't see how she will be able to take care of her elderly parents. She has no reservations about employing robots as caregivers: "In Japan, we grow up watching cartoons about friendly, helpful robots like Doraemon, Astro boy, Evangelion, etc. These robots are very different from the invading and dangerous robots portrayed in the West. I don't see resistance in my circle of friends at all about using robots as soon as they are available." She dismisses questions about the need for debates or discussions about the ethics of using robots instead of humans to care for people who need care: "I **want** to take care of my parents, but I need help. Always friendly, helpful

robots can work 24 hours a day and never get tired. That is a solution for me."

What "robot carer" means to people is a lot more nuanced and diverse than the idea of a fully developed humanoid looking machine. When talking to peers at TFL, there was no uncertainty in responding to questions about what type of robotic assistance they were already using: power wheelchairs were at the top of everyone's list. It also included Google Home controls, Technology for Independent Living's Automatic Door Openers and many other technological solutions provided by TIL, as well as an app for dictation, all of which fit under a definition of robotic devices put forward by Dr. Anca Dragan, assistant professor at UC Berkeley: "Physically embodied, artificially intelligent agents that can take actions that have effects on the physical world."

But these type of robotic devices are technologically situated on a lower level than a robotic, in-home care giver. Dr. Kate Darling, a research specialist at the MIT Media Lab, has defined this type of robot as a: "Physically embodied, autonomous agent that communicates and interacts with humans on a social level."

While the TFL peers we spoke to didn't necessarily look for robots to be socially assistive, Japanese companies are actively engaged in the pursuit of creating robots capable of exhibiting natural-appearing social qualities albeit as an extension to human care. The logic is simple: robots are available at all hours of the day or night, with an infinite supply of patience and energy.

If someone feels emotionally comforted by a companion, does it matter if that companion is a machine?

Ean P. suggests a job share scenario between human and robot carers could be the ideal set up: "Repetitive tasks, health monitoring (O2, heart rate, weight, BMI, skin analysis, etc.) and heavy lifting could be performed by a robot. But the human component will always be vital. Technology is never perfect. Additionally, human interaction strengthens community connections."

Omar A., a very enthusiastic supporter of robotic care, is definitely looking as much for "emotional appeal" as for practical assistance in robotic care. He is ready for the future to happen, adding as much technology to his life

as is achievable even now. Currently he is considering the OBI robot-arm (<https://meetobi.com/>) as the next member in his arsenal of robotic help. Omar points out that his human carers are already working in tandem with his existing technology. Having a robot with social qualities join their daily life would by no means be a stretch of the imagination for him and his carers.

Terry L. has some very specific ideas how to employ the skillsets offered by a robot: performing operations where superior exactitude and uniformity is needed because measurements and movements of tools would be more accurate when provided by a robot rather than by a human carer. He is particularly thinking about assistance with his daily dental care. However, he does not want the robot to look like a human: "I prefer to keep my emotional interactions with real people."

In some way, this echoes Nancy L.'s thoughts: "In a human carer I look for good communication skills, a friendly, outgoing and compassionate personality." She doesn't think that a robot would be able to fulfill these requirements. She confesses: "If there can be such a robot that is 'ideal' with emotions, it would be too scary for me. Too many movies gone wrong have swayed my thoughts on having a robot that can express emotions ..." On the other hand she acknowledges there may be one advantage in having the same carer, 24/7, a role that a human carer won't ever be able to fulfil for obvious reasons: "There wouldn't ever be any conflicts or stress with having to get used to a new carer's ways. With a robot, my ways, my quirks are okay. That is an aspect that would be definitely superior with a robot carer."

Ean P. looks for characteristics including trust, reliability, and attention to detail, as well as being a quick learner in his human carer: "Personality is key. It's important to trust a human carer has your best interests at heart while a robot carer would need to demonstrate the ability to adapt to unique situations without hesitation." As an Innovation Strategist he looks at new technological developments and assesses the future of care on an ongoing basis. Zosia S. on the other hand has started using an 'assisting dog' for the first time in her life. She continues to be surprised by how much the dog can actually do for her, which leads her to wonder about the so far unknown potentials of using a robot. Like Nancy L., she speculates: "If a robot carer would stay in my home 24/7, it probably would fit in a lot easier into my lifestyle [than human carers]."

The future depicted by Hollywood movies is not here yet. Robots like C3PO from Star Wars, a friendly and chatty, metal humanoid or the 'Terminator', a not-so-friendly machine that speaks English with an Austrian accent and shoots up the world continue to be pure science-fiction. Less humanoid looking robots, instilled with social characteristics, like the lovable waste collector machine 'Wall-E' or the good and evil robots of the 'Transformer' universe, are worlds from what is possible today. These examples show the array of robot types we have become familiar with.

What all these robots have in common is that they are imbued with decision-making power.

This leads to an important and crucial question: is that something to strive for in a robot carer? Should a robot carer have "decision making powers" like a human carer would have?

Ean P. offers an interesting analysis: "Initially, all potentially life-threatening decisions should require human approval. But it is a controversial topic. In the aircraft industry, some believe the flight control system should override the pilot to eliminate 'pilot error'."

Zosia S. doesn't dismiss the idea of allowing the robot carer some decision-making power but insists: "There has to be a line where the robot carer would need to respect the wishes of the person they are caring for. They need to have a set of parameters about when to get [outside] help."

Despite his love of technology, Omar A. agrees: "I wouldn't feel comfortable, nor safe, knowing that a robot makes decisions for me except if it's programmed to finding solutions to deal with very specific tasks."

Terry L. is very clear: "I can see where this may help people with dementia but no decision powers in my robot please!"

Nancy L. goes even further, vehemently declaring: "Absolutely not."

A big thank you to Seina Fujimara of Tmsuk Co and Ayumi Kihura for their time.

Welcome members!

2019 saw the transition from BCITS to Technology for Living. We have always operated as a registered charity and society. As such we have decided to modify our language to reflect that the people who receive our services are members not clients of this, their society. Members drive the focus of our services and vote for the board that represents your interests. Collaboration with our members in their home continues to be at the centre of our work.

TIL, symbolised by the cog in our logo, is setting up home automation and assistive devices for our members. PROP is represented by the WIFI symbol in our logo, as wireless technology has become an integral part of the constantly evolving work environment.



6th STUDENT DESIGN COMPETITION

A WINNING FORMULA

People with disabilities + Students =

Simon Cox Student Design Competition

The Technology for Independent Living (TIL) Program has teamed up with universities and colleges from around British Columbia.

Technology for Living is the proud host of this prestigious and innovative annual competition. Our signature event showcases assistive technologies developed in a team environment between students and people with disabilities.

To view this year's winning entries ...

Please join us!

The Morris J Wosk Centre for Dialogue
580 West Hastings Street
Vancouver, BC V6B 5H3

May 3rd, 2020
11AM - 3PM

Light refreshments will be served.