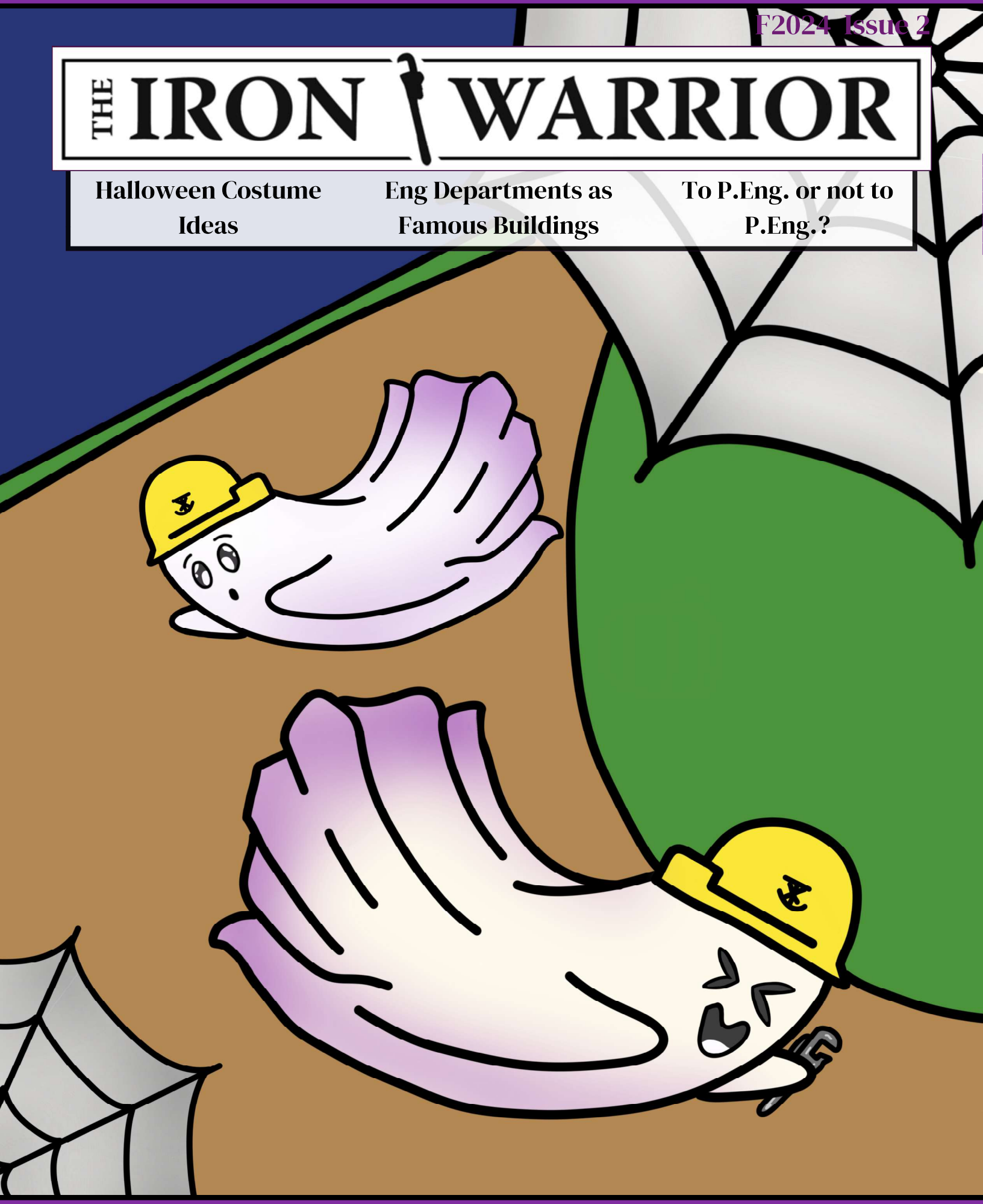
F2024 Issue 2

THE IRON WARRIOR

Halloween Costume Ideas

Eng Departments as Famous Buildings

To P.Eng. or not to P.Eng.?



MEET THE TEAM

Editor-In-Chief

Chloé Guillemette

Members

Cathy Vi Quan
Athavan Gananathan
Julia Suljak
David Shim
Rodaina Aboelela
Curtis Yeung
Jason Toft
Laura Persichini
Jeremy Bijoux

Iron Warrior
Waterloo Engineering Society
DWE 3520A
University of Waterloo
Waterloo, Ontario
N2L 3G1

Table of Contents

O-Week Review

Jeremy Bijoux, 1A CHE

(Written subjectively by a first-year engineering student, who, after reading The Book 2024, decided to faithfully follow the 5th of the Ten Commandments, repeatedly putting off until the next day writing this article... until he couldn't.)

My family and I drove from my hometown of Ottawa to Waterloo on August 30th, right before the big move-in day of August 31st. New place to live, new people, new school... New everything! Though I was not feeling yet that night, I was actually terrified...

All that fear and anxiousness came to the surface on the morning of move-in day, on our way to St. Jerome's University, where I would be living for the next 4 months while completing my first term of Chemical Engineering. As much as I could blab on and on about every single detail of what happened once I got there, I think it's best to cut to the point: Orientation Week was AWESOME! This may sound cliché, but I would not be writing this if I did not get something invaluable from my first week at Waterloo: a good time. From Saturday to Friday, I had fun, and that's something worth praising the organisers for.

St. Jerome's, right from Saturday afternoon, had its own set of Orientation events, which were all really good. I got to meet my floormates, listened to inspirational speeches from SJ staff, had to wake up at 7:45AM to learn about how meals worked at the cafeteria (yea, that one was as fun), had dance-offs and sing-offs and played a bunch of fun games at a carnival. To be honest, while I did have much fun during that weekend, there was something missing, and it's that I was not meeting many engineers, especially not other Chemical Engineers. Luckily, as if planned to perfection (and it kinda is), O-Week rectified this concern throughout the next 5 days.

Monday to Friday were the Engineering Orientation events. I particularly loved the theme of vilains per colours, and they were a great way to spend the week. Especially on Monday and Thursday, I learned a bunch of new things about services at the University, Engineering at Waterloo, clubs, and got some really good advice from upper-year students in my program.

Furthermore, I got finally got to meet other first-years in my program (who are now my classmates)! I was really happy to finally meet other Chemical Engineers, AND go see the To Be Honest musical. That musical was amazing! I loved it! I LOVED IT! I LOVED IT!!! And being a theater guy myself, after seeing it, I knew I had to get involved in a play this term!

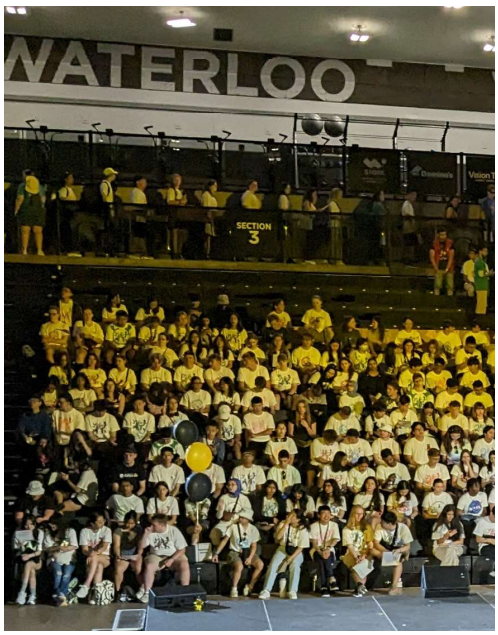
The best two days in my opinion were Tuesday and Friday. Tuesday at 6 AM (oh boy...) was purpling, and though getting purple early in the morning was fun and watching other people get all purple was funny, waking up early and almost freezing to death in the cold air morning was... not as great. The best part of Tuesday was definitely the Earn Your Hard Hat events, where I impressed EdCom and Media to get some stickers for my Hard Hat. After getting through water balloon fights, crawling through mud, and going through an obstacle course ending in a slide that dirtied my shirt (I still haven't washed it, by the way, and I don't think I ever will, just to keep it as a souvenir), I was super happy to get my Hard Hat and felt welcome into the Engineering community when going through the Bigs and Huges tunnel. By the time of Junkyard Wars though, I was EXHAUSTED, but it was still fun to work on all the projects, especially the sculpture and the catapult. As for Friday, there was ScavEng, which was hyper fun simply because I got to interact with EdCom a lot more than the other days, and it was nice seeing them somewhat enjoy the things my team and other teams brought/showed them, and afterwards the Engineering Concert, a great event to cap off the week.

However, the real highlight of O-Week, for me, was (Boss) EdCom (Boss) (gotta be respectful, I've made the mistake of forgetting the Boss(es) and I promised I would never make it again!). The first time I saw them was right in the middle of a presentation during Intro to Eng, and I have to say... It was love at first sight. If they were trying to be scary when they took over the presentation room... they succeeded (I was scared). Of course, they were also SUPER COOL! From the outfit, to the voices, to their commanding presence and their elite vibes... and on top of that, when I learned that they were the top 2% of Engineering at Waterloo, handpicked by the Dean herself... I decided right then that I would work my butt off to one day be an EdCom! (Also, I just realised while writing this that if I get chosen to be an EdCom, I get to sleep for a whole year, which would probably be great since as an Engineering student, I probably won't get much sleep during my academic terms...)

To conclude, I want to reiterate that I loved O-Week. The people I met, the events, (Boss) EdCom (Boss)... It was good. Really good. I keep those memories of early September close: in my heart, on my desk... and in my closet!

Since then? Well I joined a bunch of clubs (perhaps too many), I keep up with my classes (which are surprisingly not so bad... 70% of the time), and I now have a goal I want to reach more than anything: becoming an EdCom! Hopefully, I can start by surviving my first term (by the way, I'm in Stream 4).

EXZ, 1A CHE, signing out!



Eng Departments as Famous Buildings

Rodaina Aboelela, 2B AE

Ken's job is just beach. My job is just building.

I've been cryogenically frozen in the downstairs studio for days and the deepest, darkest recesses of my brain have begun to visualize every engineering degree as its own building. Imagine a conspiracy board with push pins and red string everywhere.

Alas, I have materials to material, mechanics to mechanic and differentials to differentiate. So, in 1000 words (ish), what building is YOUR engineering degree?

Department of Civil and Environmental Engineering

Civil Engineering

Coined as transportation, energy, and bridge aficionados (aka nerds), allocating a building for civil engineering students doesn't seem right. The next best thing? A bridge!

Composed of entirely American-made steel, the **Golden Gate Bridge**, located in San Francisco, California is one of the largest suspension bridges in the world, spanning over 1,280 m. It was the first of its kind and as such, was nicknamed the "bridge that couldn't be built." Its incredible safety factors enabled it to withstand the Loma Prieta Earthquake in 1989, earning its recognition from the American Society of Civil Engineers (ASCE) as one of the top 10 "civil engineering achievements." For cost-estimating lovers out there, this bridge cost $35 million to build in the 1930s. Today, it would cost over $1.5 billion.

Did you know that the bridge's distinctive red coat was a complete accident! It was originally a primer coat with the final colour being a gray, black or silver colour but after countless letters of support from residents, the red became a permanent addition [1].

Architectural Engineering

In case it wasn't obvious enough already...us arch engs, we care about our buildings. A LOT.

And what better building to encapsulate that love than Barcelona's **Sagrada Familia**. With a project end date of Winter 2026, the building will have been in construction for over 144 years. Antoni Gaudi worked on the Sagrada Familia for 43 years. With it, he tells a story of structural innovation and architectural inventiveness. He depicts the story of a massive architectural shift; the exteriors and interiors are not Gothic nor Romanesque or even Classical; they're so unidentifiable, so much so that its features are often called an otherworldly, aesthetic transcendence.

I think that words are not enough to express how beautiful the Sagrada Familia is. What's even more beautiful is how generations and generations of architects and engineers have dedicated their lives to its pursuit, all for the belief that their work would one day surpass them [2].

Geological Engineering

"Oh look! A pretty rock!" said every geo ever.

Geological engineering students might go into cardiac arrest from the joy of witnessing the shear amount of rocks in this building.

Dominus Winery, located in Napa Valley, California is composed of an exterior gabion façade. Gabion façades are galvanized, hand-woven baskets filled with stones of varying shapes and sizes. This method is often used for retaining walls. Here, it passively responds to California's climate by providing protection against the heat during the day and cold gusts during the night. Space between the rocks provides passage for natural light and alleviates the need for artificial light [3], [4].

Environmental Engineering

Like The Lorax, enviro students speak for the trees. **The Hive** (also known as The Learning Hub!), located in Jurong, Singapore also speaks for the trees; in 2013, it received Green Mark Platinum, Singapore's highest environmental award. Located on Nanyang Technological University's (NTU) campus, The Hive is composed of 12 eight storey concrete towers that taper outwards as they move upwards, mimicking the form of plant plots composed of wet clay.
With no shortage of green spaces, the facility functions as a vertical urban jungle that heavily relies on passive ventilation. The building utilizes silent convection to remove hot air, thereby alleviating the need for HVAC systems [5], [6], [7].

Department of Systems Design Engineering

Biomedical Engineering

Agora Garden Tower, located in Taipei, Taiwan has twists and turns that exemplify what it means to be a BME. Like countless biomedical systems, the tower is a paragon of biomimicry. It follows a DNA's form, created by shifting every floor plate 4.5º.

Functioning as an ultra-modern residential tower, the tower follows the ecosophy of self-sustaining biomes; this school of thought studies the synergy between nature and humans. Equipped with rainwater collection, photovoltaic roofs, light wells, compost pits, ecologic nests, and carbon emission absorption, Agora Garden Tower is the closest a building can get to functioning as a self-sustaining, living organism [8].

Systems Design Engineering

SYDE is a confluence of interdisciplinary studies, bridging gaps in multiple industries. Confluence is defined as the "the junction of two rivers," as well as "a coming together or gathering at one point" [9]. **Musée des Confluences**, located in Lyon, France, does both. It's situated at the junction of the Rhône and Saône rivers and acts as a platform for the convergence of technological, biological and humanist-based backgrounds to foster innovation. Its steel and glass façades are disrupted by "The Gravity Well", an architectural and structural feature that resembles a whirlpool, plunging itself into the façade, thereby acting as a weight-bearing element that lightens the structure's load [10].

Department of Chemical Engineering

Chemical Engineering

The hot and cold romance between chemical engineering and material sciences must be studied. But what do I know about romance; I'm a UWaterloo engineering student! Let's stick to what I know: buildings!

The Water Cube (also known as The National Swimming Centre), located in Beijing, China is composed of an iconic "bubble" façade made of Ethylene tetrafluoroethylene (ETFE), a fluorine-based synthetic polymer. The façade is assembled using a combination of welded ETFE films, installed onto steel frames that are inserted with inert gas. These cushions allow for natural daylighting and act as good insulators. The concrete slab's high thermal mass allows for natural heating and cooling [11].

Department of Computer & Electrical Engineering

Computer Engineering & Electrical Engineering

Frank Gehry's Stata Center, located in MIT's Cambridge, Massachusetts is what I believe to be an algorithm personified (building-ified?). That isn't too far from the mark with a CATIA software aiding its construction. Its wacky shapes and irregular form lean at unnatural angles and mesh modern and old architectural schools of thought, exemplifying the progression of the tech industry. Its large, almost cartoonish windows create a disorienting effect at night when its very stark lights are left on display [12].

Nanotechnology Engineering

In two years, I have met exactly two nanos. From limited conversations with them, I know that they build some tiny, tiny things. Buildings may not be tiny, tiny things, but they do use nanotechnology in varying forms.

A mind-blowing example of this is Rome's **Jubilee Church** (also known as Dio Padre Misericordioso Church) in that is composed of stark, white concrete that never darkens. The paint used on this concrete was composed of nanostructured titanium dioxide (TiO_2) particles that never become dirty. This is because when UV light strikes the building, the TiO_2 becomes a catalyst for oxidizing grime. So, the paint does not simply repel smog; it eats it [13]. No longer a big eats small world, eh?

Software Engineering

Computer-aided design is a progression that software engineers and computer scientists are responsible for.

So, along with bragging rights, it only makes sense for me to (reluctantly) hand over the iconic **Sydney Opera House**, a modern expressionist building that would never have been built if not for modern-day computational design and structural analysis tools. Located in Sydney, Australia, the opera house is composed of seemingly impossible shell roofs that led to 8 years of design and analysis and 3 years of ceramic form cutting. More than 1 million roof tiles cover its façade [14], [15].

Department of Mechanical and Mechatronics Engineering

Mechanical Engineering

There's nothing that screams mechanical engineering more than the **BMW Welt**, located in Munich, Germany. Composed of a double cone shape, its sleek form and glass façade emulates the shape of an automative vehicle. As such, its form is representative of its task of exhibiting and delivering cars.

Not only does its exterior follow this function, but so does its interior, with air being brought in through a low induction system, calculated to consider the air flow required for the elimination of exhaust gases [16].

Mechatronics Engineering

Robot Building in Bangkok, Thailand is literally a robot in the form of a building. The 20 storey structure narrows on certain floors to provide the body of the robot, with circular windows acting as eyeballs and glass reinforced concrete as bolts on the building's sides. It even has an antenna at its very top! Not only is Robot Building a playful rendition of the common stereotypical robot, but in the 1980s, it also challenged multiple architectural movements including modernism and postmodern classism [17], [18]. Like architecture, isn't the tech industry meant to work with and challenge societal norms?

Department of Management Science and Engineering

Management Engineering

Management engineering is all about optimizing systems; what better building system is there than one that insulates AND produces energy? **Algenhaus** in Hamberg, Germany is the first smart building to be fitted with photobioreactors. Algae is grown INSIDE the façade; they produce biogas that can be used for heating a building or even powering a motor. This concept works by sandwiching the algae in two sheets of glass, suspended by water. The sun allows for the algae to photosynthesize and when enough multiply, they are moved to a chamber that uses them to produce biogas/methane [11].

Maybe you'll give these buildings a visit someday? And if it's after you graduate, make sure your iron ring is in the picture!

References:

[1]https://www.lovetoknow.com/life/lifestyle/importance-golden-gate-bridge

[2]https://www.rostarchitects.com/articles/2023/2/18/the-story-of-sagrada-familia-by-architect-antoni-gaudi

[3]https://mmdusa.net/portfolio/dominus-estate/vineyard

[4]https://www.herzogdemeuron.com/projects/137-dominus-winery/

[5]https://architizer.com/blog/practice/details/heatherwicks-learning-hub/

[6]https://slate.com/human-interest/2015/03/thomas-heatherwicks-learning-hub-at-nanyang-technological-university-in-singapore-is-designed-for-21st-century-learning.html

[7]https://www.archdaily.com/607594/learning-hub-heatherwick-studio

[8]https://www.re-thinkingthefuture.com/architectural-facts/a5492-10-things-about-you-did-not-know-about-agora-garden-taipei/

[9]https://www.merriam-webster.com/dictionary/confluence

[10]https://www.permasteelisagroup.com/project-detail?project=1840

[11] https://www.bimandco.com/bim/5-5-examples-of-smart-buildings/

[12]https://www.worldconstructionnetwork.com/projects/stata/?cf-view

[13]https://cen.acs.org/articles/89/i24/Building-Small.html

[14]https://www.bluentcad.com/blog/famous-architecture-and-cad

[15]https://www.sydneyoperahouse.com/building/interesting-facts-about-sydney-opera-house

[16]https://www.theguardian.com/artanddesign/2008/feb/17/architecture

[17]https://art4d.com/en/2023/04/the-robots-challenge-the-others-postmodern

[18]https://www.timeout.com/bangkok/attractions/robot-building

[19]https://uwaterloo.ca/engineering/future-students/program-overview

SUDOKU
#2024-07

		6	3	4		2		
2		5			1	6	4	
4			6		7		5	
3	6	1		5			8	
9		8	1					
	4				6			
	9	4			8			2
8	2	3	5		4			1
		7	2	3	9			

SUDOKU
#2024-08

3				1		4	7	
2		1	7	4	9	3		8
7	4	5				6	9	1
4	2		3			5	1	
6						9		3
	9		6	2	1			
							6	9
				6	4			5
1					2	7		4

SUDOKU
#2024-09

8					4		7	3
		1	3	9			8	4
	4	5	8	2			9	
		2	6	3	1			
	6			5		3		8
	3			7		6	5	
6	5	8		4	3	9		
4			2	6	5			
		3			9			

Things To Do Instead of Partying On Halloween

Cathy Vi Quan, 3T Life Physics

Are you a party animal looking for a change this Halloween? Are you looking to not pass out on the streets this fall? Well, lucky for you there are many activities you can do this Halloween. The first obvious one would be to go trick-or-treating. Realistically, there is nothing stopping you from going candy collecting. Many adults would rather us young people be out asking for candy than passed out drunk or high outside someone's house. If you think you're too tall to pass as a kid or feel too much shame to go out trick-or-treating, maybe you would rather stay in and watch a bunch of movies, specifically scary movies. You can put together a big list of all your favourite fall movies, and if you don't like horror movies you can watch some cozy Halloween movies as well. You and your friends can bake cookies, heat up some hot chocolate and have a warm night in.

If you'd like to go out and enjoy the cool air but not stay out late, consider heading to a pumpkin patch or going apple picking. With this, you could even make some delicious pies. Imagine all the cute pictures you can take with all the pumpkins, maybe take one home and carve a face into it!

For you horror and thrill-seekers, if movies are not enough, considering going to a haunted house. Screampark at Bingemans is always popular and I hear it's great fun.

If you're into competition, maybe think of entering a costume contest! Get creative and artsy and DIY a next-level Halloween costume, maybe you and your friends will even win the grand prize!

If none of these ideas seem interesting to you and you reallllllllllly want to party, you and your non-alcoholic friends can throw your own costume party with mocktails or non-alcoholic beer. And if you really can't resist the urge to party up a storm, as long as you're safe and responsible (at least a little bit) have fun, and enjoy the good cold air!

Halloween Costume Ideas

Cathy Vi Quan, 3T Life Physics

Were you invited to a costume event this Halloween and you have no idea what to dress up as? Well, look no further. Here I will present a variety of costume ideas for singles, duos, and trios.

Singles

- A Mouse, Duh
- Arthur
- Hello Kitty
- Paddington
- Tony Hawk
  - Just wear a helmet and pads and carry a skateboard
- Goofy Skateboarding
- Tinkerbell
- Kim Possible
- A Minion
- Anne Hathaway Princess Diaries
  - sunglasses and old headset
- A Bratz Doll

Duos

- Cherry Coke,
  - Coke shirt
  - Cherry costume
- Plants Vs Zombies
  - Brown and green tux, red tie, and traffic cone
  - Sunflower

Duos (*Continued*)

- Mario and Luigi
- Red Riding Hood and The Bad Wolf
- Cher and Dionne
- Strawberry shortcake and her blonde friend
- Subway Surfers Boy and Girl
- Pete Davidson and Timothee Chalamet Rappers

Trios

- Neapolitan ice cream
  - Pink, white, and brown clothes
- Alvin and the chipmunks
- Barbie Princess Charm School.
  - School Uniforms
- Cher Dionne and Tai (pre makeover)
- The Fairy Godmothers
  - Pink, Blue, Green
- Packman
  - Get some coloured umbrellas and put eyes on them

To P.Eng. or not to P.Eng.?

Laura Persichini, 4A SYDE

62% of graduates from accredited Canadian post-secondary engineering programs chose not to pursue a Professional Engineering license. What's to blame for this lack of licensure? Is the current licensing process still relevant in Canada given that less than 2 out of 5 graduates go on to obtain their license?

Engineering is considered a licensed profession in Canada, and the process varies slightly by each provincial or territorial regulatory body. In Ontario, the regulatory body that oversees licensing and the engineering profession is Professional Engineers Ontario (PEO). To become licensed, applicants apply to the PEO to receive their Professional Engineering license, otherwise referred to as a P.Eng..

On December 31, 2023, PEO released their official register regarding licensing. In 2023, 2773 new P.Eng licenses were approved for CEAB graduates (Canadian Engineering Accreditation Board), down 14% from 3238 in 2022. The Faculty of Engineering at the University of Waterloo offers 15 undergraduate programs, 14 of which are CEAB accredited.

To apply for a license in Ontario, one must be a graduate of an accredited engineering program, pass the National Professional Practice Exam (which tests knowledge of the engineering profession, professional standards, ethical standards, patents, and trademarks), demonstrate good character, satisfy the experience requirement by completing 48 months of engineering work post-graduation under the supervision a Professional Engineer, and have a valid piece of identification.

In Canada, "only those licensed by a provincial or territorial engineering regulator may practice engineering and refer to themselves as an 'engineer'". By this definition, it is therefore illegal to misuse the title of engineer, and doing so may risk persecution from the regulators in Canada.

With the decline in new P.Eng. licenses being granted, can one conclude that it's simply the long list of requirements to apply that is to blame?

A 2017 survey on final-year engineering graduates published by Engineering Canada highlights that, "the proportion of graduates who will definitely be applying for their P.Eng declined from 50% in 2016 to 44% in 2017." The primary reasons for not applying were the license not being needed/not perceived as beneficial (30%), application for a license in another province (26%), and unsure of working within the field (19%). Cost was cited as an additional reason for not pursing a license, accounting for 3% of the responses.

To get a sense of the thoughts of current professionals and students on the topic, the Iron Warrior attended the Canadian Engineering Graduate Studies Fair on Monday, September 23, 2024 in Waterloo. Many graduating students, particularly from software-based programs such as Software, Computer, and Systems Design Engineering, were of the opinion that the license will not be necessary for their future jobs. Kapi, a Systems Design Engineering student from the class of 2025, mentioned that he "wants to be a UI/UX designer so [he] has not given it much thought as it's not a requirement for the jobs [he] is interested in". This sentiment was similarly echoed by many students at the fair looking to pursue careers in technology. On the contrary, Civil Engineering PhD candidate, Omar, highlighted that the majority of jobs that graduates from Civil Engineering pursue require a P.Eng. license. He explained that the documentation is needed particularly as you advance into more senior roles, since a licensed engineer is always needed to sign off for documentation approval. This thought is directly paraphrased on Engineer's Canada's website, "engineering graduates can practice engineering only if a licensed engineer assumes responsibility for the work. No one can sign off on engineering work without a license".

Chris Nielsen, a Professor and the Associate Chair for Graduate Studies in the Department of Electrical and Computer Engineering at the University of Waterloo, believes that the PEO has the opportunity to lead the charge with respect to ethics and artificial intelligence. Nielsen calls on the PEO to increase their agility as the engineering landscape progresses in Canada. An increase in agility could translate to PEO and Engineers Canada updating their licensing timelines and requirements to entice a larger variety of engineering graduates to pursue a license.

Will there continue to be a trend of CEAB-accredited degree graduates entering the technology sector without an intention to pursue their P.Eng.? How will PEO and regulatory bodies in Canada adapt to the shift towards emerging technologies, such as ChatGPT?

References

2022 National Membership information. Engineers Canada. (n.d.-a). https://engineerscanada.ca/reports/national-membership-report/2022-national-membership-information#-from-engineering-student-to-professional-engineer

Engineers Canada. (2022, March 24). Who can use the title "engineer"? https://engineerscanada.ca/news-and-events/news/who-can-use-the-title-engineer

Engineers Canada. (n.d.). Final year engineering students 2017 survey. Final Year Engineering Students 2017 Survey - Final Results. https://engineerscanada.ca/savetopdf?nid=13632

Frequently asked questions. Engineers Canada. (n.d.-b). https://engineerscanada.ca/frequently-asked-questions

Professional Engineers Ontario. (2023, December 21). 2023 PEO Regulatory Stats.

Program Overview: Engineering. Engineering | University of Waterloo. (2024, September 9). https://uwaterloo.ca/engineering/future-students/program-overview

Here's What You Missed on PWHL Season One

Julia Suljak, 3N CHE

Welcome back, hockey fans! Not only has another NHL season just begun, but the second Professional Women's Hockey League (PWHL) season is also starting in November. If you didn't catch their inaugural season, or are looking for a refresher, here's what you missed and what to expect for the 2024-2025 PWHL season.

The first PWHL season was a shortened one, with the first games in January and the playoffs concluding just five months later. The six teams - without team names or logos at the time - played a 24-game regular season, followed by a four team playoff. From the first goal in PWHL history scored by New York defender Ella Shelton to the awarding of the inaugural Walter Cup, there was plenty of action to get fans excited.

There was a thin gap between most teams during the season, with both Boston and Minnesota clinching playoff spots in the final regular season games. Minnesota barely squeezed into the playoffs, clinching a spot when Ottawa lost their final game. In the best-of-five semi-finals, Boston defeated Montreal in a three-game sweep; all three games required overtime. On the other hand, Minnesota came back to win their series against first-place Toronto, winning three in a row after losing the first two. This set up the Walter Cup final between Boston and Minnesota.

Minnesota had a 2-1 series lead going into Game 4, which remained scoreless until double overtime, when Minnesota appeared to score the series-winner. However, the goal was disallowed for goaltender interference, and Boston forward Alina Müller scored just over a minute later to send the series to Game 5. In that final game, a shutout by Nicole Hensley led Minnesota to a 3-0 victory, winning the first ever Walter Cup.

With all the action, fans continued to take notice. The league was regularly breaking attendance records, with the biggest crowd being 21,105 at the Bell Centre on April 20th to watch Montreal and Toronto. Consistent sold-out games led Toronto to move their home arena for the upcoming season from the Mattamy Athletic Centre, which seats less than 4,000, to the Coca-Cola Coliseum, which seats almost 7,800. Similarly, Montreal will now be permanently playing home games at Place Bell, which seats approximately 10,000. After a first season of home games at arenas in three different states, New York will be sharing the Prudential Centre with the New Jersey Devils.

On September 9th, the PWHL officially announced names and logos for all six teams. Jerseys are expected to be revealed in October or early November, with all teams keeping the same primary colour used last season. The league stated that each name has an explanation pertaining to the city each team is in. All in all, it puts a name to each team when cheering, something that both players and fans alike will be glad for.

To top it all off, 2024-2025 will have a 30-game regular season, six more games than last year. Although that still feels like a small season by hockey standards, the number of games likely won't see a large increase until the league expands to more teams. Overall, more games, bigger venues, and new team identities give a lot for new and returning fans to get excited for, and is likely only a sign of what's to come in the future.

For anyone looking to get into the PWHL this season, here's a brief introduction to each team.

Boston Fleet: Led by captain (and Team USA veteran) Hilary Knight, the runners-up will be looking to come out on the other side of the Walter Cup final this season. A mixed roster in terms of both experience and nationality, team chemistry took a little more time to develop during last season, so they should be able to get off to a stronger start this season. From veterans like Team Canada's Jamie Lee Rattray, to playoff save leader Aerin Frankel, to up-and-coming players like Alina Müller and Loren Gabel, there's plenty to watch for in Boston.

Minnesota Frost: The Frost's offseason hasn't been the smoothest following the departure of GM Natalie Darwitz, a questionable draft pick, and rumours surrounding the head coach's conduct. Regardless of what happened behind the scenes, the roster of the defending champions remains almost entirely intact from last season. The star was easily Grace Zumwinkle, leading the team in the regular season with 19 points. Add in 2023 first overall draft pick and playoff MVP Taylor Heise, and veteran captain Kendall Coyne Schofield, and things on the ice can only go up from here.

Montreal Victoire: We can't talk about Montreal without mentioning Captain Clutch herself, Marie-Philip Poulin. She led the team with 23 points in 21 games, putting her third in the league. If you follow Team Canada, you'll also recognize Defender of the Year Erin Ambrose and goaltender Anne-Renée Desbiens, among others. One thing to watch is that the Victoire drafted longtime Team USA forward Amanda Kessel in the seventh round. However, Kessel has been working for the Pittsburgh Penguins since 2022 and was promoted to Assistant GM of their AHL team in August. While she would be an interesting addition to the lineup it seems unlikely it'll happen, although it still hasn't been officially announced if she will play for Montreal or continue working for the Penguins.

New York Sirens: New York finished at the bottom of the league last season with nine wins, yet only five being in regulation. In fact at one point, they went two months without a regulation win. This didn't mean the team was without familiar talent, though, from forward Alex Carpenter to defender Ella Shelton. This offseason, the Sirens have replaced their head coach and drafted Team Canada star, Sarah Fillier, first overall. The issue is, Fillier has yet to sign a contract with the team, now the only unsigned player from the first two rounds of the draft. It'll be interesting to see how New York navigates this situation as the start of the season gets closer.

Ottawa Charge: The other team to miss the playoffs, Ottawa finished in fifth place last season with 32 points. They were still in a position to clinch a playoff spot in April, but fell short after losing their final three games. While Brianne Jenner led the team with 20 points, it was Daryl Watts who led the team in goals with 10. Although this offseason saw the Charge lose Watts, who signed with Toronto in free agency, they have re-signed five of their players as well as brought in other free agents and new draft picks. With how close they came to the playoffs last year, it wouldn't be surprising to see them there this season.

Toronto Sceptres: If you follow Team Canada, you'll recognize many of these players. Natalie Spooner and Sarah Nurse finished first and second in league scoring, with Spooner scoring 20 goals en route to winning league MVP and Forward of the Year. The Scepters also have the recipients of Goaltender of the Year (Kristen Campbell) and Coach of the Year (Troy Ryan). An 11-game win streak made them the first to clinch a playoff spot, and 13 wins earned them a first place regular season finish. Of course, though, their playoff performance was less than ideal. This offseason, they've added Daryl Watts and drafted Julia Gosling sixth overall, the latter coming off a 51-point NCAA season in 37 games. Hopefully these additions can take some scoring pressure off of Spooner, who is recovering from a knee injury and allow the team to pick up where they left off.

Sources:

Beckwell, C. (2024, July 18). What we've learned about the "culture" of PWHL Minnesota. The Hockey News. https://thehockeynews.com/womens/pwhl/what-weve-learned-about-the-culture-of-pwhl-minnesota

Colley, M. (2024, June 11). PWHL Toronto adds on-brand firepower with first-round draft pick Julia Gosling. Toronto Star. https://www.thestar.com/sports/hockey/pwhl-toronto-adds-on-brand-firepower-with-first-round-draft-pick-julia-gosling/article_6efa71b6-2689-11ef-8f21-c3db0b630036.html

Donkin, K. (2024, May 30). Walter Cup championship caps record-breaking 1st PWHL season - and years of work by players | CBC sports. CBC. https://www.cbc.ca/sports/hockey/pwhl/pwhl-2024-walter-cup-season-review-1.7219963

Ganter, M. (2024, September 25). PWHL can expect Boston fleet to be better out of the Gate | Toronto Sun. Toronto Sun. https://torontosun.com/sports/hockey/pwhl/expect-boston-to-be-better-out-gate

Kennedy, I. (2024a, September 25). Five Things PWHL Fans Should Look Forward To This Season. The Hockey News. https://thehockeynews.com/womens/pwhl/five-things-pwhl-fans-should-look-forward-to-this-season

Kennedy, I. (2024b, September 26). Fillier final holdout among PWHL's top picks. The Hockey News. https://thehockeynews.com/womens/pwhl/fillier-final-holdout-among-pwhls-top-picks

Rutherford, K. (2024, September 9). PWHL teams announce names, logos ahead of 2024-25 season. Sportsnet.ca. https://www.sportsnet.ca/pwhl/article/pwhl-teams-announce-names-logos-ahead-of-2024-25-season/

TSN. (2024, May 27). Boston tops Minnesota in double OT after disallowed goal to send PWHL finals to decisive Game 5. TSN. https://www.tsn.ca/pwhl/boston-tops-minnesota-in-double-ot-after-disallowed-goal-to-send-pwhl-finals-to-decisive-game-5-1.2126597

A Look Into A Few Hack the North 2024 Projects

Athavan Gananathan, 4A Biomedical

On the 2nd weekend of September (Sept. 13-15, 2024), Canada's biggest hackathon took place at the Engineering 7 Building on campus: Hack the North. This event brings more than 1000 hackers from all across the globe to build their passion projects with other students. Several teams created spectacular projects that led to them being finalists at the event's main competition. And I really wanted to highlight a few to show just what these hackers are making during those few days.

ConArt AI

Made By: Ryushen Tan, Shireen Rajora, Nikhil Acharya, Ben Russell

To my fellow engineers,

Have you ever gotten stuck in coming up with designs for a product you were planning to make for one of your courses?

Well, look no further than ConArt AI, a gamified design application that assists artists and/or teams with developing new ideas at a faster pace during the beginning phases of your design project.

The way it works is that teams will come together and each individual member will produce a quick sketch and provide a prompt in a certain amount of time. These sketches will transform into actual images and everyone will vote on their team's design with a Likert-like scale from 1 to 5. The main idea is to allow teams to move from ideas to concepts at a quicker pace, and it also accelerates the creative process of coming up with designs for those with limited time to complete their project.

The frontend of the application was created with React and Tailwind CSS to produce a smooth and functioning interface that ensures collaboration can occur in real time. The backend used Convex in order to control the game logic and handling of states. It also made sure communication existed between the actual team members during the sketching, voting, and scoring portions of the application.

The sketches were turned into full images using a ControlNet model conditioned on human sketches, which adapts Stabile Diffusion for image generation. This model was accessed through Replicate's ControlNet API, which allowed for easy integration and remote processing of the sketches into fully rendered images. Convex regulates all the API calls which allows for faster updates and feedback loops.

During the development of this, the team ran into some issues. The main one being related to routing in production, where they had to troubleshoot differences between the development and live environments. There also seemed to be problems with making sure the app itself looked well visually across various devices and/or screen sizes. Despite these, the team powered through and managed to make it as one of the finalists of Hack the North this year.

Everyone on the team managed to accomplish something. Whether that was creating a UI/UX design in a short period or finally deploying a project for the first time, each member walked away from this with a well-earned victory and upgraded skills for the future.

PulseGrip

Made By: Aadi Umrani, Samir Sharma, Kevin Dang, Noah Levy

Another project that was developed was a bionic hand assistant called PulseGrip. Its main purpose was to assist patients who were dealing with stroke in terms of re-acquiring finger mobility. In particular, detected signals would set off a motor that would accordingly move the patients of the fingers.

There were various portions that made the device a reality: a hardware portion, a games component, and a dashboard. Various types of hardware were used including an Arduino ESP32 microcontroller to process sensor data and an ECG sensor that would process the signal. A game component was implemented with Unity (in C# programming) to create a more engaging experience for the patient. Lastly, the dashboard's main task was to monitor the progression of the patient over time.

While developing this project, the team faced various issues. To begin, they initially used EMG sensors to identify signals (due to its stronger functionality) but they unfortunately fried due to a high amount of current flow. This led the group to eventually use ECG sensors which were difficult to use as replacements which are not as great as EMG sensors in signal detection.

Another hurdle was getting their Arduino ESP32 microcontroller to have communication with the games and dashboard components with the use of a websocket API. This was due to the restrictions made with the WiFi network of the building they were in, which limited the device's ability to be tested fully.

To combat the ECG problem, they had to wire their device in a different arrangement and alter their Arduino code to implement a few signal processing steps, which managed to allow the ECG sensors to have an improved signal detection and there was more consistency in their expected outputs. As for the second issue mentioned, the solution was to get rid of their websockets and use a USB cable for communication purposes between the microcontroller and the games and dashboard.

And the grind to fix those bugs paid off big time.

After three major presentations that prioritized presenting something specific about their project, they were deemed as finalists and ultimately one of the winners of the hackathon.

Aadi Umrani (2T Biomedical) talked about his experience at Hack the North, saying:

"One of the most impressive aspects of the event was seeing high school students with the knowledge and skills to build hardware and games from the ground up. It was both inspiring and humbling to witness them working on advanced projects. I had never tackled such hands-on work until university, and it reminded me how important early exposure to technology and innovation can be."

Overall, these are some of the great projects being made at Hack the North. Interested in learning more about these? Feel free to check out the links below that talk in detail about the development of these products. And who knows? Maybe you can build the next great thing at next year's event.

Only time will tell ...

[1] "ConArt AI," Devpost. Accessed: Oct. 03, 2024. [Online]. Available: https://devpost.com/software/conart-ai

[2] "PulseGrip - 2024 Finalist," Devpost. Accessed: Oct. 03, 2024. [Online]. Available: https://devpost.com/software/pulsegrip

Eng Prof Quotes

“It’s very efficient. Some may say... very demure..”
Christian Euler, BME 285

“Understand what you don’t know.”
Xiaosong Wang, NE 121

“Maybe your talent is in music... or in the trades like carpenter, could be!” *(When discussing midterm results and giving advice to those who failed after trying their hardest)*
Mohamed-Yahia Dabbagh, ECE 140

"Hopefully you didn't play on train tracks as a kid... I did"
Adrian Gerlich, BME 282

"If you say contraction i’ll say the n word... not that n word! NOZZLE! NOZZLE!"
Robert McKillop, ENVE 280

"Thou shalt not argue about marks"
Rajinder Pal, CHE 200

"There are 10 types of people in this world: those that know binary, and those that have friends"
Jeff Gostick, CHE 181

"That makes you sad? You can go home and cry about it during reading week."
Eugene Kim, GEOE 115

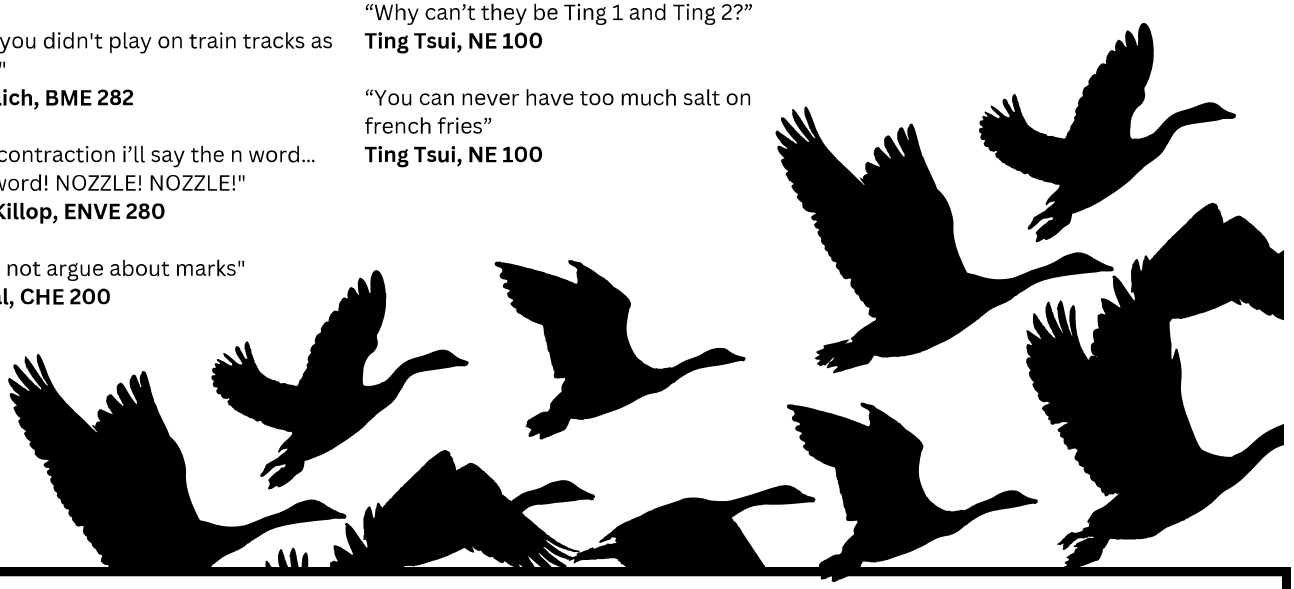
“More vibrations, more chances to go wrong”
Ting Tsui, NE 100

“Why can’t they be Ting 1 and Ting 2?”
Ting Tsui, NE 100

“You can never have too much salt on french fries”
Ting Tsui, NE 100

"Like I said, Olympic cyclists are just thighs with lungs.”
John McPhee, BME 182

Submit your prof’s quotes here!



THE IRON INQUISITION

What Album Do You Have On Repeat?

“Igor”

KAPI, 4A SYSTEMS DESIGN

“Brat”

GEOFFREY, 2A SOFTWARE

“Dear Wormwood”

SOFEE, 1A MECHANICAL

“Prove”

JEREMY, 1A CHEMICAL

“Forward”

ATHAVAN, 4A BIOMEDICAL

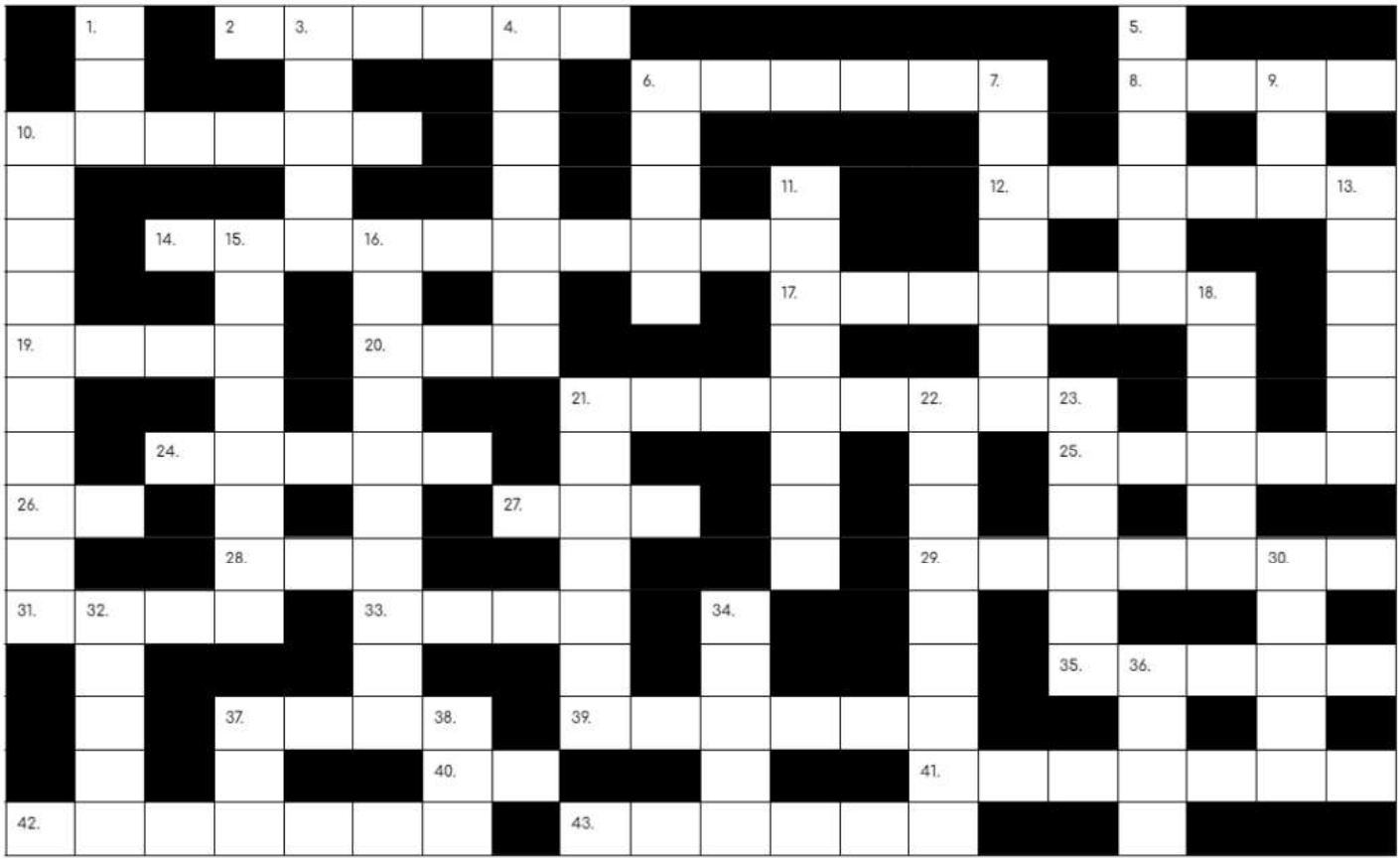
“Travel”

WANEE, 1A MATH

Check out our instagram for even more Iron Inquisitions @theironwarrior_uw

F24I2 Crossword

Jason Toft, Curtis Yeung & Chloé Guillemette



Across

2. Chuck E.
6. The most accessible modifier in java.
8. Ctrl z (or Cmd z for mac users)
10. Comes with goosebumps after a scary movie.
12. Sudbury's favourite metal
14. The best engineering program that was launched in 2014.
17. "My dog ate my homework", for one
19. _____ circle. (trig.)
20. A quarter of a litre
21. A computer's set of instructions
24. Homonym for a piano-like instrument
25. Fun part of your body to decorate
26. New John Krasinski movie
27. Cry from an impatient toddler
28. ____ tuna, poke bowl order
29. Acrophobia fear
31. A not necessarily uniformly tapered ellipse.
33. ____ me maybe
35. Function
37. Unadorned
39. Exquisite
40. ⅔ of 'one', maybe
41. The most populated province in Canada
42. _____cock
43. What moves planes

Down

1. Volcano spewage
3. Song title used by both Adele and Lionel Richie
4. A form of routine
5. Homophone of a mollusc
6. "_____ me!", expression of disbelief
7. Invade
9. Chance cube
10. Ordering this after 11 a.m. is an Italian faux pas
11. The vibes at a nuclear power conference
13. Result of 4-down
15. _____ bleeding
16. Stiff, forced movements
18. Squelch
21. Many a rich brat
22. Blueprint creator
23. Video games graphics generator
30. Wolf _____, sound effect created on a cello
32. Support
34. _____ Letter
36. _____ and vigour
37. The only flighted mammal
38. A female deer.

Past Sudoku/Crossword Solutions -->

Want to join our team?

Come to our meetings every Tuesday at 6pm

LOCATION:

Douglas Wright Engineering (DWE)
Room 3520 & Online

Roles Available:

Writers
Artists
Editors
Photographers
Social Media Team

THE IRON WARRIOR

@theironwarrior_uw

theironwarrior@gmail.com