



UWaft- Team To Watch

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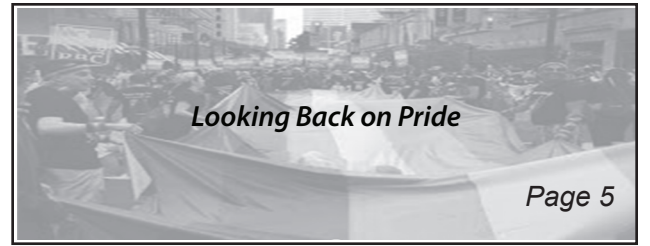
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Swedish Defense Company Saab Joins the Competition to Replace Aging Fighter Fleet



Source- Flight Global

Photo from debut flight test of the Gripen E.

STONE HE 2B MECHANICAL

At the end of last month, Swedish aerospace defense company Saab has joined the competition to find a replacement for the aging CF-18 fleet of the Royal Canadian Air Force.

Saab's new fighter jet the Gripen E will compete in a \$19 billion-dollar competition for 88 new jets in the Canadian Air Force. In addition, Saab hopes to have the jet assembled in Canada by Canadian firms, as they did with their successful Brazilian contract. Saab is one of 2 European companies, competing to win the contract, with the other being Airbus with their Eurofighter Typhoon.

Near the end of 2017, the fighter jet competition was launched in hopes of

finding a replacement for the aging fleet. Currently, the fighter jets currently in the competition are the F-35, Eurofighter Typhoon, Super Hornet, and the newest competitor, the Gripen E.

The new Gripen E was based on an older generation JAS 39, which was designed to counter invasions from other countries during the Cold War. However, the JAS 39 was introduced in 1996, 5 years after the end of the Cold War.

Compared to the other jets in the competition, the Gripen E is robust and rugged. It can take-off and land in snow-covered runways at 800 meters, and takes 10 minutes, factoring in the conscripts, to rearm and refuel before going back to fighting. The robust design of the Gripen E could potentially give it an edge compared to the other jets in the competition. According to Per Alriksson of Saab Aeronautics, the Gripen "has Arctic DNA built into it...

(and) it is pretty good in operating in dispersed locations (like Canada) [1]."

The Canadian government has been desperate to find a replacement for their aging CF-18 fighter fleet. The CF-18 Hornet was introduced in the Canadian military in 1983 and considerations for replacing the jet began since 2010. Canada has been a contributor to the production of the F-35 Lightning II jets and had considered purchasing these jets earlier this decade. However, due to the increasing costs of the F-35, the replacement jets have been reconsidered.

As the CF-18 Hornet fleet ages, a replacement must be considered soon. As a temporary solution, Canada ordered 18 Super Hornets from Australia in 2017 as a temporary replacement due to their similarities to the F-18 fleet. The first Super Hornets arrived in February 2019 in CFB Cold Lake and will be delivered until 2021. However, the currently existing CF-18 Hornets will

have to serve another decade before the 88 new generation fighter jets could be in full operation.

American and European firms vie with each other to secure the contract for the 88 new replacement jets. Saab recently joined and has offered Canada on why its jets stands above the rest of the competition. Saab, as well as the other firms, hopes to win the competition.

[1] https://nationalpost.com/news/in-pursuit-of-19b-contract-swedens-saab-offers-to-build-fleet-of-fighter-jets-in-canada?fbclid=IwAR1XmYTCIGDjFgu6_UtbFyPqkvj7rNORfqzbn_aGbM3iXaNrsxbRDpDcvYU#comments-area

WatLock – UWaterloo ventures towards Mars Colonization!

JASON TIOU-FAT
WATLOCK CO-LEAD

The idea of building a self-sustaining colonization on Mars and becoming an interplanetary species has seen decades of discussions. It is an aspiring mission that companies such as Mars One, NASA and SpaceX are currently working on... and so are we.

WatLock is a Student Design Team with the objective to design and build a sustainable airlock for human habitation on Mars. WatLock was founded in 2018, making it one of the youngest student design teams at the University. Our close-packed, fast-growing team breathes in a start-up environment. It is one of the few design teams at the University of Waterloo that builds its foundation around space engineering. To be able to accomplish our ambitious goals, we have

to think as space engineers. We are a team that shares a burning passion; space exploration!

However, settling on the red planet inherently comes with numerous technical challenges; the planet has a lack of pressure, no breathable atmosphere, extremely cold temperatures, and hazardous perchlorates in the soil. So how does WatLock plan to overcome these overwhelming complications? Quite simply, it is by bringing young innovators and future leaders from the University of Waterloo together and pushing their boundaries.

“WatLock’s primary goal is to build a safe and inviting atmosphere that encourages members to share their ideas and learn new skills. Every member should take pride as we design and build technology for the future of space exploration.”

The competition | Phase 1

There is only one mission: Design and build an airlock that will function in a

human colony on Mars. Our airlock will be crucial to providing a safe entryway into any sort of Martian habitat that can sustain an atmosphere for people to breathe.

On the weekend of May 18th, 2019, various universities came together to present their airlock design at UBC’s Mars Colony Project Airlock Challenge. WatLock proudly won the best presentation award after months of hard work.

The competition | Phase 2

Now that the design is done, it’s time to build a functional prototype! This spring 2019, we’ll be building a depressurization system and hatches for the airlock, designing a user interface for astronauts to use, and building a central computer. These technical challenges require the integration of different expertise. Thus, each project is being tackled by a multidisciplinary team of students consisting of engineering, maths, arts, and sciences students. The

mechanical team is tasked for the design of all components and subsystems of the airlock. Members on the team do a lot of drawings by hand and afterwards proceed to completing designs with simulations, modelling, and calculations using SolidWorks. The electrical team works with control systems such as life support and pressure control consisting of the computerized system of our airlock and the autonomy of nearly all systems. Members of the team spend work mostly with microcontrollers, circuit design software and communication protocols. The business and communications team handles the team’s website, finances, marketing and sponsorships.

When completed, further projects will be initiated as we approach the day of the competition which is on May 2020. These projects include but are not limited to building an air filter, water purification system, hydrolysis fuel cell, power systems and the overall structure of the airlock.



UWaft- Team to Watch

ASAD BHATTI
UWAFT PROJECT MANAGER

Pushing the frontier of the transition to sustainable fuels has been the cornerstone of UWAFT. The student team, situated in Engineering 5, consists of over 50 active undergraduate students, engaging in research and development on the cutting edge of automotive legwork. Establishing its roots in 1996, the rich history of the University of Waterloo Alternative Fuels Team (UWAFT) is noteworthy, with over a 1000 undergraduate students having been involved with the team in some shape or

form, from up to 14 different technical and non-technical disciplines. The team has participated in 7 Advanced Vehicle Technology Competition series, funded by U.S. Department of Energy, General Motors and the Argonne National Laboratory. The student team has delved into development of technologies around ethanol in its early years to hydrogen fuel cells, and now to fully capable hybrid vehicles.

“Producing the next generation of engineers ... who will be prepared to address the nation’s future energy and transportation challenges.” is not only the mission statement for the current 4 year long competition EcoCar Mobility Challenge (EMC) that UWAFT is taking part in; it defines UWAFT’s current focus in tak-

ing a GM donated 2019 Chevy Blazer RS and converting it to a fully capable Hybrid Electric Vehicle capable of SAE Level 2 Autonomous Driving.

UWAFT takes pride in its leadership and has produced success stories from its former alumni in the form of spin-off companies such as GeoTab (formerly FleetCarma formerly CrossChasm) and IntelliCultur. Its presence is being recognized as a power house in producing student leaders who have worked in companies like Tesla, General Motors, Toyota, Uber, GeoTab, Lyft and the list goes on!

On that triumphant note, UWAFT was in Atlanta Georgia participating in Year 1 EMC competition earlier this month, competing against 11 other universities-

10 U.S. based universities and McMaster University in Hamilton, Ontario. All of UWAFT’s hard work paid off, winning 7 awards including “Team to Watch”, hauling in \$8000 in prize money and placing 5th overall!

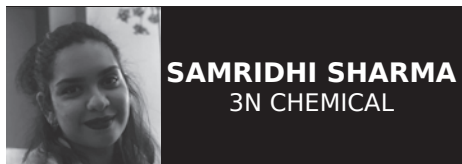
The team is one of a kind team in terms of history and industry relations in North America, where undergraduates operate at the vanguard of automotive prowess.

Check us out at the SDC in E5 - we’re always looking to expand our team. All technical and non-technical disciplines are welcomed to join!



Pride Month: Where are we Now?

Did She Just Say the F- Word?



SAMRIDHI SHARMA
3N CHEMICAL

Its June! And you know what that means – it's Pride month! Most people identify this month as the most colourful month of the year full of rainbows and parades. But that is not all this month is. It is not a surprise that the origin of June as Pride has a very discriminatory history.

June of 2019 marks the 50th anniversary of the beginning of the Stonewall riots. In 1969 homosexuality was illegal in New York City. People of the LGBTQ+ community would find refuge in gay bars such as The Stonewall Inn. However, these bars were prone to police harassment. On Saturday, June 28, 1969, nine policemen arrested the employees of the Stonewall Inn for selling alcohol without a license (a common excuse), roughed up the patrons, and arrested anyone not wearing at least three items

of gender identifying clothing. But this time, the people outside the bar stood up for themselves and started jeering at the police. They threw debris and bottles at them, which led to the policemen calling for reinforcements. The riots outside the Stonewall Inn lasted the next five days.

While we have come a long way from 1969, there is still a longer way to go. The initialism LGBTTTQQAAP, is one of many used to describe the people of the LGBTQ+ community. It stands for lesbian, gay, bisexual,

transgender, queer, questioning, intersex, asexual, ally, pansexual. This initialism, and more like this one, are often criticized for being too confusing and almost always leaving some people out. There are still way too many countries in the world where homosexuality is criminalized. People of this community are more prone to harassment. It is not uncommon for straight people to want to have a straight pride month in mockery of the actual Pride month. In fact, Boston seems to be getting its first Straight Pride Parade this summer (eye-roll).

But because June is the month of celebration of the history of the LGBTQ+ community, here are a few strides that the world has made in the right direction. In May 2019, Taiwan became the first country in Asia to legalize same-sex marriage. Bhutan decriminalized homosexuality this June as well, and so did countries like India in the past few months.

But, like I said, we still have a long way to go and it all begins on an individual level. It is great to educate yourself about the happenings of the world. If you would like to show even more support and participate this Pride, the Toronto Pride Parade is happening on Sunday, June 23, 2019.



Source: Toronto Pride Website

Celebrations at the Toronto Pride Parade

Canadian Indifference and State Sanctioned Violence

HASSAN ALI
2B NANOTECHNOLOGY

When Canadians examine the world in which they live, it's easy to see state sanctioned violence, human rights abuses, and injustice in other countries. From the wars and instability ravaging the Middle East, the poverty and dictatorships across Africa, and the authoritarian leaders elsewhere, it's easy to believe that Canada is a bastion of harmony and prosperity. While it is true that Canada, from a global perspective,

is relatively liberal, prosperous, and democratic, one should always be more critical of situations close to home, which one exerts greater influence over, rather than the crimes of official enemies. As George Orwell wrote, "to see what is directly in front of one's nose requires a constant effort," and it seems most Canadians have refused to make that effort regarding the suffering and persecution of Indigenous women, girls, and queer people. The other possibility is that Canadians are simply indifferent to the treatment of Indigenous people. Perhaps the truth is somewhere in the middle. But the reality is simple. Canada is a settler-colonial society.

It is founded on the genocide and occupation of the Indigenous people and their land. The recent report released by the National Inquiry into Missing and Murdered Indigenous Women and Girls (MMIWG) clearly illustrates that the principle, "the only good Indian is a dead Indian" is thriving in twenty-first century Canada.

The anger over the use of the term genocide to refer to the brutalization of the Indigenous people of Canada demonstrates the continued dehumanisation of Indigenous people by the state, including by Senator Linda Frum and journalist Jon Kay. The use of the term genocide to refer to the Canadian

treatment of Indigenous people does not in any way diminish the horrors of the Holocaust or other historical genocides. In fact, arguing this point disguises the reality that the Holocaust was partly inspired by the treatment of Indigenous people in Canada. If the decimation of the Indigenous population due to centuries of colonial state policy does not constitute genocide, then what is genocide? Between the sixteenth and nineteenth centuries, the Indigenous population of Canada was decimated through disease and warfare. The population in recent years has begun to rise again at a fast rate. However this does not discount the charge of genocide, it merely reflects the fact that people in impoverished situations have higher birth rates. The European colonization of the Americas was the worst genocide in human history and it has been transformed many times but the colonial project of eliminating the "inconvenient Indian" from history has not disappeared.

Anyone familiar with the official definition of genocide is also aware that the term entails more than simply killing members of a group, which the state of Canada has certainly done to Indigenous people. It also discusses other acts such as attempts to prevent births in population, causing serious harm to mental health, or forcibly

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THOMAS DEBENSKY
VP ACADEMIC

Hey readers! For the second executive article of the term, we're going to talk to you about the different awards that you can apply for and win for yourself or fantastic faculty and staff!

Win \$1000! The Engineering Society Leadership Excellence Award recognizes exceptional displays of leadership within the University, Faculty of Engineering or community-at-large. Applications are open to all full-time engineering undergraduates in all programs.

One award is presented to a full-time upper year undergraduate engineering student. Candidates must have attained an average of 60% in their most recent academic term.

To apply, submit (June 15, 2019) your resume, in addition to a detailed description of all leadership roles undertaken and a letter explaining how your leadership roles have had an impact or importance to the University of Waterloo, the Faculty of Engineering, or the Waterloo community (1-5 pages). For full details see bit.ly/AwardsS19. Applications can be submitted in person at the EngSoc Office (CPH 1327), or via e-mail to awards@engsoc.uwaterloo.ca.

Recognize a prof for their good teaching! Do you want to go above and beyond to congratulate your prof because they've gone above and beyond to ensure your academic success? Nominate them for the Engineering Society Teaching Excellence Award! The award rewards professors, lecturers, or laboratory instructors who have employed non-conventional teaching techniques, allowed opportunities for experiential learning, and/or showed a commitment and dedication towards ensuring academic success for students. Nominations are due Wednesday July 10th and are available on

the EngSoc website at <https://www.engsoc.uwaterloo.ca/about-us/awards/faculty-awards/>. Nominate people today, and email teachingaward@engsoc.uwaterloo.ca if you have any questions.

Want to help get money for student groups? EngSoc Sponsorship Applications are open for Spring 2019! Each term, the Engineering Society allocates a certain percentage of the budget towards the Sponsorship Fund. This fund goes towards supporting University of Waterloo student teams and groups. All University of Waterloo student teams and groups are eligible to receive sponsorship. Any student team or group who is interested in applying to the fund should fill out the sponsorship form on <https://www.engsoc.uwaterloo.ca/finance/sponsorship/>. Applications are due July 3rd at 11:59pm! A representative from your group must be available on July 6th sometime between 10:00 am and 4:00 pm in POETS (CPH 1337) to give a presentation about your proposal to the sponsorship committee. This is a required part of the application process. If you are late to your presentation time without informing the VP Finance, you may not be allowed to present and will therefore forfeit your application. Things that EngSoc generally does not fund include food, swag/merchandise, travel expenses, accommodation, and co-op students. Any questions can be addressed to Michelle Teplitski at vpfinance.a@engsoc.uwaterloo.ca.

Reward someone for caring about student mental health! The Engineering Society "Friend of the Society" Award is now accepting nominations! If you see a faculty or staff member advocating on behalf of students to eliminate elements that have negative effects on student mental health, showing a long-term commitment and vested interest to the betterment of student mental health, and/or taking action to directly improve the mental health of students, then this is the award for them. Nominations are due Wednesday July 10th and are available on the EngSoc website at

<https://www.engsoc.uwaterloo.ca/about-us/awards/faculty-awards/>. Nominate people today, and email friendaward@engsoc.uwaterloo.ca if you have any questions.

Note the deadlines and hopefully this

was helpful knowledge for rewarding yourself, your profs, and other awesome people in Engineering.



Engineering Society Leadership Excellence Award

Apply for a \$1000 award for Exceptional Leadership!

An award, valued at \$1000, will be presented to an on-term Engineering undergraduate student who has displayed exceptional leadership within the University, Faculty of Engineering, or community at large.

Submit application in person at the Office (CPH 1327), or via email to awards@engsoc.uwaterloo.ca.

For more information on the application, visit: <http://bit.ly/AwardsS19>



Upcoming Events Calendar							
Wednesday June 12 De-stress Origami <small>10:30 AM - 2:30 PM POETS</small> RAISE Panel- Bias in Artificial Intelligence <small>5-7 PM E5 3101</small>	Thursday June 13 Maker Space- PCB Workshop <small>5-7 PM Ideas Clinic</small> NBA Finals <small>9- 11 PM POETS</small>	Friday June 14	Saturday June 15	Sunday June 16 NBA Finals <small>9- 11 PM POETS</small>	Monday June 17 Engiqueers <small>5- 9 PM POETS</small>	Tuesday June 18	Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca/event-calendar/
Wednesday June 19	Thursday June 20 Maker Space <small>5-7 PM Ideas Clinic</small>	Friday June 21	Saturday June 22	Sunday June 23	Monday June 24 Bitch 'n Stitch <small>6-9 PM POETS</small> Community Meals <small>7-8:30 PM E7 Atrium</small>	Tuesday June 25	

