

SUCCESS STORY



<http://www.bioalberta.com/>



<https://www.mach32.net/>

Founded in 2019, MACH32 is an Edmonton-based start-up focused on creating innovative medical devices. Traumatic injury is responsible for 9% of deaths annually worldwide; 40% of these deaths are due to uncontrolled bleeding. The most important action we can take to save lives following traumatic injury is to control bleeding. A generic anti-fibrinolytic agent, Tranexamic Acid (TXA), is clinically proven to reduce death due to bleeding following injury, but it is vastly underutilized in the pre-hospital environment because it requires an IV to deliver. Establishing IV access requires both time and skill from medical professionals. MACH32 is solving the delivery problem for TXA with IMSAFE. IMSAFE is a novel, high volume autoinjector that delivers TXA intramuscularly. It is faster and easier than establishing an IV with no medical training required. IMSAFE is an “EpiPen®” for traumatic bleeding.

It is because of Work Integrated Learning (WIL) programs that MACH32 can hire outstanding interns that benefit the overall growth of our organization. As a start-up company, our resources are limited, and our team is very small. WIL allows MACH32 to expand our team with qualified interns who provide new creative ways of thinking and work collaboratively with our product development team.



Arno Claassens holding the IMSAFE autoinjector

Arno Claassens, an Engineering Co-op student at the University of Alberta, was an intern with MACH32 in Fall 2023. He has always been fascinated with all things mechanical, especially with biomedical engineering. Arno grew up having two doctors for parents where he developed an understanding for the importance of healthcare, as well as the importance of engineering advances in the field. He is aware of how the quality of devices can significantly influence the speed and quality of healthcare, as well as its potential impact on the mental and physical well-being of physicians and other healthcare professionals. Arno says, "One of the reasons I went into engineering was that I wanted to be in design creating new tools to push us forward. I wanted to 'stand on the shoulders of giants' in the advancement of mankind."

Arno played a huge role during his time at MACH32 by helping with the designs, doing analysis, standard reviews, and many other important tasks. He quickly became a strong member of our small team helping in many different areas. He is very detail oriented, has strong problem-solving skills, and fully applies himself to any work task that is assigned to him.

Arno has been busy working on the IMSAFE autoinjector, including the design, analysis and building. He also helped with the ACT (Aerosol Containment Tent) work including designing experiments and data analysis, as well as other engineering related tasks such as standard review, and design requirement synthesis.

Arno finds excitement in helping others. One of his most rewarding ways of helping others was having the opportunity to make devices; specifically working on a device that has the capability to prevent a massive problem and save lives. He also finds it inspiring to hear interviews on the news, as well as hear doctors and medical students talking about it; and he has first-hand experiences of the benefits of TXA. "Engineering is inspiring, it is needed in basically every field. I am thinking of advancing aerodynamic efficiency (or working on neural prosthetics); but no matter where I end up, I am thankful for the many different fields I interned at for broadening my horizons and allowing better insight into my future. I am thankful for the opportunities that MACH32 and WIL have given me to explore my passion for biomedical engineering and allow me to pursue further endeavors."

WIL VOUCHER

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