

Findings through JUACEP

Name: Hannah Merrigan

Affiliation at Nagoya University: Department of Electrical Engineering

Participated program: Medium Course 2025



Research theme: Neural Networks for Modelling and Optimisation of Electrical Systems

Advisor at the visiting university: Assoc. Prof. Antoine Lesage-Landry
Affiliation at visiting university (Dept & Univ): Department of Electrical Engineering, Polytechnique Montreal

This winter, I had the incredible opportunity to take part in the JUACEP Research Internship at Polytechnique Montréal. It was a deeply rewarding experience that combined research, cultural exchange, and personal growth in one of North America's most dynamic and diverse cities.

Academically, the experience exceeded my expectations. I joined a warm and supportive research lab where I worked closely with my supervisor and lab mates on a project related to wireless charging systems. We held regular meetings and exchanged ideas freely, which helped me stay productive and engaged throughout the internship. I even had the chance to present my research at the GERAD Student Day, where I was honoured to receive an award for best poster presentation, an exciting highlight of my time at Polytechnique. The campus itself, while smaller than Nagoya University, was modern, convenient, and lively. I also had the chance to work part-time from MILA, Montreal's world-renowned AI research institute in the vibrant Little Italy district.

Outside the lab, I immersed myself in the cultural richness and winter charm of Montréal. Despite the -20°C weather, the city was buzzing with life and outdoor activities. I attended ice hockey games where the energy in the stadium was electric. The fans cheering, music blasting, and the fast-paced action on the ice made it an unforgettable experience. I also joined fellow interns for snowy hikes, ice skating, and trying out local treats like maple taffy on ice and the famous Montréal bagels.

One of the most memorable adventures was a safari trip to Omega Parc, where we saw native Canadian wildlife, including moose, deer, bison, and wild boars. We were able to feed them carrots and even pet a few! Another cultural highlight was visiting Quebec City during the Carnaval de Québec. The entire city came alive with ice sculptures, canoe races, dance parties, and an enormous ice slide. Set against the backdrop of beautiful historic architecture, it was like stepping into a winter fairytale.

The people I met during the program were just as memorable. Canadians were friendly and curious, and I found it easy to make new friends. The other interns quickly formed a supportive network, organising regular outings and meals together. My lab mates were keen to learn about my home country, many were fascinated by Australian culture, especially the AFL!

This program has had a lasting impact on my future. Thanks to a connection made by a previous JUACEP intern, I was introduced to my research collaborator at PolyMTL, who has since become a key contributor to my master's project. The chance to work closely with international researchers has broadened my academic perspective and shaped my aspirations beyond graduation.

I wholeheartedly recommend the JUACEP program to any student looking to challenge themselves, explore new cultures, and grow as both a researcher and global citizen. It's more than an internship, it's an unforgettable experience.

Broadening Horizons: Internship at Polytechnique Montréal

Name: Jayant Sheshnarayan Unde

Affiliation at Nagoya University: Dept. of Micro-Nano Mechanical Science and Engineering

Participated program: 2024 Summer Polytechnique Montréal Research Internship

Research theme: Tunable Stiffness Orthopedic Brace for Adolescent Idiopathic Scoliosis

Advisor at the visiting university: Prof. Carl-Eric Aubin and Prof. David Melancon

Affiliation at visiting university:

Department of Mechanical Engineering, Polytechnique Montréal



Participating in the JUACEP program at Polytechnique Montréal for a four-month internship was an incredible experience that profoundly impacted my academic, personal, and cultural growth. As a PhD student, I was initially hesitant to take part due to the demands of my research and concerns about managing my workload. However, looking back, I am confident that this decision was one of the most rewarding steps in my academic journey.

The internship offered me the chance to work on a research topic distinct from my primary focus, which was both challenging and enriching. Balancing my ongoing research with new responsibilities at Polytechnique required careful time management, but it pushed me to grow academically. I gained exposure to new methodologies and approaches that broadened my technical skills and deepened my understanding of collaborative research. The lab environment was particularly inspiring—my colleagues were welcoming and supportive, creating a space where I felt encouraged to contribute and learn. Daily lunch breaks often turned into bonding activities, such as playing games designed by students or enjoying outdoor volleyball during sunny afternoons. Even our supervisors occasionally joined in, fostering a relaxed and inclusive atmosphere. The lab's social committee also organized events like hiking trips, which allowed me to connect with peers while exploring Canada's natural beauty.

Living in Montréal was equally transformative. This was my first time traveling outside Asia, and I was eager to experience Western work culture and lifestyle. Montréal, as one of Canada's largest cities, is a vibrant multicultural hub where people from diverse backgrounds coexist harmoniously. The city's bilingual nature—English and French—added a unique cultural dimension to my stay. Québec's European-inspired architecture and rich history were fascinating to explore, offering a blend of old-world charm and modern urban life.

One of the highlights of my time in Canada was exploring its stunning landscapes. During the fall season, I had the opportunity to witness the famous autumn foliage, which was truly breathtaking. Hiking trips with lab members to places like Mont-Tremblant provided unforgettable views from mountain peaks. I also visited iconic destinations such as Québec City and Baie-Saint-Paul, known for their picturesque beauty and serene surroundings. A trip to Niagara Falls was another memorable experience—the sheer scale and power of the falls left me in awe.

Beyond academics and travel, this program helped me develop essential soft skills such as adaptability, intercultural communication, and teamwork. It also allowed me to build meaningful connections with researchers and peers from around the world. These relationships have not only enriched my personal life but will also serve as valuable professional networks in the future.

Overall, the JUACEP program was an extraordinary opportunity that combined academic growth with cultural immersion. It taught me to embrace challenges, adapt to new environments, and appreciate diverse perspectives. This experience has significantly influenced my career aspirations by encouraging me to pursue international collaborations and broaden my research horizons. I highly recommend this program to any student seeking personal and professional growth—it is truly a life-changing experience!

Polytechnique Montréal Through JUACEP research internship

Name: Ryosuke Ui

Affiliation at Nagoya University:

Participated program: Medium course 2024



Research theme: Drone Battery Assessment During Flight and

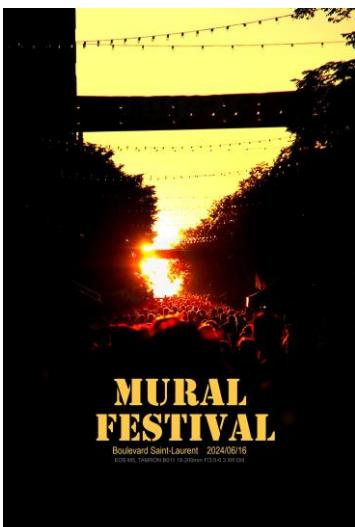
Development of the Blimp Structure Design

Advisor at the visiting university: Prof. Giovanni Beltrame

Affiliation at visiting university (Dept & Univ): Department of Computer and Software Engineering, Polytechnique de Montréal



Regarding my research experience, while I'm doing research on space electromagnetism at Nagoya University, I joined a robotics control lab during this research internship. Exposure to a different field has broadened my interests and deepened my perspective, which I believe will enable me to approach my research at Nagoya University from more diverse perspectives.



As for the university environment, I felt that few students in Japanese universities choose non-usual paths. At Nagoya University, especially in the engineering department, pursuing a master's degree followed by a company job is very common. In contrast, Polytechnique de Montréal (PolyMTL) has a high proportion of international students, and many are PhD students, with some returning to academia after gaining work experience. This creates a more diverse student body. Although pursuing a PhD is certainly an option in Japan, it is often harder to envision that path because few around me choose it. This diversity in career choices is one of the strengths of PolyMTL. I also felt that Japanese university professors are often overburdened. In Japan, professors are busy with lectures, meetings, and administrative tasks, whereas professors at the host PolyMTL appeared more focused on research. This suggests that, not only as a place to learn but also to work, overseas universities might offer a more favorable work environment.

Throughout my stay, I recognized that we should avoid judging people by categories, such as nationality. Watching Japanese news, I feel there is increasing tension toward foreigners, with growing reports about troublesome tourists or cases of illegal residency. In contrast, Canada is a multicultural country, and many of my companions during this stay were also international students, providing an opportunity to interact with people from various backgrounds. Fortunately, everyone I interacted with was kind, and communication was always enjoyable. Although I had been aware of the importance of not categorizing people, sometimes the media in Japan tends to present issues with a narrative of 'he is problematic because he is from,' which is very dangerous stereotype. Through this experience, I was reminded of the value of seeing people as individuals rather than categorizing them by nationality.

Finally, I would like to thank everyone who supported this incredible stay.

