

## Inter-Centre Research Exchange Report

For a research exchange at the School of Information Technology, Carleton University,  
Ottawa, Ontario, Canada

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Dates of Exchange: June–August, 2024

Exchange Supervisors: Marcelo M. Wanderley (CIRMMT, McGill), Audrey Girouard  
(Carleton University)

During the summer of 2024, I had the opportunity to travel to Ottawa as a visiting researcher at Carleton University’s Creative Interactions Lab under the supervision of Prof. Audrey Girouard. The primary purpose of this visit was to deepen my understanding of wearable haptics and qualitative research methodology in human-computer interaction (HCI) as part of my ongoing PhD project, which focuses on designing assistive devices for singing learners. The Creative Interactions Lab is known for its focus on wearables and accessibility research, exploring diverse interaction styles, and adopting co-design processes — areas that align closely with my interests.

Throughout the summer, I engaged in daily discussions with lab members about their wearable projects, primarily focusing on design and paper writing. I was primarily involved in two projects and participated actively in group meetings.

The first project was TapTap, which aims to design wearable devices to assist blind and low-vision musicians by delivering real-time vibration signals. Led by PhD candidate Leon Lu, the project involved weekly discussions on the thematic analysis of a 10-week longitudinal study that explored the application of the TapTap device in music lessons with 12 music teachers and students. We collaboratively developed a codebook covering various topics, including design, user experience, device functionality, the impact on learning, interaction, and context of use. Ultimately, we analyzed the transcription of participant interviews and categorized them into 724 quotes, each coded according to its thematic content. I contributed to writing a full paper, which was submitted to the 2025 ACM Conference on Human Factors in Computing Systems as a third author. This was my first experience working on a large-scale thematic analysis study and submitting to the top conference in the HCI field. This also provided me with valuable firsthand experience for my own project.

In addition to this, I made significant progress on my own singing project. Having completed my comprehensive exam in the semester of 2023 winter, I was eager to gain a deeper understanding of the design directions for assistive tools for singing learners, who are the target users of my research. Through daily discussions with postdoctoral researchers, PhD students, and master’s students — all of whom are involved in projects related to haptics — I was able to draw valuable insights from their systematic design approaches, particularly those focusing on accessibility and designing for individuals with disabilities. This greatly inspired me to think

more empathetically about the needs of my users. With their guidance, I successfully recruited singing teachers for a focus group and, after further discussions on interview and focus group strategies with Leon and Prof. Audrey Girouard. I conducted the focus group and completed a thematic analysis of the teachers' feedback, combining it with the previously gathered feedback from the students. This marks a significant milestone in my PhD journey, as it provides me with a better understanding of my target users and will help shape the future direction of my research. I plan to summarize this work in a paper to be completed in the fall of 2024.

I am deeply grateful to CIRMMT for providing me with this valuable opportunity to explore methodologies in HCI. I extend my thanks to my supervisor, Prof. Marcelo M. Wanderley, for encouraging me to seek out new research ideas, and to Prof. Audrey Girouard and Leon Lu for their warm, sincere support and idea-sharing throughout my visit. I would also like to express my appreciation to the brilliant researchers and designers I worked with, including Shanel Wu, Charelle Jazmin Constantino, and Rodolfo Cossovich. This journey has not only allowed me to find like-minded collaborators and complete a significant portion of two research papers but has also fostered interdisciplinary exchanges, including inviting them to CIRMMT for a possible workshop on e-tactile synthesizer.