

## **CIRMMT Inter-Centre Research Exchange Summary Report**

My Inter-Centre Research Exchange was conducted in collaboration with the aiMuVi lab at Singapore University of Technology and Design (SUTD) between August and October 2019. There I worked with Prof. Dorien Herremans (internal) and Dr. Steffen Herff (external) on my project looking at how acoustic dimensions are utilized as performers express various affective intents and how these might inform listeners in their perception of these intents.

Musical meanings or intents are carried by various musical parameters in communication: melody, rhythm, dynamics, tempo, harmony, and so on. Most of these musical parameters have been studied in depth across various disciplines including music theory, psychology, performance, composition, and performance pedagogy. One musical parameter that is often used instinctively but not studied as extensively as the others is timbre. As timbre consists of many different dimensions, the question of timbral function in music perception is a complicated one.

In my previous projects, I found significant differences between listeners with different cultural and musical backgrounds (Singapore and Canada; Western and Chinese music) and their accuracy in judging perceived emotions in music. Natural musical listening usually does not constrain musical meanings to simply one category of emotion, nor is it likely to remain unchanged throughout an entire piece of music. I therefore hope to disentangle these aspects by allowing listeners to decide the affective intent of the music within a two-dimensional space, as well as also look into aspects of musical context and the position within a phrase of music that might influence the use of various timbre dimensions. This exchange to SUTD therefore provided me with a valuable opportunity to look at (a) how performers trained in different musical traditions (Western and Chinese music) manipulate timbre in expressing affective intents, and (b) how listeners with a similar cultural background (Singapore) but different musical backgrounds (Western music, Chinese music, and nonmusicians) perceive these affective intents.

In order to look at performers' utilization of timbre in their musical expression, two parallel groups of performers from the Western and Chinese music traditions were recruited. The two-dimensional affective space is explained to performers and they were asked to perform an excerpt of music in 5 different ways corresponding to different positions on the two-dimensional affective space. Participants from Singapore were recruited (30 Western music trained, 30 Chinese music trained, 30 nonmusicians) for the listening experiment and the experiments were conducted at SUTD.

Initial analyses of the data revealed some interesting differences between the different listener groups showing that different musical traditions may place varying amounts of emphases on timbre in the communication of affective intents in music. Further acoustic analyses will be done on the recordings to see if certain timbre dimensions are being used consistently. In addition, musical context plays an important role and different positions within a musical phrase appears to contribute to different extents in their capacity of carrying affect-related information.

The aiMuVi lab in SUTD integrates AI research with research in music and visual processing. In addition to my experiments, I was also involved in weekly meetings and discussions at the lab and had the opportunity to learn about what the other members of the team are working on. In our discussions, I received plenty of constructive feedback and ideas on the

various projects that are happening and also possibilities for future collaborations. The Singapore Music Research Symposium also happened during the period I was there. I benefitted greatly attending the symposium as I got to hear about the different research that is being done, and to network with other individuals in the same field for personal and professional development.

I will like to thank CIRMMT for their generous support that gave me this valuable opportunity for the exchange residency to SUTD. I am also very grateful to my supervisor Prof. Stephen McAdams, and to Prof. Dorien Herremans and Dr. Steffen Herff who helped me tremendously during my visit.