

Preventing hearing loss in the young generation: a smart T-Shirt proposal

Project Team:

Alexandre Lehmann (co-PI), McGill & Jérémie Voix (co-PI), ETS

Valentin Pintat, Research Engineer, CRITIAS, Marie-Christine Larivière, CTT

Our goal for the Agile Seed Funding round was to establish an initial proof-of-concept of an innovative body-worn sound dosimeter and visualizer device, aimed at promoting safe music listening practices; the Sono-Shirt. Thanks to the support of CIRMMT Agile Seed funding, we were able to kickstart this project and achieve exciting milestones in a short amount of time.

A battery-powered, portable noise dosimeter (hardware and software) was designed, assembled and calibrated. A smart-fabric display was designed, assembled and integrated into a prototype shirt, together with the dosimeter. Agile Seed Funding was used to pay for parts and materials (70%) and smart fabric designer (30%). The rest of the funding, including in-kind engineer time, was contributed by the co-PIs

Unforeseen, additional outcomes were achieved:

- We presented a poster on WHO World Hearing Day and animated a demonstration booth at McGill Schulish School of Music on March 22nd 2019 (see attached poster pdf)
- We submitted an abstract for an oral presentation at CHHA 2019 (Canadian Hard of Hearing Association Symposium) and were contacted by the organizing committee to convert that sono-shirt submission into a wider ranging keynote presentation by Jérémie Voix on hearing loss prevention in June 2019. Being able to showcase this project and its funding by CIRMMT at such a large Educational Conference and Trade Show is a unique opportunity for coverage.

We are now planning to raise additional funding in order to:

- Perform a laboratory validation of the prototype
- Implement a documentation and quality-management system
- Build two more prototypes
- Perform experimental field research to quantify how sono-shirt impacts hearing practices in young listeners
- Organize public outreach activities, in collaboration with local musical events