

Smart Textiles for Health and Well-being

For: MSc or PhD Students; 6-12 months

Program supported: [Aging in Place](#)

Academic Collaborator	NRC Principal Investigator	Associated NRC Research Centre
McMaster University	Zhiyi Zhang (Researchgate)	Digital Technologies

Project Description:

This project is to develop the technology for creating localized compression in textile wearables for medical treatment. The technology is to integrate compression components into textile wearables to apply localized compression on body for achieving the equivalent effect of compression therapy or acupuncture therapy. The localized compression will overcome the main problems of existing textile compression wearables that are hot, difficult to put on and uncomfortable. It will also introduce acupuncture function into textile wearables so that wearers can receive its medical benefit conveniently and effectively. Both passive and active compression components will be used in the technology development to fabricate the textile wearables.

The involved researcher with a focused training in mechanical engineering, physics, materials or other related fields will work, under the supervision of the host, to design and fabricate/assembly the components, develop the technology of integrating them into textile wearables, and test the obtained wearables.

In AiP program, we plan to develop smart textile technology that will integrate energy components into textile wearable products to provide daily and on-demand physical stimulus to the aged wearers. It aims to slow down or prevent the development of age-related health problems. Three types of energy components with different mechanism, including mechanical, electrical and thermal, are planned to be included in the technology development. The proposed internship is to add a critical HR to reinforce our effort on the top one (i.e. mechanical) of the three technologies, because more work is needed and more promising delivery is possible in this direction. This will ensure the success in this direction and help the project to achieve its overall goal.

Student Profile:

The candidate should have strong background in the field of mechanical engineering, physics, or materials.