

Metastatic brain tumors (MBTs) occur in 24–45% of patients diagnosed with primary cancers outside the brain. For treatment of MBTs, stereotactic radiosurgery (SRS) has been shown to be associated with superior rates of survival and fewer complications compared to whole brain radiotherapy (WBRT). Critical to SRS treatment planning and follow-up is accurate volume assessment. However, serial volumetric imaging obtained every 2–3 months results in a demanding workload for radiologists, especially for detection of subtle volume changes. One method used to increase radiologists accuracy and efficiency is utilisation of computer-aided detection tools. However, at present the literature lacks studies that have evaluated the efficacy of computer algorithms in regards to follow-up of MBTs, and detection of growing and shrinking MBTs (vMBTs). The fully automated algorithm that was the outcome of our project was able to detect vMBTs on longitudinal brain MRI with a statistically high accuracy, demonstrating its potential to complement the performance of radiologists and radiation oncologists. This in turn would translate to better treatment planning and follow-up for patients battling with MBTs. Currently we have submitted our manuscript to the prestigious journal of Neuro-Oncology, and are awaiting their decision.

Because of the amazing experience I have had in the field of brain tumor research as a direct result of Brain Tumour Foundation of Canada's Research Studentship award, my plan for future is to enter the Clinician Investigator Program at my homeschool, University of Toronto, where I can complete my education as a diagnostic medical imaging resident, while simultaneously pursuing my graduate studies, at the doctoral level, in computer science and image processing. Receiving the prestigious Brain Tumour Foundation of Canada's Research Studentship award meant that I could pursue a research project in the field that I am truly passionate about, and to utilize my skills and experiences in order to have a positive impact, however small, on the lives of many patients who are battling with metastatic brain tumors. And through that, I was able to grow as a scientist and future physician, and thus prepare myself for a career as a clinician scientist.