My academic career, in its few years, has taken me through a number of fields. From life sciences to mechanical engineering in my undergraduate, and to biomedical computing for my current Master’s program. As an undergraduate research assistant, I worked in nuclear materials sciences, autonomous mobile robot traffic coordination, and computer vision. The trend which I noticed, and begun actively pursuing, is that my interests lie in technological development for its own sake. Specifically, developing and applying the state of the art in constantly changing fields with the largest possible benefit to human life. With the concrete benefits of medical applications, and the increasing use and power of computational tools in our world, biomedical computing provides ample opportunity for the development of beneficial, cutting-edge technologies.

After a year in computing, my Master’s degree, and new research with it, are well underway. The opportunity for technological development presented to me by my current degree is in the field of spatially tracked ultrasound imaging. In particular, I hope to apply machine learning tools in novel ways to enable assessment of spinal deformation with tracked ultrasound data. With the number of problems involved in developing this technology, and the number of applicable machine learning tools for a given problem, the possible investigation approaches are limited only by my creativity and knowledge. For example, I am investigating the ability of neural networks to represent abnormally shaped spines using anatomic landmark points located in ultrasound. I hope to extend this to produce 3D visualizations like those from the work submitted to this conference.

Attending SPIE Medical Imaging 2017 will provide me with an opportunity to learn about some of the latest developments in ultrasound imaging. I will be looking mainly for work done with ultrasound on bone detection, 3D visualization generation, anatomic shape analysis, or any number of applications which could relate to my work in unpredictable ways. Complementary to new insights or methods discovered through work presented by others, such benefits might be obtained from my own presentation. SPIE Medical Imaging 2017 will be my first chance to discuss my work with experts from my field, but outside my institution. As such, SPIE Medical Imaging 2017 offers a wealth of new experience and ideas. These ideas and experiences could compound with existing ones, opening new avenues in the development of spatially tracked ultrasound and spinal modelling.