

# Statement of Purpose

Robotics Institute Summer Scholars  
January 2019

I am a third year Dual Degree student pursuing majors in Electrical Engineering with specialization in Communication & Signal Processing. My research interest lies in the field of Image Processing and Computer Vision especially segmentation and feature extraction algorithms.

My first encounter with this field introduced me to image enhancing, noise & artifact removal and deblurring algorithms. In the process, I came across strong mathematical tools like Principal Component Analysis, Singular Value Decomposition and applied probability for images analysis. The takeaway from this was rigorous understanding of the theoretical concepts complemented with hands on practical experiments and implementations. To delve deeper, I did a course project based on Fingerprint Singular point detection via Poincare Index. It included image enhancement with edge thinning and ridge completion since the images were of extremely poor quality. it gave me a better insight into how the image enhancement techniques affect my core implementation. To pursue my interest in segmentation algorithms further, I am currently implementing Live wire Intelligent Scissors.

To supplement my skills, I have developed Neural Networks for data classification and autoencoders on various datasets. On top of full semester load, I have taken two extra courses which are Medical Image Processing and Computer Vision, to get more handy with techniques in Image processing & Computer Vision.

In sum, I believe that with my education and technical knowledge, I would be able to contribute to the ongoing research at CMU Robotics Laboratory. This internship will be a great opportunity for me to get an excellent research exposure and increase my prospects for future endeavours in this field.