For my project I want to work on a particle filter. My last co-op I spent working with computer vision libraries and working with self driving cars. As such, I was fascinated by the localization problem. Unfortunately, my co-op ended before I had the chance to tackle the problem. I feel I have sufficient understanding and genuine fascination with the topic to successfully complete this project by the end of the semester. The core concept is to take a floor plan and populate it with particles. Once that is done you move the robot and particles simultaneously. As the robot moves measure the distance between the robot and the obstacles and remove the particles least likely to represent the robot’s position in the room. Currently, I don’t have the hardware however, I feel the biggest portion of this project will be the software. It will entail, image processing, algebra, as well as some machine learning concepts. I do have a raspberry pi with an ultrasonic sensor if you need me to do the hardware portion, however, I feel confident I can demonstrate my skills with purely the software. I’m looking to challenge myself and therefore I intend to do this project alone. I will be using python to code the particle filter including libraries such as matplotlib, numpy, and opencv.I started the project this week so I sincerely hope you accept my proposal. Thank you so much, and I look forward to a phenomenal semester.