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IRR - seminar talk by Peter Corke

To give basic logistics regarding who Peter Corke is, he is a Distinguished Professor at Queensland University of Technology with research interest in computer vision, robotics vision, deep learning, and manipulation.

One of the interesting problems that he described was regarding Sequential SLAM (SegSLAM). Basically, this is a localization technology that utilizes vision to map its surroundings but also takes into consideration its context. It picks out viable landmarks to remember the sequence so that even when there is a change in lighting, a slight change in environment, it will still remember where it is at and successfully localize. In doing so, it formulates a similarity matrix between its current frame and the possible next frame. In formulating its state, it does not consider the time of day or any transient detail that could be easily adjusted to hinder its robustness. As a result, we could visually see how a robot navigating in different shades of light had no discontinuities. Another topic that was extremely interesting was quadril SLAM. The difference between original SLAM algorithms and quadril SLAM was that this new algorithm estimates the shape of the objects that are being shown through an RGB camera. In effect, changing the perspective of the camera does not hinder the ability to track objects. A demonstration clip was shown that compared and contrasted the performance between object detection algorithm using deep learning and quadril SLAM. While deep learning has discontinuities when the camera moved around, the quadril SLAM did not. Finally, the professor mentioned briefly about Deep Q-Learning and how their research branched to include manipulation. It was interesting to see how they made the robot learn to successfully grasp and move objects after applying robot vision technologies to identify the objects.

Peter Corke was overall a wonderful presenter. He had numerous effective visuals that captivated the audience's attention. Although he had a few slides that had words in it, they were meaningfully connected to rest of his presentation. The videos he showed were interesting to watch and it effectively showed how the algorithm works and what exactly it is doing. I could only imagine how many hours him and his graduate students put in order to make all the presentable videos.

However, the presentation was not without faults. One aspect I think he could work on was his voice volume. I was situated near the back of the room and it was really hard to hear what he was talking about. Another aspect was the length of the talk. Although the slides were interesting and full of information, it lasted over an hour and I could see people losing their focus. If the presentation could be more tightly packed in a shorter amount of time, I think he could leave a stronger impact.