Introduction

Computer vision is a part of AI that helps computers and systems make sense of images, videos, and other visual components, aiming to automate tasks that our eyes and brains usually do. It involves getting, processing, analyzing, and understanding visual data using different techniques and methods, so machines can interpret and make decisions based on what they see, just like humans. Key ideas include image processing to enhance and tweak images, feature extraction to spot important patterns, object detection and recognition to identify things, image segmentation to break down images into useful parts, and 3D reconstruction to create three-dimensional models from flat images. Techniques like machine learning, deep learning, and pattern recognition help computers learn from data and make predictions. Computer vision is used in many areas: in healthcare, it analyzes medical images to find diseases; in self-driving cars, it helps them see and navigate; in surveillance, it monitors video feeds for security; in retail, it makes shopping smoother with automated checkouts and inventory tracking; and in manufacturing, it improves quality control by inspecting products for defects.

Understanding what the course is about and what it aims to achieve is very important. It helps to know what I will be getting into and what I should expect to learn. Plus, having personal learning goals and expectations can really shape my experience, letting me focus on what interests me the most and track my progress.

This course is all about computer vision, to help me get a solid grasp of the techniques and how they are used in different fields. My goals are to get a good handle on the main concepts of computer vision, get some hands-on experience with the tools and methods, and see how this hands-on-experience can be applied to real-world problems. Computer vision is an extremely important topic to me as I see many companies doing cutting-edge work in trying to make computers understand our 3D world. I am excited to put together the computer and the real world to facilitate a new age where the two meld together perfectly. I’m looking forward to building a strong foundation in this area and using what I learn for personal projects and research, where I can solidify what I have learned in this class.

In this portfolio, I'll go over the different modules and assignments from this course and share what I have learned along the way.