Final Project Ideas
Computational Perception and Artificial Intelligence

Description:

Time for the Final Project! In place of a final exam, you will apply what we have learned this term and create a final project. This will be worth 10% of your final grade. While there are many applications to the Computer Vision and AI algorithms we have examined, work to focus on a specific application of at least two of the algorithms we have explored.

Here is a List of the Algorithms and Concepts we have covered:

-Image Derivatives, Edges, and Gradients
-Template Matching, patches, and applications to photos and video
-Hough and Parameter Space. Line and Circle Detection
-Particle Filters and Tracking in Live Video
-Path Finding and A* Algorithms
-Neural Networks and Classification Problems (We will cover this in the next week)

Final Project Ideas include:

-Meeting with Art class students to Analyze projects for Lines and Circles
-Counting Coin money in images using Hough Space
-Applications of Particle Filter Tracking (tracking people, objects, detecting velocity, course)
-Template Matching and Face following using "Blinky"
-Fully implementing the A* Algorithm
-Finding a Classification Dataset on Kaggle or other site and using WEKA to build a Neural Network Learner
-Any idea that applies at least two algorithms we have used in class

Requirements:

1. Write a two paragraph proposal: The first paragraph should summarize the problem you wish to solve. The second should describe the algorithms you intend to use and the product you will produce.
2. Develop the Code and assets for the project. These should be in a zipped folder named "Lastname Final Project" and be able to run when unzipped. You will need to include instructions as to how to run program.
3. You will do a presentation and demonstration in class during the last 3 days of the Term. You will need some type of presentation (PowerPoint, Video . . .) and a Live demo of the Code / Project.
4. You must publish your results in some way. Make a webpage or Youtube video demonstrating your work. This will prove to be beneficial later when interviewing for jobs or college. This is due by the last day of the term. (Work to have this part of your presentation).

Final Considerations:

Be realistic! You have about 5 class periods to work on this. Work to fully execute the algorithms to demonstrate the concepts you have chosen. A complete demonstration and project that implements the algorithms is better than a partial attempt that reaches far beyond the scope of the course. You want to create something that you can demonstrate now and build upon in the future.