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EPR402 Project Progress Meeting #5

Eng 1-13-17

- Subsampling a higher resolution image not as computational a process as thought earlier
- Spend time on prototyping 3D rendering – move object in environment with keyboard to get feel for necessary input commands
- Absolute position of hand in 3D space essential – pipeline must not discard position data
- CNN based approach – weighting of kernel learned – don't do manual extraction but rather let system learn transformations/features as needed
- Feature extractors built for edges, corners, individual points...
- Feature Descriptor + extractor – identify certain objects in image – classical approach
- Research SIFT feature extraction
- Automatic extractors require lots of data – might have to fall back on traditional data and classical approaches
- Gabor filters – evolution of CNNs led to Gabor pattern being used - fundamental way of extracting elements from images
- Wavelets + FFT + Gabor + CNNs are all basis functions for inputs
- Compressive sensing learns mapping + basis functions
- Deciding on number of training epochs + learning rate – depends on batches, stochastic vs non-stochastic, online vs offline
- Use a low learning rate for small batches.
- Research batched learning
- Experiment with different batching + updating weights at different times
- Presentation was fine – helpful to practice talking about project
- Exactly how input/control of virtual object works and what is necessary will only be decided by prototyping