

Week Starting 25th July.

I spent the start of the week going over the GSCF papers in order to clarify my understanding of the framework, specifically the points highlighted by the email that you sent last weekend. Throughout the week I've been thinking hard about possible applications, but decided to also look at other areas that might help me later on, including working through the Simulink tutorials. One Simulink example is actually an "Inverted Pendulum" balancing robot, (the MATLAB function penddemo), which was very interesting to contrast to the GSCF implementation. I also looked at how to implement Simulink blocks in S-Functions which can be written in MATLAB M-files.

Mid-week, I thought it was a good idea to develop some background knowledge in image processing so that I was more aware of what could and couldn't be done with current techniques, and thought that a higher-level description of an image may be a better starting point when trying to apply the GSCF. I experimented a lot with edge finding techniques, and how objects can be identified in an image. I used PhotoShop and PhotoImpact to test different convolution examples for edge finding on real images to contrast their power. Having read the Simulink Image Processing Block set tutorial, I started to look for more information online, regarding edge-detection methods that are less sensitive to noise.

I spent the end of the week doing a lot of reading into Visual Information Processing. I found a very accurate and interesting Object Recognition paper by Randal C. Nelson that uses 'key' features (currently lines and curves) in images to generate and match within a database of known objects. His search and classification based on cluster analysis reminded me a lot of some Artificial Immune System work in clustering and pattern classification. I also read some articles from Wikipedia regarding Bayesian models and Hough transforms as they had cropped up in a few papers that I'd read. The Hough transform seems quite useful, and I found online some MATLAB examples of using the Hough transform and also some Morphological operators like image dilation and erosion. I've spent quite a bit of time playing with these MATLAB examples, and combining their functions.

Next week, as discussed, I plan to continue thinking of ways to apply the GSCF, starting by re-reading the GSCF papers. I may also do some more reading into visual information processing, as this might also inspire a use of the general suppression framework.

Thanks,
Steve