

**Curriculum Development Grant
C490/B657 Computer Vision
Final Report
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1.) Description of grant-supported activity.

The purpose of this project was to develop student exercises/projects for a new (to IUSB) course in Computer Vision. My approach to this project consisted of three steps:

- 1.) Reviewing the current state of the field of Computer Vision.
- 2.) Choosing a platform for student exercises/projects.
- 3.) Developing a set of exercises/projects for the course.

I performed step 1 in parallel with textbook selection for the course. I chose, as the “official” course text, “Computer Vision” by Shapiro & Stockman (2001). I supplemented this text with numerous other classic as well as recent texts. For the graduate students, I also selected several journal articles. Excerpts from these other texts, as well as the journal articles, were typically made available through the library’s e-reserves system. I also used various online resources supplied by the vision community (e.g. the classic Ballard & Brown text is completely available online, courtesy of the ‘CVonline’ community).

Regarding step 2, in summer ’04 several IUSB departments and OIT purchased licenses for Matlab and the Matlab Image Processing Toolkit. This software is excellent for image processing and understanding. Therefore, Matlab and its toolkits served as the primary platform for this course. I re-acquainted myself with basic Matlab and learned the Image Processing Toolkit (which I had not used before).

For step 3, I developed six homework assignments, each containing one or more exercises/projects for illustrating image processing and image understanding (computer vision). I also developed a take-home midterm, which includes computer exercises as well as the usual ‘written’ exercises. Finally, I developed the specs for a student-chosen semester project/paper.

2.) Were you able to complete the project?

Yes. The course ran in Spring ’05 and we used the material listed above.

3.) Did, or will, the project result in a specific product – a manuscript, composition, syllabus, etc? If so, please describe and indicate state of development.

Yes – this project resulted in a specific product: the six homework assignments, the take-home midterm, and the specs for the student-chosen semester project/paper. Hardcopies of this material are enclosed with this final report that will be given to Erika Zynda,

grants coordinator. I'm happy to share this material with other instructors – e-mail me for electronic copies: mscheess@iusb.edu. (Assignment 6 needs a little revision.)

In addition to the material listed above, I developed a syllabus and several in-class demos. I'm glad to share these as well.

In all, the course was successful (though there are a number of things I would change the next time around). Students rated the course overall as 'Excellent'. The category: "Assigning homework that helps you to understand the material?" was also rated 'Excellent'. Selected comments from the evaluations, as well as observations throughout the semester, suggest that students both enjoyed and got something out of the homework assignments. Thank you to the IUSB Research and Development Committee for funding this project.