CSC320H – Introduction to Visual Computing
Spring 2017

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Office hours: W5 (or by appointment)

Lectures: MW 2-3pm, W 6-8pm
Location: BA1200
Tutorials: W 8pm (BA1200, BA 2195, BA2185)
F 2pm (BA1200, BL112, HA410, HA401)
TAs: Z. Liu, Y. Ma, P. Mirdehghan, R. Swanson, T. Wang, M. Wei
Web site: http://www.cs.toronto.edu/~kyros/courses/320

This course is a beginner-level introduction to computer graphics and computer vision. It is aimed at undergraduates who have an interest in imaging or the visual arts. It will offer a unified treatment of image synthesis and image analysis techniques and will cover three major topics: (1) *Principles of Visual Computing:* Computational and mathematical methods for creating, capturing, analyzing and manipulating digital photographs. (2) *Digital Special Effects:* Case studies that examine how visual computing principles were used to create visual effects in movies and commercials. (3) *Visual Programming:* Programming assignments intended to give hands-on experience with creating graphical user interfaces and with implementing programs for synthesizing and manipulating photographs.

Grading:

50%	Assignments (four, with a weight of 12.5% each)
50%	One in-class test held at 6pm on March 1nd (20%) and a final exam (30%)

Late penalty for assignments is 15% per day for up to five days. See web site for approximate hand-out and due dates of assignments, and for policies regarding academic honesty

Prerequisites:

1. CSC209 or CSC207
2. One of MAT221, MAT223, MAT240
3. At least one course from L1 below
4. Minimum grades for L1 courses: 77 for MAT136, 73 for MAT137, 67 for MAT157
5. At least one requisite from L2 below

L1: One of MAT136, MAT137, MAT157, MAT235, MAT237, MAT257
L2: At least one Subject POSt from ASMAJ1688, ASMAJ1689, ASSPE0108, ASSPE0626, ASSPE0627, ASSPE1007, ASSPE1037, ASSPE1039, ASSPE1688, ASSPE1689, ASSPE1755, ASSPE2175, ASSPE1868

No background in vision, graphics, or image processing will be assumed. Students interested in graphics are encouraged to take Visual Computing before taking CSC418. There is very little overlap between CSC320 and CSC418.

Suggested Textbooks/Readings (there is no required textbook)

- K. R. Castleman, *Digital Image Processing*, Prentice Hall, 1996
- R. Szeliski, Computer Vision: Algorithms and Applications, Springer, 2010
  Draft of book at http://szeliski.org/Book/
- J. Minichino, J. Howse, *Learning OpenCV3 Computer Vision with Python*, 2nd ed, 2015