



Department of Electrical and Computer Engineering

COURSE OUTLINE

CENG 421 – Computer Vision

Term - SPRING 2015 (201501)

Instructor

Dr. Alexandra Branzan Albu
Phone: 250-721-8681
E-mail: aalbu@uvic.ca

Office Hours

Days: Tue, Wed
Time: 11:30 am – 12:30 pm
Location: ECS 324

Lectures

A-Section(s): A01 / CRN 20367, A02/CRN 20368
Days: TWF
Time: 9:30-10:20
Location: ECS 108

Required Text

Title: Computer Vision: Algorithms and Applications
Author: Richard Szeliski
Publisher: Springer
Year: 2010

Note: A free electronic version of the book can be downloaded from <http://szeliski.org/Book>

References: to be posted on CourseSpaces.

Assessment:

Assignments: 30%
Class participation: 5%
Project: 35%
Mid-terms (2): 30%

Dates (tentative): February 20, March 27

Due Dates for Assignments: There will be five programming assignments and one essay worth 5% each. The content and due dates for each assignment will be posted on the course site. Late submissions will not be accepted.

The final grade obtained from the above marking scheme will be based on the following percentage-to-grade point conversion:

Passing Grades	Grade Point Value	Percentage for Instructor Use Only	
A+	9	90 – 100	
A	8	85 – 89	
A-	7	80 – 84	
B+	6	77 – 79	
B	5	73 – 76	
B-	4	70 – 72	
C+	3	65 – 69	
C	2	60 – 64	
D	1	50 – 59	
Failing Grades	Grade Point Value	Percentage for Instructor Use Only	Description
E	0	0 - 49	Fail, *Conditional supplemental exam. (For undergraduate courses only)
F	0	0 – 49	Fail, no supplemental.
N	0	0 – 49	Did not write examination, Lab or otherwise complete course requirements by the end of term or session; no supplemental exam.

**Assignment of E grade will be at the discretion of the Course Instructor.*

The rules for supplemental examinations are found on page 80 of the current 2014/15 Undergraduate Calendar.

Term in which E Grade Was Obtained	Application Deadline for Supplemental Exam	Supplemental Exam Date
First term of Winter Session (Sept – Dec)	February 28 in the following term	First week of following May
Second term of Winter Session (Jan – Apr)	June 30 in the following term	First week of following September
Summer Session (May – Aug)	October 31 in the following term	First week of following January

Deferred exams will normally be written at the start of the student's next academic term; i.e., approximately 4 months following the deferral of the exam.

Course Description

1. Course Objective: to provide students with the basic skills needed to analyze, formalize, and solve Computer Vision problems.
2. Learning Outcomes
Upon completion of this course, the students will be able to:
 - understand basic concepts, mathematical tools, and algorithms for manipulation of digital images
 - implement an algorithm to solve a specific computer vision problem
 - evaluate the performance of the algorithm using quantitative evaluation methods
 - assess the social/economical/cultural impact of novel computer vision technologies
3. Syllabus
Overview of the main concepts and methods in computer vision; geometry and physics of imaging, as related to image formation and representation; image preprocessing for feature extraction; image segmentation; binary shape analysis; texture analysis; motion analysis; feature selection and pattern recognition; in-class and on-line discussions on the social, economical, and cultural impact of various modern computer vision technologies.

Note to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the ECE Chair by email or the ECE Chair's Secretary ecasst@uvic.ca to set up an appointment.

Accommodation of Religious Observance

See <http://web.uvic.ca/calendar2014/GI/GUPo.html>

Policy on Inclusivity and Diversity

See <http://web.uvic.ca/calendar2014/GI/GUPo.html>

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour at <http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf> which contains important information regarding conduct in courses, labs, and in the general use of facilities.

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult <http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcl.html> for the UVic policy on academic integrity.