

# CSC420: Intro to Image Understanding

## Information Sheet

September 10, 2018

## 1 Course Description

This class is an introduction to fundamental concepts in image understanding, the subdiscipline of artificial intelligence that tries to make the computers “see”. It will survey a variety of interesting vision problems and techniques. Specifically, the course will cover image formation, features, object and scene recognition and learning, multi-view geometry and video processing. The goal of the class will be to grasp a number of computer vision problems and understand basic approaches to tackle them for real-world applications.

## 2 Course Information

Semester	Fall 2018
Location	BA 1180
Time	Tuesdays and Thursdays 3-4pm; Tutorials Thursdays 4-5pm
Webpage	<a href="https://q.utoronto.ca/">https://q.utoronto.ca/</a> Course material (lecture notes, reading material, assignments, announcements, etc.) will be posted on <b>Quercus</b>
Forum	<b>Quercus</b> , “Discussions” section Students should post questions / discussions in a forum style manner, either to their instructors or to their peers. TAs will try to answer unanswered questions within 2 business days. <u>Do not expect immediate response from the TAs.</u> Do not expect answers during the weekends.
Textbook	<a href="http://szeliski.org/Book/">http://szeliski.org/Book/</a> Richard Szeliski’s on-line textbook is a very good resource and is freely available online. We will assign readings from the Sept 3, 2010 version.
Assignments	<a href="https://markus.teach.cs.toronto.edu/csc420-2018-09/">https://markus.teach.cs.toronto.edu/csc420-2018-09/</a> Should be submitted on MarkUs.

## 3 Instructor

Name	Babak Taati
E-mail	taati@cs.toronto.edu You <b>must</b> include CSC420 in the subject line. Questions about the course material, assignments, or project <b>must</b> be posted on Piazza. Do <b>not</b> attempt to send zip files via e-mail, they will be deleted by the mail server.

## 4 TAs

Wenzheng Chen	chen1474147@gmail.com
Elsa Riachi	elsa.riachi@mail.mcgill.ca
Charles-Olivier Dufresne-Camaro	camaro@cs.toronto.edu
Parsa Mirdehghan	p.mirdehghan@gmail.com

Office Hours	2 hours per week in BA 2283 Mondays 4-5, Fridays 11-12
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## 5 Grading

Assignments 60%

There will be 5 assignments, posted every two weeks, starting with the second week. Each assignment will be worth 12% of the grade. They will consist of problem sets and programming problems with the goal of deepening your understanding of the material covered in class.

Project 40%

Each student will be expected to complete a project. The grade will evaluate a project proposal (5% of the grade), a project report (20% of the grade) and a presentation (15% of the grade). In the presentation (either oral, poster, or a video – TBD), each student will need to clearly present and be capable to defend his/her individual work.

There will be **no** exam.

## 6 Policy

Assignments	Individually The students should <b>not</b> discuss the assignments and should solve them <b>individually</b> .
Project	Individually or in Pairs; Groups of 3 available with permission for larger projects. The project should be done individually or in your group. If a project is done in a group, <u>each student should still hand in his/her own report and defend the project on his/her own.</u> Project presentations will be either oral, poster, or video (TBD). From the report it should be clear what each student has contributed to the project. The course will provide a list of possible projects to choose from. With approval of the instructor, a student will also be able to propose his/her own project.
Deadline	The solutions to the assignments should be submitted by <b>10.59 pm on the date they are due</b> . The first hour (up to 11.59 pm) incurs no lateness penalty. After that, from 61 minutes late to 24 hours will count as one late day.
Lateness	Each student will be given a total of 3 free late days. This means that one can hand in three of the assignments one day late, or one assignment three days late. It is up to the student to make a good planning of his/her work. After one has used the 3 day budget, the late assignments will not be accepted.
Plagiarism	We take plagiarism very seriously. Assignments and projects must represent your own work. Read how not to plagiarize: <a href="http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize">http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize</a> .
Remark requests	Within 1 week only. Will not be accepted afterwards.

## 7 Deadlines

The table provides the dates on which assignments will be posted and their due date. The list of available projects will be made available mid October.

Term Work	Post Date	Due Date
Assignment 1	Sept. 19th	Sept. 26th 2018
Assignment 2	Oct. 3rd	Oct. 10th 2018
Assignment 3	Oct. 17th	Oct. 24th 2018
Project Proposal		Oct. 25th 2018
Assignment 4	Oct. 31st	Nov. 7th 2018
Assignment 5	Nov. 14th	Nov. 21st 2018
Project Report		Nov. 22nd. 2018
Project Presentation		Nov. 27, 29, Dec. 4

The solutions to the assignments / project should be submitted by 10.59 pm on the date they are due. First hour incurs no penalties. Anything from 61 minutes late to 24 hours will count as one late day.

## 8 Course Schedule

A **tentative** schedule for this term is as follows:

Week #	Dates	Topic
1	Sept. 6	Introduction
2	Sept. 11 & Sept. 13	Linear Filters, Edges
3	Sept. 18 & Sept. 20	Image features
4	Sept. 25 & Sept. 27	Keypoint detection
5	Oct. 2 & Oct. 4	Matching
6	Oct. 9 & Oct. 11	Segmentation
7	Oct. 16 & Oct. 18	Grouping
8	Oct. 23 & Oct. 25	Object Recognition
9	Oct. 30 & Nov. 1	Object Detection
-	(reading week)	-
10	Nov. 13 & Nov. 15	Neural Networks
11	Nov. 20 & Nov. 22	Stereo-multi view
12	Nov. 27, 29 & Dec. 4	Project presentations