

2015

[\[Schedule\]](#) | [\[Grading\]](#) | [\[Policies\]](#) | [\[T-square\]](#) | [\[Piazza\]](#) | [\[Udacity\]](#)

Information

- Instructor:
 - Irfan Essa.
 - Office hours after class, and can be scheduled via email.
 - Please contact the professor via Piazza (using the “Individual ..” Option, it is sent privately to the Instructor(s)) .
 - Prefer No emails, unless there is some URGENT and PRIVATE thing you want me to know, use “CS4475/6475” in the subject line.
- TA
 - Julia Deeb. Please contact TA via Piazza (see above). Prefer no emails.

Assignments and Grading

- Class Attendance & Participation (10 %)
- Assignments / Homeworks (60 %) [There will be 11-12 Assignments]
- Final Project (10%)
- Portfolio of all Efforts in this class (5%)
- Exam (15%)
- All of the above subject to minor modifications as needed, which will be announced in class.

Policies

- **Communications** with the Professor and TA should be exclusively through Piazza. No emails!
- **Class attendance is required.** Late by 15 minutes, counts as an absence. Legitimate reasons for being excused from class include, personal issues, health (keep those germs away from class), interview, conference travel, etc. Travelling and exploring, assignments due in other classes, out to pick up friends, and other such excuses not accepted. Please inform Instructor of a planned absence via email before class and [fill out this GOOGLE form](#)

- **Grading.** Usually a score of 90 is considered an “A” and 100 an “A+” (but a 100 is given to only artifacts/projects/hw that are exceptional and beyond what was expected!). 80, 70 are “B” and “C” respectively.
- **Homeworks Assignments** will be graded on a list of criteria (specified on the assignment) such as quality of work, completeness, insight into technical issues, insight into other relevant issues, etc. Assignments are due at the start of class on the day they are due. **Assignments will typically be due almost every week on a Tuesday at 12n.**
- **Late Assignments:** Everything is DUE before the class session. NO extensions. In most circumstance, students will be asked to discuss their assignment in class.
- **Laptops use in class:** Use of laptops in class room for purposes of note-taking and work related to the class is allowed, but ONLY and ONLY for that purpose. If a student is seen surfing the web during class, or chatting with someone, or emailing, then points will be deducted from the class attendance and participation portions of the grade (3% for each infraction, with a total of 3 max, after that the student loses the whole class participation score).
- Cellphones in class: Please turn your cellphone and other mobile devices to “silent” mode during class. Thanks.
- **This class abides by the Georgia Tech Honor Code.** All assigned work is expected to be individual, except where explicitly written otherwise. You are encouraged to discuss the assignments with your classmates; however, what you hand in should be your own work. If any work product was produced based on discussions with someone else (in the class OR outside), please specify clearly in the final turn-in.

Schedule

The following is a Google Spreadsheet ([Direct link here for browsers that do not show it](#)). Do note that there are two sheets, one the Schedule and the other referred to as “Material”, which contains the details about Readings and Videos and such. See the bottom of the spreadsheet.

[Schedule](#)[Materials](#)

Week #	Week Beginning	Day	Type	Description	OUT	DUE (ACCURATE DATE/TIME ON T-SQUARE)	Readings (see Materials Sheet)
NOTE: Schedule is Subject to Slight Modifications as appropriate. Please review this site regularly. Final Assignment OPEN and DUE dates are in T-square							
1	1/6/2015	Tue	L	Introduction	Assignment #1: One Photograph,		
	1/8/2015	Thu	L	Digital Imaging 1			
2	1/13/2015	Tue	P	Digital Imaging 2	Assignment #2: Image input/output, Setup	Assignment #1: One Photograph	Read: Szeliski Book Chapter 1 (skim), Chapter 2 (Section 2.2 and 2.3)
	1/15/2015	Thu	L	In Class Peer Review of Assignment #1			
3	1/20/2015	Tue	L	Digital Imaging 3		Assignment #2: Image input/output, Setup	Read: Szeliski Book Chapter 3 (Sections 3.1 - 3.6)
	1/22/2015	Thu	L	Cameras 1	Assignment #3: Epsilon Photography, Assignment #4: Pinhole Camera		Read: Torralba and Freeman (2012)
4	1/27/2015	Tue	P	In Class Peer Review of Assignment #3			
	1/29/2015	Thu	L	Cameras 2		Assignment #3: Epsilon Photography	
5	2/3/2015	Tue	P	NO CLASS			
	2/5/2015	Thu	L	Merging & Blending Images	Assignment #5: Filtering	Assignment #4: Pinhole Camera	Read: Burt and Adelson (1983a), Burt and Adelson (1983b),
6	2/10/2015	Tue	L	Texture Synthesis		Assignment #5: Filtering	Read: Efros and Freeman (2001), Kwatra, Schödl, Essa, Turk, Bobick (2003)
	2/12/2015	Thu	L	Feature Detection / Matching 1			
7	2/17/2015	Tue	L	Feature Detection / Matching 2	Assignment #6: Pyramid Blending		

	2/19/2015	Thu	L	Panorama	Assingment #7: Feature Detection		
8	2/24/2015	Tue	L	High Dynamic Range	Assingment #8: Panorama	Assignment #6: Pyramid Blending	
	2/26/2015	Thu	L	Stereo		Assingment #7: Feature Detection	
9	3/3/2015	Tue	L	In Class Review			
	3/5/2015	Thu	L	In Class Review			
10	3/10/2015	Tue	L	Class Discussion			
	3/12/2015	Thu	P	Photo Synth	Assingment #9: PhotoSynth		Read: Snavely et al 2006; 2012
11	3/17/2015	Tue	No Class	SPRING BREAK			
	3/19/2015	Thu	No Class	SPRING BREAK			
12	3/24/2015	Tue	L	Video	Assingment #10: HDR	Assignment #8: Panorama	
	3/26/2015	Thu	L	Video Stabilzation	Assingment #12: Video Textures	Assignment #9: PhotoSynth	Schödl (2000); Agarwala (2005); Kwatra (2003); Bai (2012); Joshi 2102; Grundmann (2011); Grundmann (2012)
13	3/31/2015	Tue	L	Video Panoramic Textures	Assingment #12: Video Textures	Assignment #10: HDR	
	4/2/2015	Thu	L	Project Discussion			
14	4/7/2015	Tue	L	Light Field / Plenoptic Function			
	4/9/2015	Thu	L	Coded Photography			
15	4/14/2015	Tue	L	Review Sessions	Final Project	Assingment #12: Video Textures	
	4/16/2015	Thu	L	Review Sessions	EXAM!		
16	4/21/2015	Tue	P	Final Project Presentations			
	4/23/2015	Thu	P	Final Project Presentations			
	4/30/2015		FINAL WEEK			Final Project Report DUE	

ID	Readings	LINK 1 (DOI)	LINK 2 (PDF or PROJECT SITE)
NOTE:	This list may change over the course or the term. Please revisit this site often!		
	Books		
Szeliski (2010)	Szeliski (2010), <i>Computer Vision: Algorithms and Applications</i> , Springer	http://dx.doi.org	http://szeliski.or
Forsyth & Ponce (2008)	Forsyth & Ponce (2008), <i>Computer Vision: A Modern Approach</i> , Pearson.	http://www.2sha	http://www.pear
	Papers		
Agarwala (2004)	Agarwala, Dontcheva, Agrawala, Drucker, Colburn, Curless, Salesin and Cohen (2004), "Interactive digital photomontage" ACM SIGGRAPH		http://grail.cs.w
Agarwala (2005)	Agarwala, Zheng, Pal, Agrawala, Cohen, Curless, Salesin, and Szeliski (2005), "Panoramic Video Textures", ACM SIGGRAPH 2005		http://grail.cs.w
Bai (2012)	Bai, Agarwala, Agrawala, Ramamoorthi (2012), "Selectively De-Animating Video", ACM SIGGRAPH 2012		http://graphics.t
Burt and Adelson (1983a)	Burt and Adelson (1983a) "The Laplacian Pyramid as a Compact Image Code", In IEEE Transactions on Communications, 31 (4). p 532-540. 1983	http://dx.doi.org	
Burt and Adelson (1983b)	Burt and Adelson (1983b) "A multiresolution spline with application to image mosaics". In ACM Transactions on Graphics, 2 (4). 1983	http://dx.doi.org	
Efros and Freeman (2001)	Efros and Freeman (2001), "Image Quilting for Texture Synthesis and Transfer" SIGGRAPH 2001	http://dx.doi.org	http://graphics.c
Grundmann, Kwatra, and Essa (2011)	Grundmann, Kwatra, and Essa (2011), "Auto-Directed Video Stabilization with Robust L1 Optimal Camera Paths," in Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2011	http://dx.doi.org	http://www.cc.g
Grundmann, Kwatra, Castro, and Essa (2012)	Grundmann, Kwatra, Castro, and Essa (2012), "Calibration-Free Rolling Shutter Removal," in Proceedings of IEEE Conference on Computational Photography (ICCP), 2012.		http://www.cc.g
Joshi (2012)	Joshi, Mehta, Drucker, Stollnitz, Hoppe, Uyttendaele, Cohen (2012), "Cliplets: Juxtaposing Still and Dynamic Imagery", In ACM UIST 2012		http://research.i
Kwatra (2003)	Kwatra, Schödl, Essa, Turk, Bobick (2003), "Graphcut textures: image and video synthesis using graph cuts" SIGGRAPH 2003	http://doi.acm.c	http://www-stat
Schödl (2000)	Schödl, Szeliski, Salesin, Essa (2000) "Video Textures" SIGGRAPH 2000	http://dx.doi.org	http://www.cc.g

Snavely, Seitz, Szeliski (2006)	Snavely, Seitz, Szeliski (2006), "Photo tourism: Exploring photo collections in 3D," ACM Transactions on Graphics (SIGGRAPH Proceedings), 25(3), 2006, 835-846.	http://dx.doi.org	http://phototour
Snavely, Seitz, Szeliski (2012)	Snavely, Seitz, Szeliski (2012), "Modeling the world from Internet photo collections," International Journal of Computer Vision		http://phototour
Torralba and Freeman (2012)	Torralba and Freeman (2012). Accidental pinhole and pinspeck cameras: revealing the scene outside the picture. Proceedings of 25th IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2012)		http://people.cs