Human-centered Computer Graphics
CIS 4930 (2D85) or CIS 6930 (2D31)
Time: MWF Period 4 (10:40am-11:30am)
Location: CSE Building, E121
Fall 2015

Instructor
Eakta Jain, PhD
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(352) 562-0979
Office Hours: E540, Wednesdays 11:30am-1:30pm or by appointment

Teaching Assistants
• TBD

Course Description
This class discusses how data collected from humans drives research in computer graphics. Topics include perceptual, behavioral, and self-report data collection methodologies, and perceptually-driven computer graphics algorithms.

Course Objectives
Students will
- Gain insight into the perceptual questions related to how people see visual media
- Collect perceptual data
- Propose algorithms that utilize perceptual data to generate visual media
- Implement a final project in the area
- Learn strategies to pitch a project, provide concise updates, and present results to a broad audience

Required Materials
Laptop: Students are required to bring a laptop to class with MATLAB installed (available through the university).

Recommended Materials
Eye Tracking Methodology: Theory and Practice, Andrew Duchowski (latest edition)

Prerequisites
CAP 4730 (Undergraduate Computer Graphics) (or equivalent, for graduate students), Linear Algebra
Course Schedule

Week 1: Introduction to course (Applied perception in graphics and visualization)
Week 2: Eye movements and Vision, Eye Tracking, Demo and logistics
Week 3: Ethical treatment of subjects (short week due to holiday on Sept 7)
  • Complete CITI training
Week 4: (Data Collection, tentative topic pending IRB approval) (Mini Assignment 1)
Week 5: Debrief on data collection, Center Bias (Mini Assignment 2 out)
Week 6: Normalized Scanpath Saliency
Week 7: Dynamic Time Warping (Mini Assignment 2 due)
Week 8: Debrief on center bias, Gaze driven algorithms (Make project groups, Start thinking about your algorithms)
Week 9: Mid-term feedback on course, Gaze data collection via crowdsourcing, wearable technology
Week 10: Project proposals (Block diagram of proposed algorithm)
Week 11: (Start implementing your algorithms) (short week due to homecoming on Nov 6)
Week 12: Project updates to discuss intermediate results with class (short week due to holiday on Nov 11)
Week 13: Iterate on algorithms based on class feedback (short week due to Thanksgiving week)
Week 14: Present algorithm and show results to class (special office hours ahead of final presentation)
Week 15: Evaluation of algorithms (Discuss criteria to evaluate results, Vote on best project based on criteria)

The list of topics may change slightly depending on class interest, and interruptions due to school holidays.

Key Dates

Sept 11, Friday 5:00pm: CITI training due
Oct 9, Friday 5:00pm: Mini Assignment 1 due
Oct 23, Friday 5:00pm: Mini Assignment 2 due
Dec 2+4, Wed/Friday, during class hours: Project final presentations

The instructor will communicate with the class in advance if any of these dates need to be changed to accommodate unforeseen circumstances.

Evaluation of Grades

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Ethics Training</td>
<td>10</td>
</tr>
<tr>
<td>Mini Assignments (2)</td>
<td>40</td>
</tr>
<tr>
<td>Project</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
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Grading Policy
The grading criterion will be clearly communicated to the students. Course letter grades will be determined at the end of the semester, based, in part, on the difficulty of the projects, assignments, and exams.

Expectations for graduate vs undergraduate students: Graduate students can expect to have extra questions in the homework/exams compared to undergraduate students. These questions will be more challenging in that they will require greater critical thinking, and a deeper understanding of the content. Undergraduate students will do the project in larger groups than graduate students. The graduate projects will have higher standards for sophistication of design and implementation, lack of errors, and clarity of communication.

“A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

“Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation.” For more information on grades and grading policies, please visit: http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades

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Class Attendance and Make-Up Policy
Class attendance is expected. Excused absences are consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

Make up assignments/grading will not be provided. In case of an absence, students will have the option to apply their final project grade to that assignment.

Students Requiring Accommodations
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.
**Course Evaluation**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at [https://evaluations.ufl.edu](https://evaluations.ufl.edu). Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at [https://evaluations.ufl.edu/results/](https://evaluations.ufl.edu/results/).

**Class Demeanor**

Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

**Materials and Supplies Fees**

There are no additional fees for this course.

**University Honesty Policy**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code ([https://www.dso.ufl.edu/sscr/process/student-conduct-honor-code/](https://www.dso.ufl.edu/sscr/process/student-conduct-honor-code/)) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

**Counseling and Wellness Center**

Contact information for the Counseling and Wellness Center: [http://www.counseling.ufl.edu/cwc/Default.aspx](http://www.counseling.ufl.edu/cwc/Default.aspx), 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.