Description  An intelligent interface is an autonomous software agent that helps the user to select and understand information from the backend data source or application—not just the graphical layout of text and images. In this course we will consider what makes so-called intelligent interfaces knowledgeable, adaptive to our needs, and genuinely useful. We will consider the core technologies, their use in applications, and the methods and metrics used in evaluating their effectiveness. The topic of this course lies at the intersection of software systems, artificial intelligence, and human computer interaction. (Note, while prior study in AI is not required, it may be helpful; this semester I will be teaching a hybrid section of CS 710 on alternating Tuesdays, 5:30-6:50pm)

The primary format of the course is moderated discussion, with an introduction to background areas and research questions by the instructor. Each week, we will read and discuss papers in the area of intelligent user interfaces, moderated by a student in the class, and assisted by a “recording moderator”. The papers will include classics in the field as well as papers representing state of the art systems and approaches. The course will also include a term project (using any platform independent programming language, such as Java.) Previous projects have included intelligent tutoring systems and shells, systems for providing travel information, and systems for controlling an intelligent home. Such projects may help explore ideas that can later be expanded into thesis topics or capstone projects.

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Recommended Textbook (readings also available online):
Readings in Intelligent User Interfaces
Mark T. Maybury (Editor), Wolfgang Wahlster (Editor)
Paperback - 736 pages (April 1998)

Grading:

Graduate students: Discussion questions 15% Presentations of papers and editing of formatted review, as moderator or scribe 25% Midterm exam 15% Term project 45%

Undergraduate students: Discussion questions 25% Presentations of papers and editing of formatted review, as moderator or scribe 25% Midterm exam 25% Term paper or project 25%

Components 1 & 2 – Weekly questions and presentations

We will read 4 papers per week. One moderator and a scribe will be assigned to each paper. The moderator will produce a review template for the paper, co-lead a discussion of the paper, and address questions for that paper. (The discussion may confirm, revise, or elaborate upon this answer.) A scribe will be assigned to summarize the main points of the answers, based on the discussion. Each student should expect to moderate 4-5 papers, depending on enrollment. (Papers may be assigned to multiple moderators if necessary to create a balanced assignment to each student.)
For each student who is not the official moderator of a paper, students will submit a question to the moderator.

Rubric for questions:

1 Asks a question that is related to the general topic area, but could be asked of almost any paper.

2 Asks a question that is related to the something specific to the paper

3 Asks a question that reveals understanding of the specific paper and some true limitation in the work or its presentation.

4 Asks a question that reveals understanding of the paper, and some limitation, and because it raises a wider issue.

Component 3 – The Midterm exam

The midterm will be a take-home activity that involves answering questions related to the design of some system or finding and evaluating papers that pertain to a topic.

Component 4 – The term project or paper

Graduate students will work in small groups to do a term project that involves designing, implementing, and evaluating a software system that embodies an intelligent user interface. Previous students have implemented recommender systems for various topics including travel, shopping, exercise; intelligent training systems (e.g. Elementary school math); game-playing agents; and systems to support decision-making. Student have used either a laptop or a handheld as a computing platform. (This year we hope to have at least one tablet computer, with an Android O/S available.) All students will participate in an in class evaluation of the projects, following general guidelines for the protection of human subjects.) Students will submit a running version of the system, a report describing the system and its evaluation, and a recorded demo.

Undergraduate students will generally do a term paper. (They may instead participate in one of the term projects, if they receive prior permission.) The topic of the term paper can be a literature review for a particular application of intelligent user interfaces. Alternatively, a paper can describe a design for a new system that would incorporate an intelligent user interface, building upon existing tools or ideas, and then discuss what each of the existing tools provides and what else would need to be added.

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