Welcome to

CS 410 –
Introduction to
Software Engineering

Spring 2019
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Main Instructor – Marc Pomplun
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Additional Instructors
Thras Karydis, DeepCure AI
(https://www.deepcure.ai/)
Abhi Adhikary, Workership
(https://www.workership.com/)
Himanshu Agrawal, Verbotics AI
(https://www.verbotics.io/)
Juan Morales, Tyme Wear
(https://tymewear.com/)

The Visual Attention Lab
Eye movement research

The new EyeLink-2K System

Example: Distribution of Visual Attention
Modeling of Brain Functions

- Unit and connection in the interpretive network
- Unit and connection in the gating network
- Unit and connection in the top-down bias network

Computer Vision:

Human-Computer Interfaces:

Now back to CS 410:
Interactive Online Textbook by zyBooks:
1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: UMBCS410PomplunSpring2019
3. Subscribe

Course materials on the Web:
http://www.cs.umb.edu/~marc/cs410/
(contains all kinds of course information and also my slides in PPT and PDF formats, updated after each session)

Piazza
We will use a Piazza forum for this course.
I would like to encourage you to use it for any course-related discussion.
Please only use private questions if the information is confidential or gives away homework solutions.
Otherwise, post using your name or anonymously so that all other students can also see the question and its answers.
Your Evaluation

• 2 sets of written exercises 15%
  (plus various online exercises)
• software project 70%
  (ideally groups of 3 or 4 students)
• midterm (1.5 hours) 15%

Grading

For the assignments, exams and your course grade, the following scheme will be used to convert percentages into letter grades:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 95%</td>
<td>A</td>
</tr>
<tr>
<td>≥ 90%</td>
<td>A-</td>
</tr>
<tr>
<td>≥ 86%</td>
<td>B+</td>
</tr>
<tr>
<td>≥ 82%</td>
<td>B</td>
</tr>
<tr>
<td>≥ 74%</td>
<td>C+</td>
</tr>
<tr>
<td>≥ 70%</td>
<td>C</td>
</tr>
<tr>
<td>≥ 66%</td>
<td>C-</td>
</tr>
<tr>
<td>≥ 62%</td>
<td>D+</td>
</tr>
<tr>
<td>≥ 56%</td>
<td>D</td>
</tr>
<tr>
<td>≥ 50%</td>
<td>D-</td>
</tr>
<tr>
<td>&lt; 50%</td>
<td>F</td>
</tr>
</tbody>
</table>

Complaints about Grading

If you think that the grading of your assignment or exam was unfair,
• write down your complaint (handwriting is OK),
• attach it to the assignment or exam,
• and give it to me or put it in my mailbox.
I will re-grade the whole exam/assignment and return it to you in class.

Software Engineering

• 1968: Conference on ‘software crisis’.
• Delivery of software was sometimes years late.
• Its cost was often much higher than predicted.
• Many programs were unreliable.
• Maintenance of software tended to be difficult.
• The software often poorly performed the task for which it was designed.

⇒ The term ‘software engineering’ was coined.

Questions about Software Engineering

Q: What is software engineering?
A: Software engineering is an engineering discipline which is concerned with all aspects of software production, for example, software specification, development, validation and evolution.

Q: What is the difference between software engineering and computer science?
A: Computer science is concerned with theory and fundamentals; software engineering is concerned with the practicalities of developing and delivering useful software.

Problems: Complexity and Change

Complexity:
• Software systems can include a huge number of functions and components.
• Many participants with usually different backgrounds participate in the development of software systems.
• Often no single person can understand the whole system.
• Sometimes systems become so hard to understand that they are never finished: ‘vaporware’.
Problems: Complexity and Change

Change:

- Requirements are updated when errors are discovered and when developers get a better understanding of the application.
- Long-term projects involve high staff-turnaround.
- Often, important technological changes occur during the development of a software system.
- The client’s needs may change during the development process.

\[\Rightarrow\] It is impossible to specify a static set of requirements.