Artificial Intelligence

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Outline of the class

- Introduction to the Course
- Introduction to the teaching staff
- Going over Syllabus
Introductions

Me!
Magy Seif El-Nasr

- Born in Cairo, Egypt
- Wanted to be a Surgeon (parents are both medical professors)
Magy Seif El-Nasr

- Took a Computer Graphics class in High School

- That was 1990

- Took my first class in CS in high school
I declared CS as my major at American University in Cairo (1991)

Directed in Theatre while studying
Magy Seif El-Nasr

- Master’s in CS at Texas A&M
- Studied under Lotfi Zadeh’s Student John Yen
Magy Seif El-Nasr

But studied psychology of emotions

Build believable characters
PROGRAMMING BELIEVABLE CHARACTERS FOR COMPUTER GAMES

- Learn how to develop human-like, complex game characters that will enhance the believability of your games.
- Explore the behavioral aspects of non-player characters, including the psychological aspects of games theory, emotional computing, and agent architectures.
- Delve into the design and programming of AI and intelligent agent architectures based on the most current research.
Magy Seif El-Nasr

- Master’s in CS at Texas A&M
- But studied psychology of emotions

Build believable characters
So I went to do my PhD at Northwestern with Andrew Ortony and Ian Horswill.

To do this:

Build believable characters
Magy Seif El-Nasr

➤ Natural Language
➤ Decision Making
Magy Seif El-Nasr

- AI at Northwestern
- Logic
- Problem Solvers
Magy Seif El-Nasr

- AI at Northwestern
- Robotics
But I was interested in how to create innovative experiences that engage so many people of different ages, and cultures
Magy Seif El-Nasr

- PhD in CS at Northwestern
- Study theatre and film

innovative experience engaging a market
Magy Seif El-Nasr

For Games: everything matters

Level Design Concept

Texturing, lighting, Framing

Feedback visual/audio/haptic

Mechanics/how to lead player
Magy Seif El-Nasr

- For Games: everything matters

- Combat System
- Leveling up and progression
- Physics
- Sound
REAL-TIME CINEMATOGRAPHY for GAMES

- In-depth look at methods for adapting film techniques for use in interactive entertainment, including images and source code examples.
- Covers the principles of cinematography, lighting, editing, and sound.
- Interviews with industry veterans in both film and games provide practical knowledge.

Brian Hawkins
Current Projects

Believable Characters and Interactive Narrative
Current Projects

- Game User Experience
- Games User Research Methodology
- GUR SIG Steering Committee
- Game Analytics: Data Mining
Current Projects

- Innovative Game Design (e.g., adaptive gaming, visualization to stimulate motivation)
INTRODUCTIONS

Questionnaire # 1
Syllabus

Take a look
AI

Concepts
- Agents
- Search Algorithms
- Logic and Inference
- Knowledge Representation
- Planning
- Decision-making
- Machine Learning and Data Mining
- Fuzzy Logic

Programming
- Python
- Data-driven programming
Teaching Method

- **Website**
  http://www.northeastern.edu/magy/courses/AI/AI.html

- **Schedule:**
  http://www.northeastern.edu/magy/courses/AI/schedule.html

- **Communication and resources:** Piazza
  https://piazza.com/northeastern/spring2013/cs41005100/home
Teaching Method

- Learning by doing
- All concepts follow with assignments
- Lots of time to apply concepts
- Focus on both:
  - critical thinking, algorithmic thinking, working collaboratively, programmer challenges
  - Algorithms and details
Books

**Required:**

**Recommended:**
Conduct

- No Cell phones or texts
- No facebook, twitter, etc. unless it is part of project work
- **Late:** more than 7 minute late 2% off
- **Attendance:** -5% for each class missed with no viable excuse
- Use of others’ code or assets need to be credited
Format

ǹ Read chapters assigned before class
ǹ First 30 minutes of class: discussion of the topic of the chapter
ǹ Second 30 minutes: concept introduction
ǹ Third 30 minutes: application of the concept and class assignment.
ǹ *Recommended books should be used as supplements for the work you will do on the project and assignments*
**Evaluation**

**Assignments: 35%**
- Individual Assignment 0 (5%)
- Individual Assignments 1 and 2 (10% each)
- Pair Programming Assignment (10%)

**Quiz: 20%**

**Project: 30%**
- Group (4-5)
- 5 parts: pitch (0%), plan (0%), iterations 3 (10% each), final (10%)
- Each iteration is graded – prototype is graded
- Management (5%)
- Documents submitted allow you to go to the next stage
Schedule
Homework for Friday

- Read Chapter 1, for a quiz on the topic on Friday.
- Sign up on piazza: https://piazza.com/northeastern/spring2013/cs41005100
- Put in a post on piazza a response to the introductions post