
IPM 10/11

Course Projects

Licenciatura em Ciência de Computadores

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Details on course projects

- **Group project:**
 - Recommended: 3 students
 - Different group sizes are only possible if validated by the lecturer.
- **Accountable for 80-100% of your final grade!**
- **Two components:**
 - Written report – 50%
 - Software implementation – 50%

Scenario for this work

- You have a small company that does HCI design and implementation.
- I have a big company that needs an HCI task and has money to ‘buy it’.
- Your **course project** is to provide a solid proposal that will make me buy the HCI solution from your company.
 - How is this proposal?

Proposal - Report

- You need to convince me to invest in your solution.
- First: Write a report where you have studied the problem and propose a solution:
 - What is the objective of the work, the available technology, and who are the end-users?
 - Given this, what are my ‘killer ideas’?
- **Deadline: 1st November**

Proposal – Prototype

- I am hard to convince!
- Second: Produce a prototype that convinces me that your ‘killer ideas’ will work!
 - Does not need to be a finished product.
 - Needs to demonstrate that the HCI is adequate.
 - I expect a graphical interface with a well-defined API, that could be ‘attached’ to a working version of the full software.

Summing up – Project Details

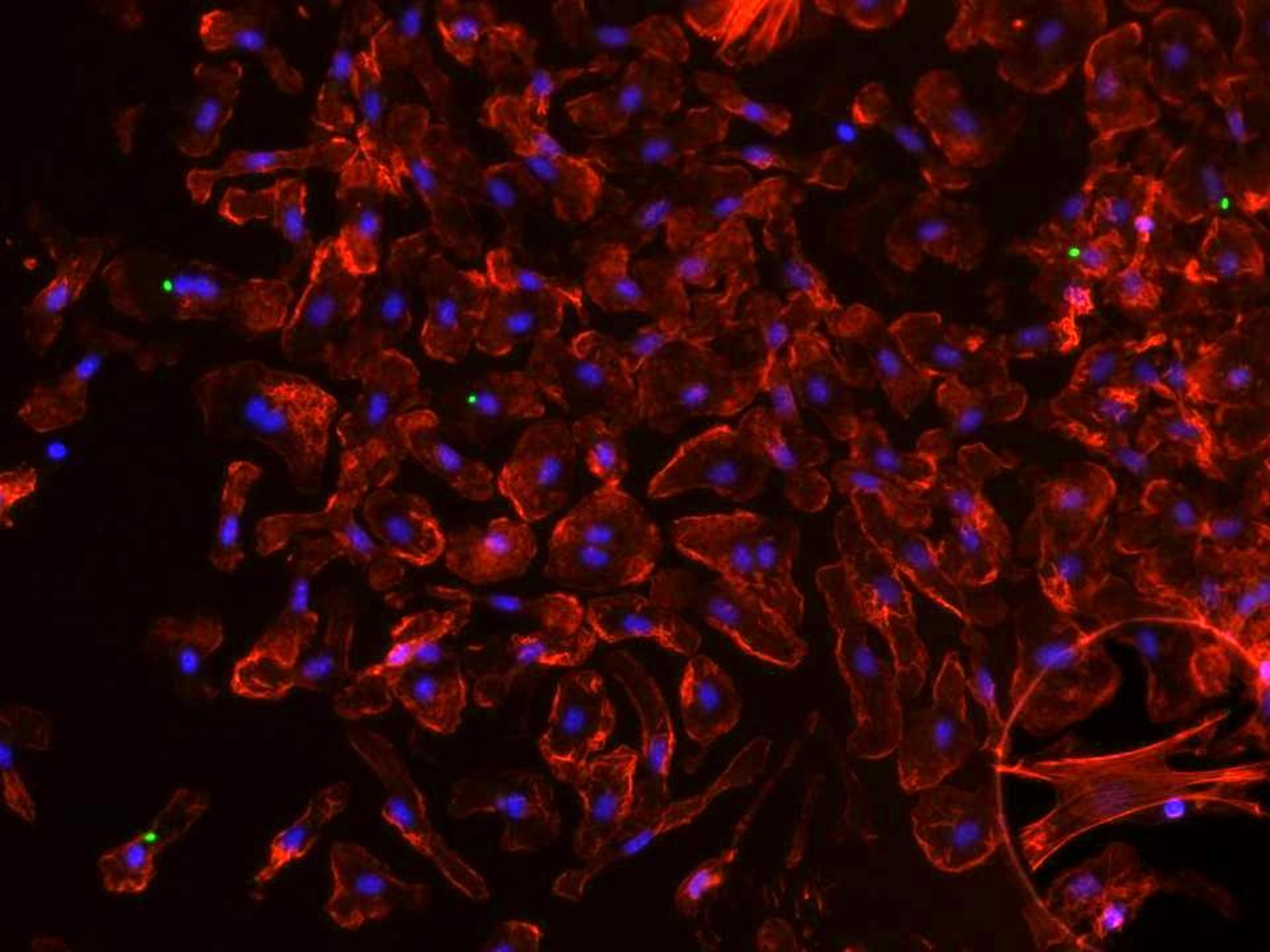
- **Sell me your solution.**
 - Report – Pdf File
 - Prototype
 - JAVA (AWT or Swing)
 - Others
- **Questions?**

Project topics

- I will give you some possible topics for your course project.
- You can suggest your own topics, but I need to validate them.
- Characteristics of a topic:
 - Has well defined target users, objectives and available technology .
 - Can be prototyped using JAVA or other available technologies.

Topic 1: CellNote

- **Software for Assisted Biology Research**
 - Biologists make (lots and lots of) experiments.
 - They need to assess results.
 - Typically: Manual counting!
- **What can we do?**
 - Software that maximizes their efficiency.
 - HCI Methodologies!
- **Test scenario: Leishmania research at IBMC**



Details

- **Objective:**
 - Provide an efficient way to annotate cellular imaging data.
- **Target user:**
 - Biologists.
- **Available technology:**
 - PC Workstation, CellNote 1.0 Core

Topic 2: T-Life

- **Therapeutic Learning of Facial Emotions**
- **Support clinical tool for treating autistic children.**
 - 2 webcams capture the 3D face of a child.
 - Rendering technologies display the face of the child in the computer.
 - Two modes of operation:
 - Mirror mode
 - Supervised Mode

Project Objective

- Teach a child how to recognize and express emotions.
 - Supervised animation of the ‘mirror face’?
 - Unsupervised ‘game-like’ control (HCI!)
 - How can this ‘game’ visually interact with the child?
 - How can the child interact with the ‘game’? (Think hardware!)

Autodesk Maya 8.5: D:\aaVero\projects\fim\Xeno\dataReceived\2008-07-10_scenes_test_rig\MC_parametric_mesh.mb --- mesh...

File Edit Modify Create Display Window Lighting/Shading Texturing Render Toon Paint Effects Help

Rendering

General Curves Surfaces Polygons Subdivs Deformation Animation Dynamics Rendering PaintEffects Toon Custom

View	Shading	Lighting	Show	Renderer	Panels
Verts:	240	176	0		
Edges:	430	314	0		
Faces:	184	134	0		
Tris:	350	260	0		
UVs:	512	386	0		

Channels Object

mesh ...

- Translate X 0
- Translate Y 2.274
- Translate Z 0
- Rotate X 0
- Rotate Y 0
- Rotate Z 0
- Scale X 1
- Scale Y 1
- Scale Z 1
- Visibility on

SHAPES

meshShape

Display Render

Layers Options Help

MEL

Move Tool: Use manipulator to move object(s). Use edit mode to change pivot (INSERT). Ctrl+LMB to move perpendicular.

Details

- **Objective:**
 - Design a child-'game' interaction interface.
- **Target user:**
 - Autistic children, psychologists.
- **Available technology:**
 - PC Workstation?
 - Xbox?
 - Other hardware?

Topic 3: CAGE

- **C**omputer **A**ssisted **G**astroenterology **E**xamination
 - GE rooms have state of the art imaging technology (HD cameras and screens).
 - However: Simply used as a live video stream.
- **What if:**
 - They could use gestures and voice to request enhanced access to more information?
- **Potential for:**
 - Computer Assisted Decision
 - Training environment for clinicians

Details

- **Objective:**
 - Study interactive solutions for enhanced information access inside (GE) gastroenterology exam rooms.
- **Target user:**
 - Gastroenterologists.
- **Available technology:**
 - Anything adequate to fit into a GE room.

Topic 4: DigiScope

- What if digital stethoscopes can screen cardiac pathologies?
- Build an effective interactive system that can be used by a doctor to:
 - Record audio signals
 - View important information obtained from audio processing
 - Screen cardiac pathologies
- As transparently as possible!

Details

- **Objective:**
 - Build an interactive system for screening cardiac pathologies based on auscultation
- **Target user:**
 - Physicians (not necessarily cardiologists)
- **Available technology:**
 - Digital Stethoscope, Portable interactive device (PDA, Tablet PC, etc)

Topic 5: New Sport Technology

- Advanced entertainment technology to enhance sport experience
- Create a new device, tool or system that can be used:
 - from home
 - at the sport arena
 - anywhere else

Project Objective

- Allow end-users to have an immersive experience.
 - Think of Interactive TV, Augmented Reality, Virtual Reality, Motion Capture
 - Design a low-cost, user-friendly interface to interact with the system

Details

- **Objective:**
 - Design an interactive system to create an immersive experience.
- **Target user:**
 - casual users.
- **Available technology:**
 - PC Workstation?, Xbox? WII remote?, headset? Virtual Reality?, Augmented Reality?, PDA?

Topic 6: Multi-touch Whiteboard

- Create a low-cost Multi-touch whiteboard using the Wiimote or similar.
 - Think of applications that can benefit from this technology
 - Where can be used? Think of applications that can benefit from a big screen.
 - <http://www.youtube.com/watch?v=5s5EvhHy7eQ&feature=related>
 - Johnny Chung Lee. HCI. Carnegie Mellon University

Details

- **Objective:**
 - Design an interactive system that uses Multi-touch Whiteboard
 - Describe in detail the problem the system will solve.
 - Which are the target users?
- **Available technology:**
 - PC Workstation?, WII remote?, projector...

Summing up – Project Topics

- Eight different proposed topics.
- No problem if several groups choose the same topic.
- If you don't like them feel free to propose one!
 - Problem? Technology? Target users?
 - Each new topic needs my validation!

Discussion

- Create groups by next week (compulsory).
- Choose / Propose a topic (highly recommended to do it quickly!).

- Questions?