
SIntS11/12

Course Projects

Mestrado em Informática Médica

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Details on course projects

- **Group project:**
 - Recommended: 2 students
 - Different group sizes are only possible if validated by the lecturer.
- **One component:**
 - Written report – 100%

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

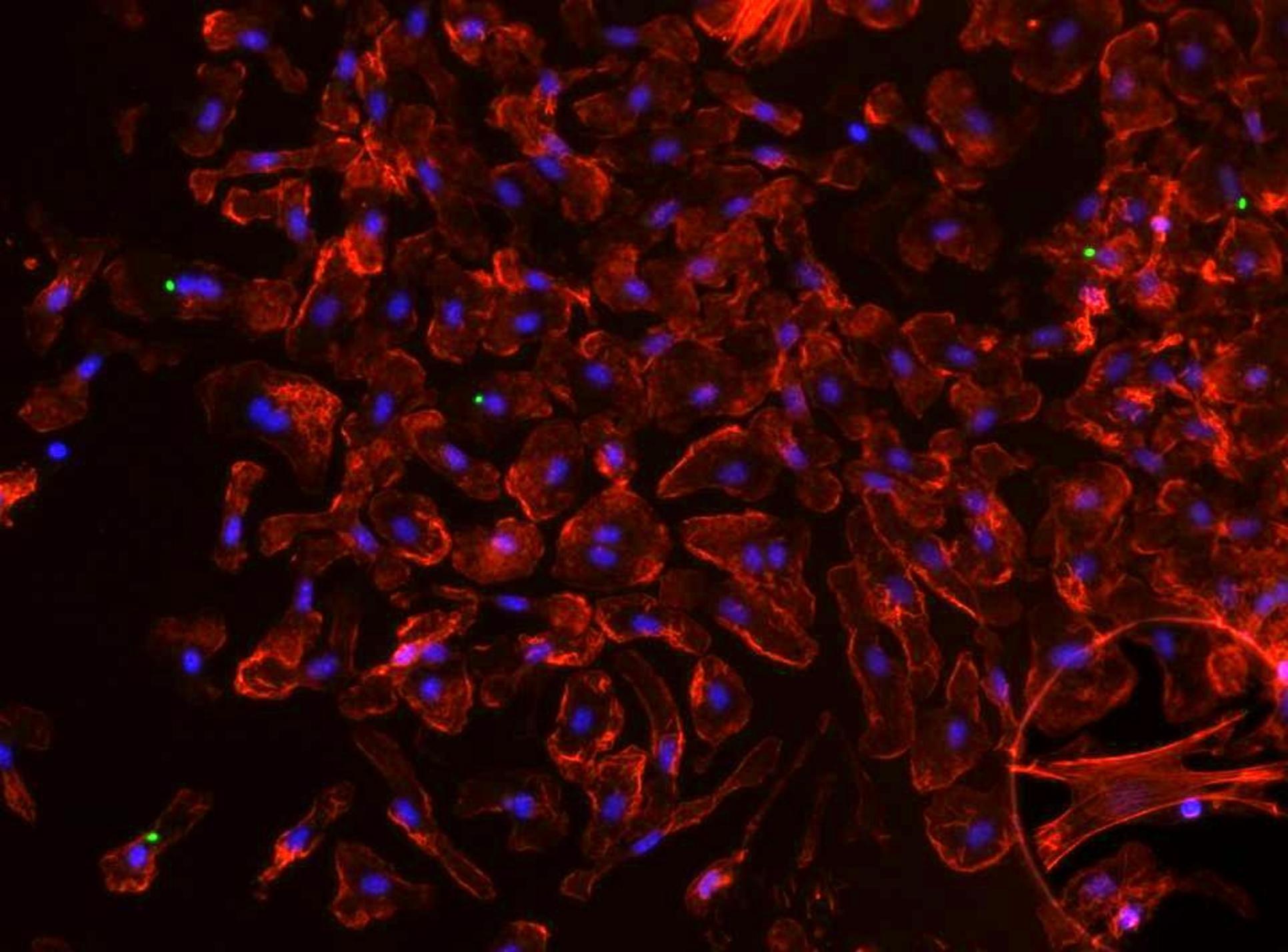
- You need to convince me to invest in your solution:
- Write a report where you have studied the problem and propose a solution:
 - What is the objective of the work, the available technology, and who are the end-users?
 - Given this, what are my ‘killer ideas’?

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**



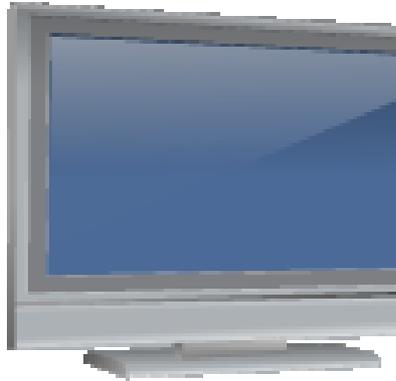
Details

- **Objective:**
 - Provide an efficient way to annotate cellular imaging data using a touch paradigm
- **Target user:**
 - Biologists
- **Available technology:**
 - Tablet PC (Asus EEE PC Transformer)

Topic 2: 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:**
 - We can have a small tablet next to the physician, in which he can interact with the big HD screen?
- **Potential for:**
 - Computer Assisted Decision
 - Training environment for clinicians

Gastroenterology tomorrow

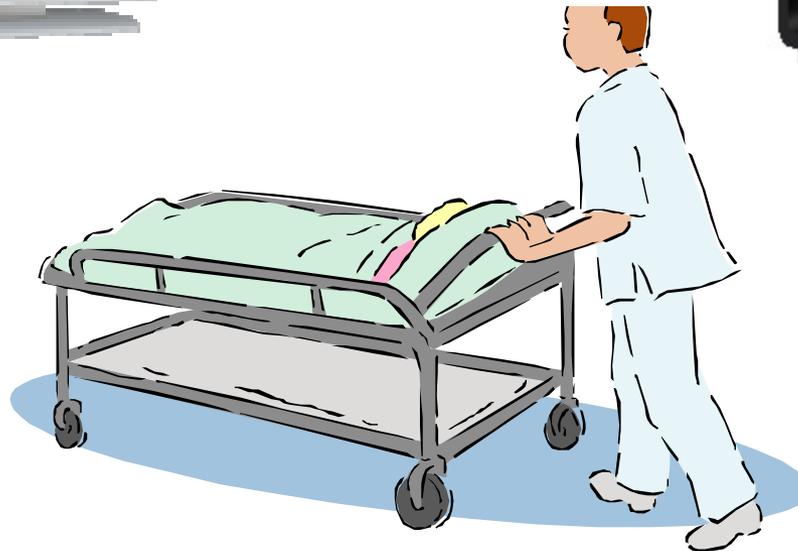


- Real-time video feed
- Patient information
- CAD – Computer Assisted Decision
- Similar exams
- Atlas queries
- ...



Superior Real-Time Interaction:

- Gestures
- Voice commands
- Touch-based interaction



What does this mean?

- Improved diagnostic capabilities
- Improved training capabilities
- Faster reporting

Details

- **Objective:**
 - Study interactive solutions for enhanced information access inside (GE) gastroenterology exam rooms
- **Target user:**
 - Gastroenterologists
- **Available technology:**
 - Tablet PC next to the patient's bed

Topic 3: DigiScope

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

DigiScope prototype



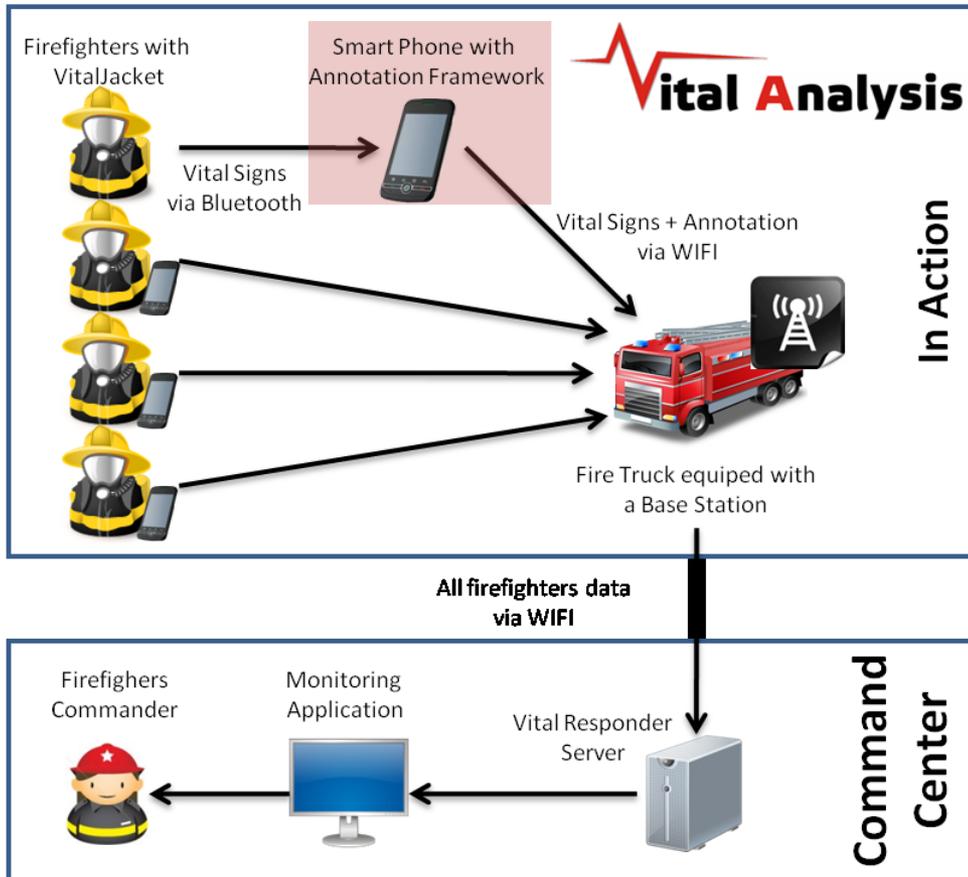
Details

- **Objective:**
 - Build an interactive system for screening cardiac pathologies based on auscultation
- **Target user:**
 - Physicians (not necessarily cardiologists)
- **Available technology:**
 - Smartphone

Topic 4: VR Browsing Station

- We can collect vital signs from firemen
 - GPS, accs, ECG, stress questionnaires, event details.
- Build an effective interactive system that can be used by a firemen team leader:
 - Review all data associated with an event
 - Associate with geographic positioning
 - Profile his team members

Vital Responder



Details

- **Objective:**
 - Build an interactive system for reviewing event details such as vital signs and activities
- **Target user:**
 - Firemen team leaders
- **Available technology:**
 - Touch-based Tablet PC

Summing up – Project Topics

- Various 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?