

# Teaching a first course in Human-Robot Interaction

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# Introduction

- Design and implementation of an introductory course in HRI
- Relatively new field with no standard textbook, lectures, topics, or assignments
- Survey of the field with integral laboratory component
- Designed for students at various levels and backgrounds



- Designed for HCI graduate students
- 4 undergraduate students enrolled in the course
- 1 CS, 2 Media Arts & 1 International Student
- Very limited technical skill

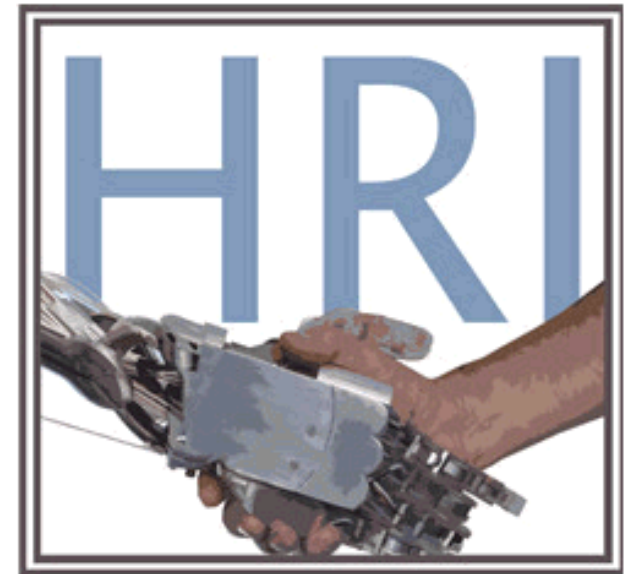


## Human-Robot Interaction course



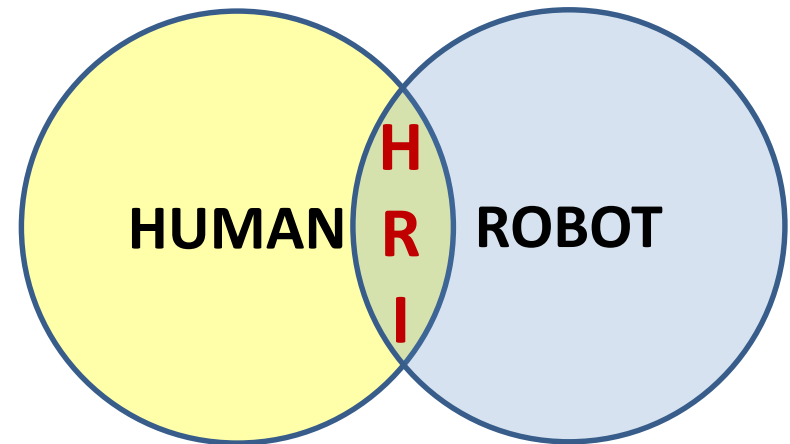
# What is Human-Robot Interaction?

- Field of study to understand, design and evaluate robotics systems for use by or with humans. (Goodrich, 2007)
- The objective is to develop principles to allow for natural and effective communication between humans and robots.





- Roles
- Mental Model
- Behavior/Response of Humans
- Expectations
- Interaction
- Modes of Communication
- Robot Capabilities for Interaction

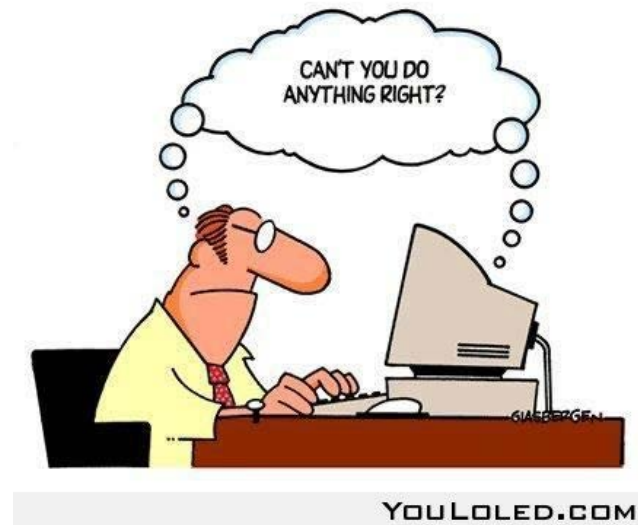


# Robots & Humans as a System



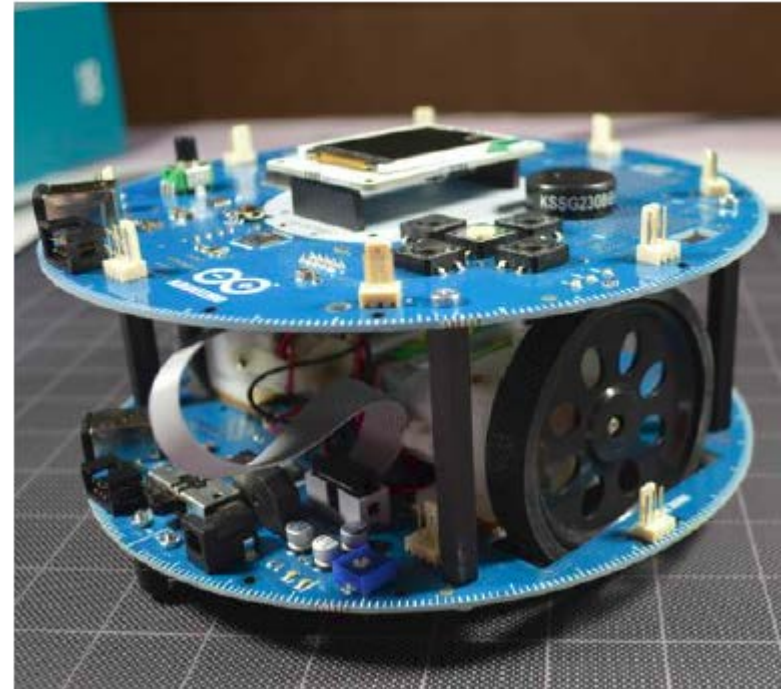
# HCI vs HRI

- Embodiment
  - Test robots in degraded conditions (environment, sensor errors)
- Repeatability
  - No 2 robots act the same
- Multiple roles of interaction
- Multiple people can interact with the robot
- Levels of autonomy

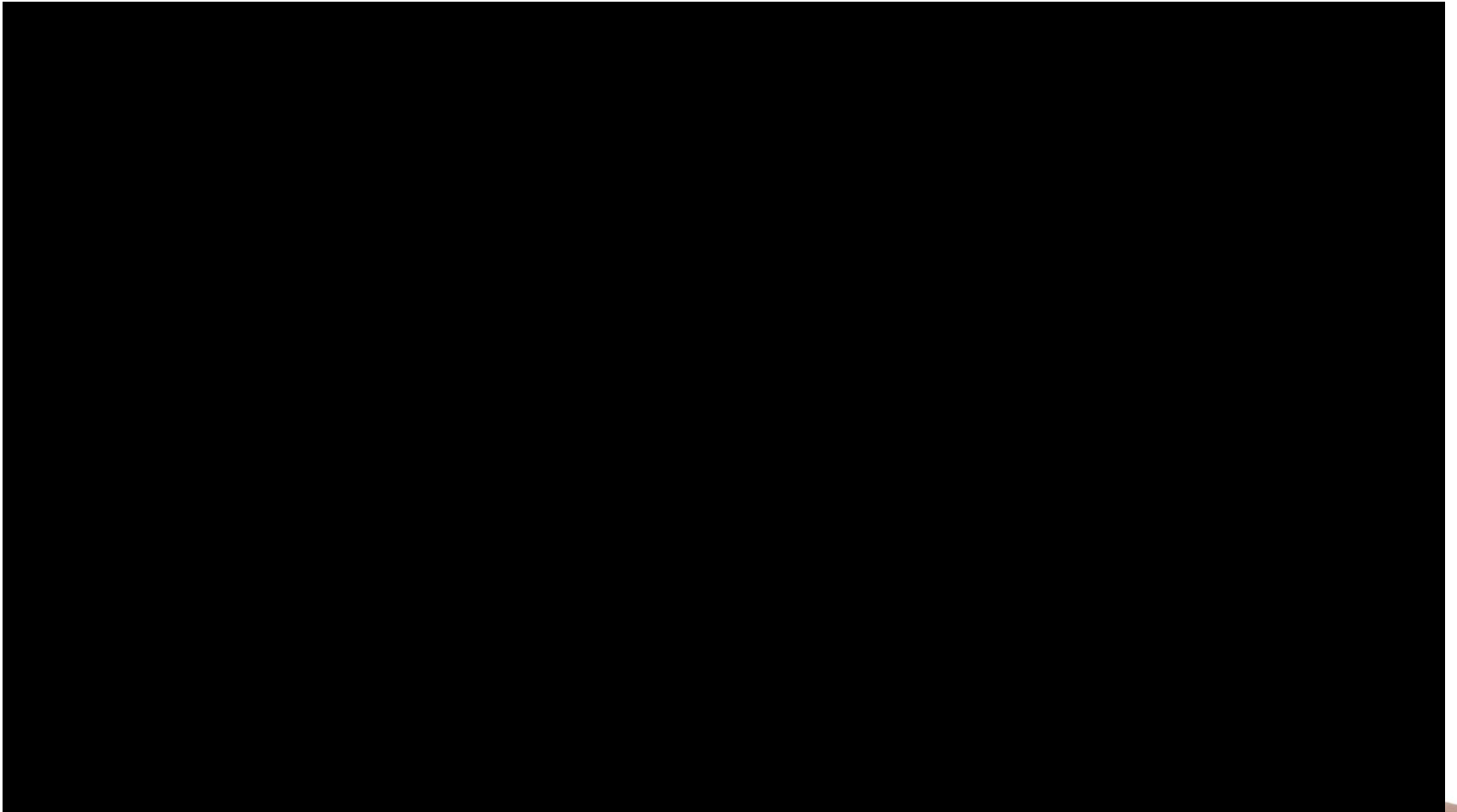


# Topics & Format

- HRI design for mobile robots
- Weekly readings
- Discussions
- Quizzes
- Labs
- Projects
- Arduino Robot



# Robot Music Machine



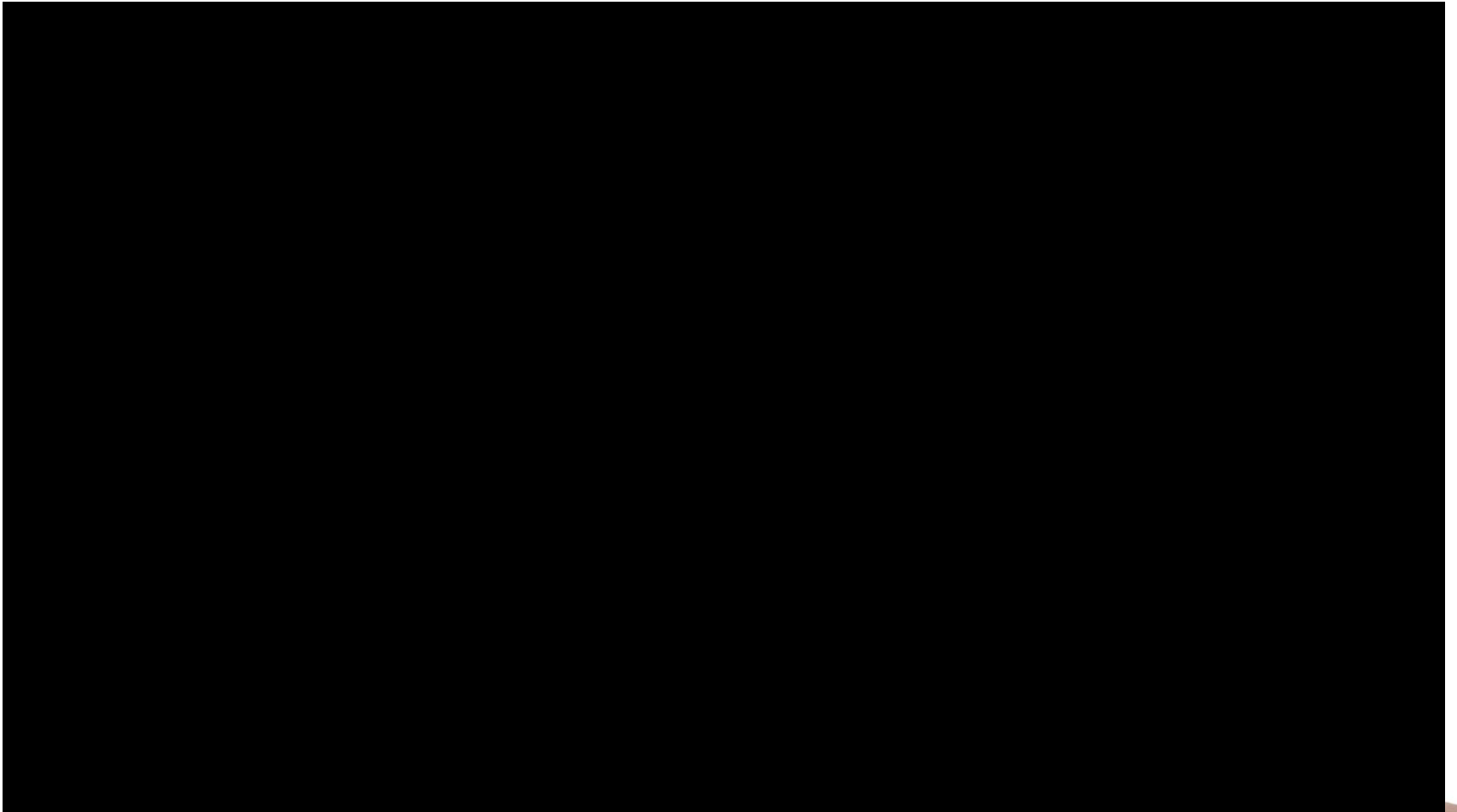
# Robot Dancer



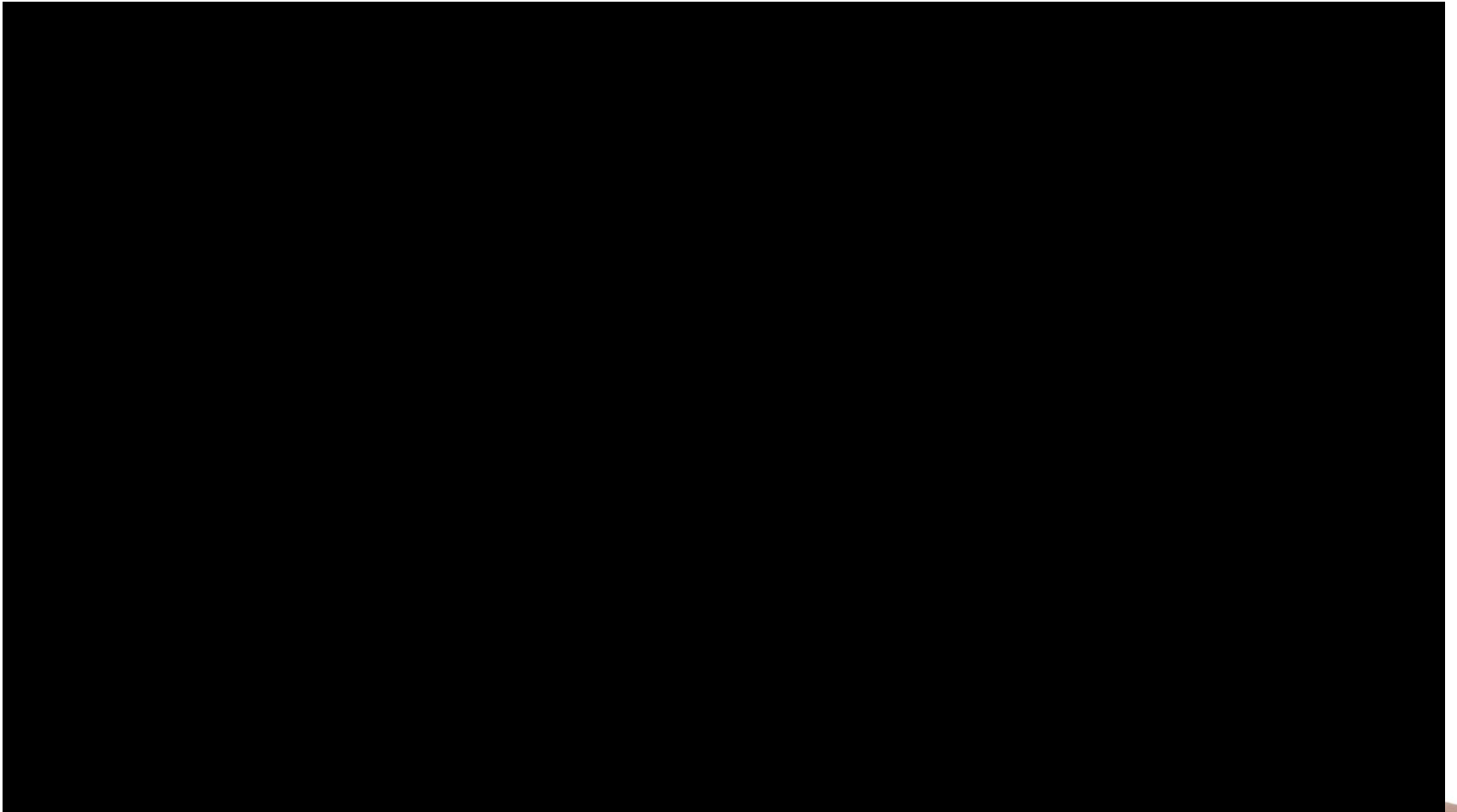
# Robot Conga



# Robot Marco Polo

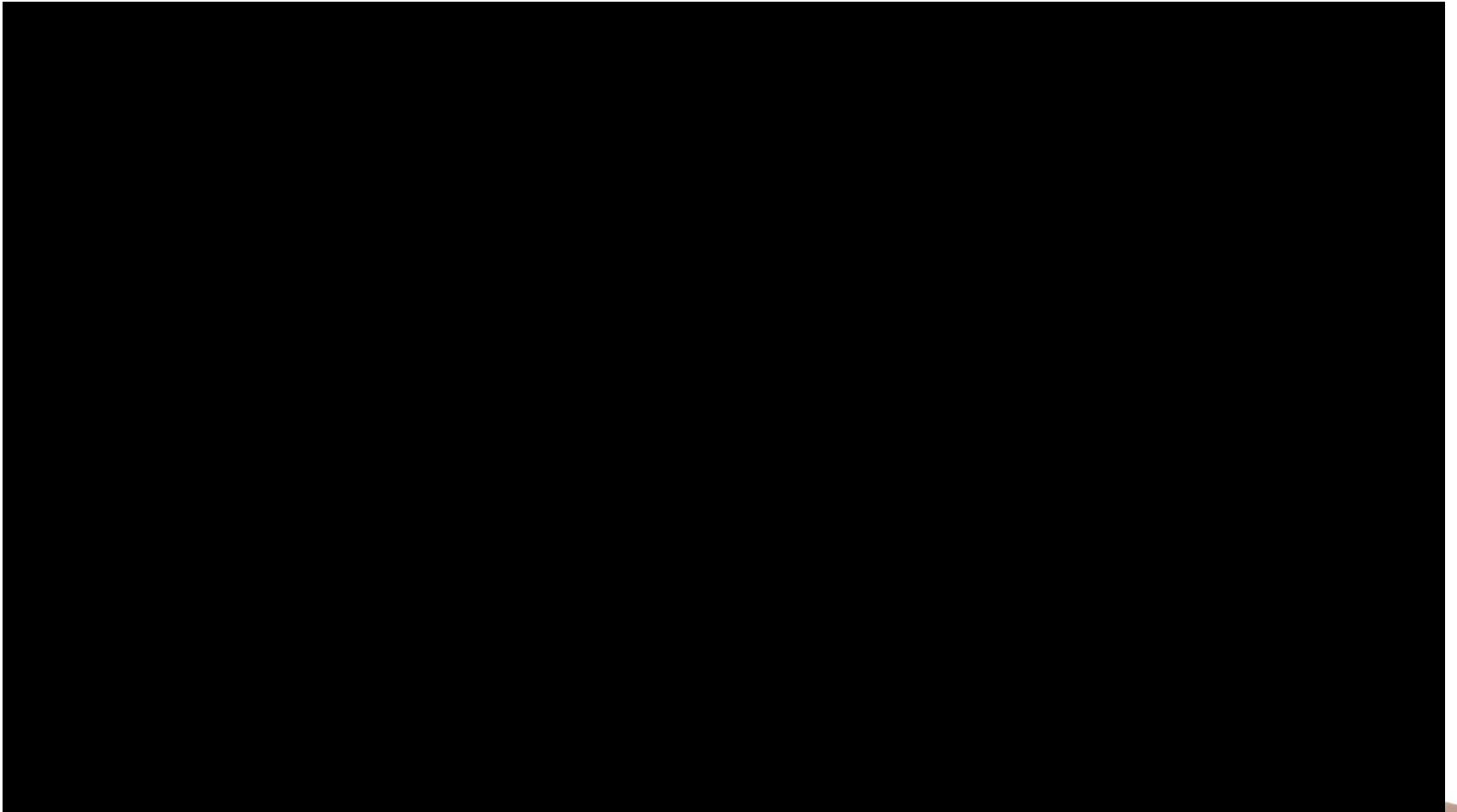


# Robot Remote





# Robot Rescuer



# HRI Highlights



# Conclusions

- It is possible to teach students to do basic robotics & HRI who do not have a technical background
- Labs with sensors were the most challenging
- With extra instruction they were able to program, wire sensors & write technical documents
- Focus more on interaction and interface design

