

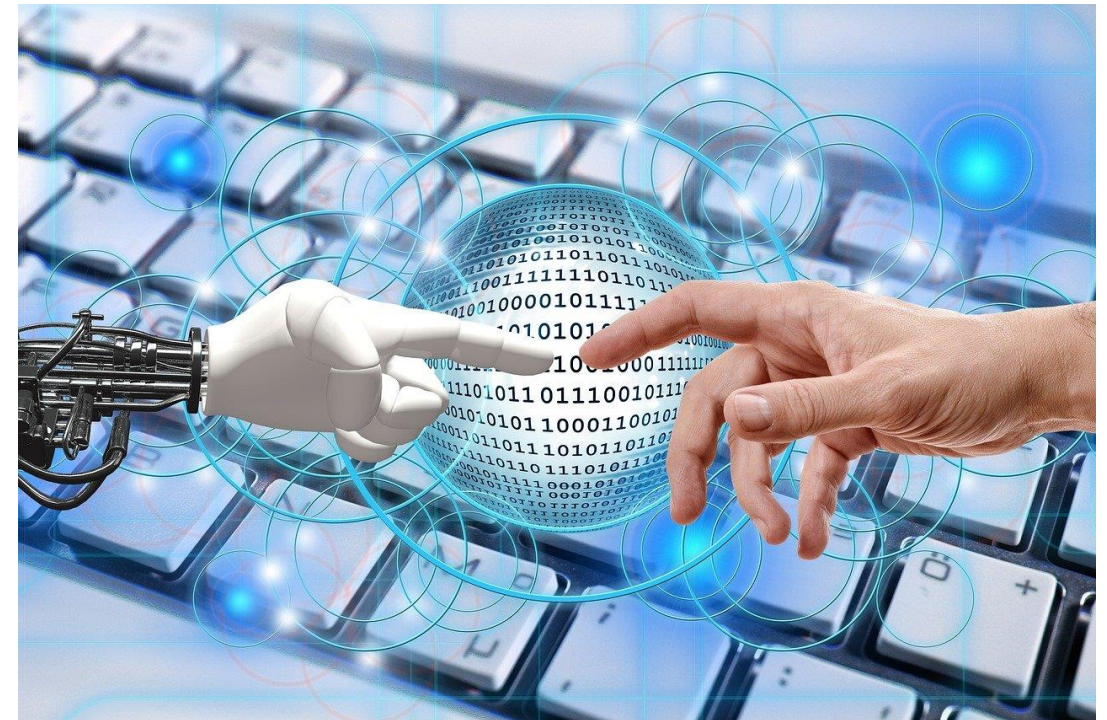
Tutorial 01

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- Examples of human-robot interaction and its human-centered aspects.
- *qiBullet*: Introduction and Installation.

Examples of Human-Robot Interaction



https://www.youtube.com/watch?v=_EnzZrXJwJo



<https://www.youtube.com/watch?v=y-rEI4bezWc>

... in close collaboration with human firefighters and emergency services.



<https://youtu.be/8jEejp8CCbA>



<https://youtu.be/c8lJg9pOcVc>



<https://youtu.be/R9Tr9Qe0K2M>



<https://youtu.be/wT0RtnCR13o>



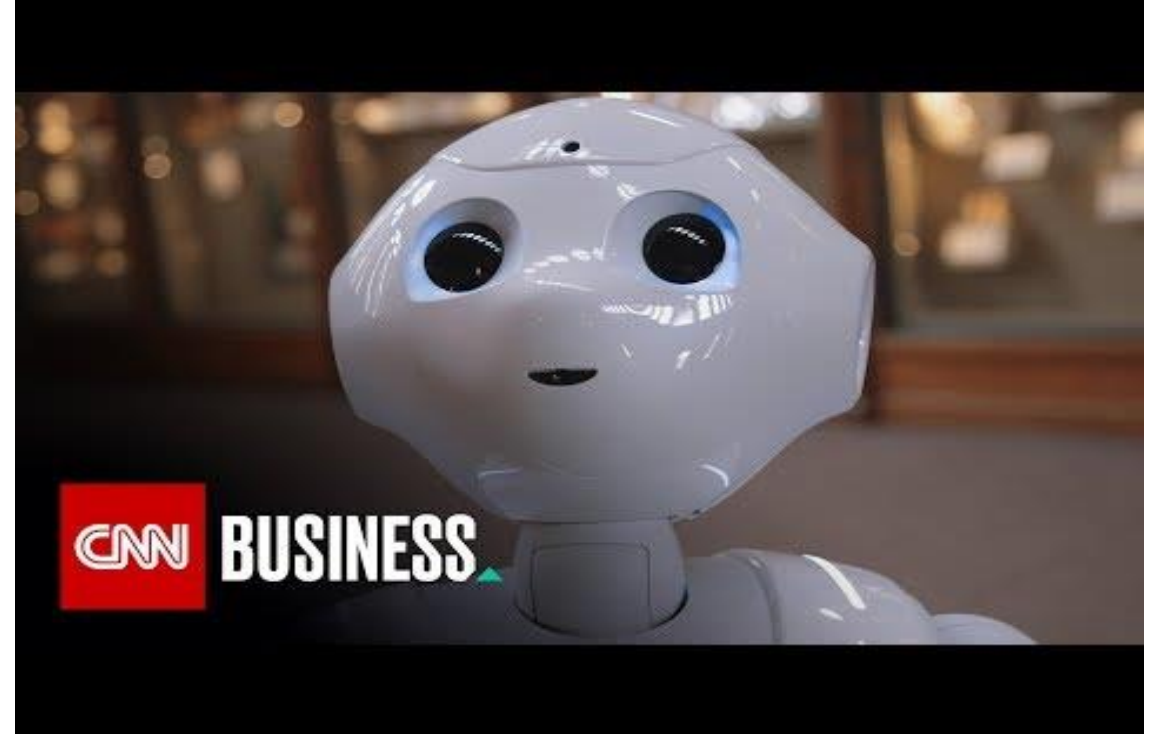
<https://youtu.be/dCn1ktzbpZ8>



<https://youtu.be/mW78KG-29lg>



<https://youtu.be/nJj8wJg6jNM>



https://youtu.be/AHZ1AhdUS_M

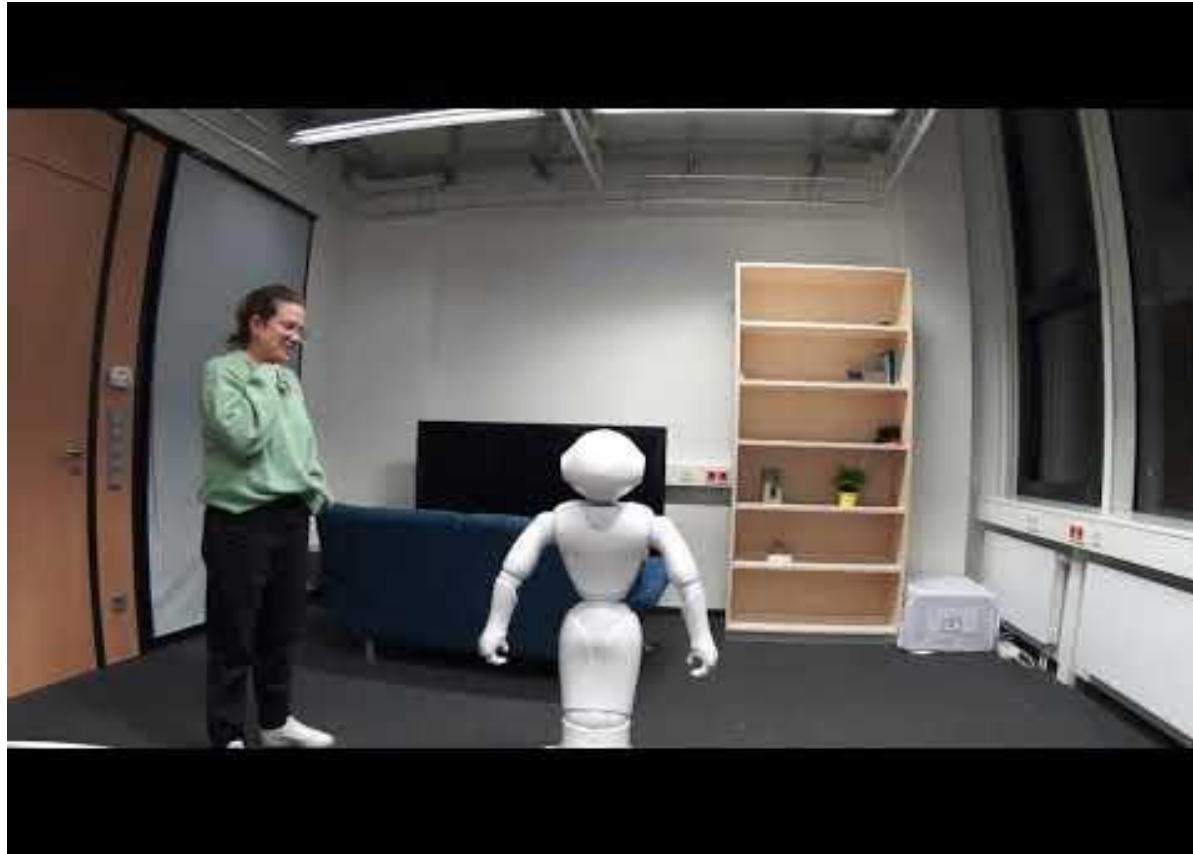


<https://youtu.be/7YRNjclHTHg>

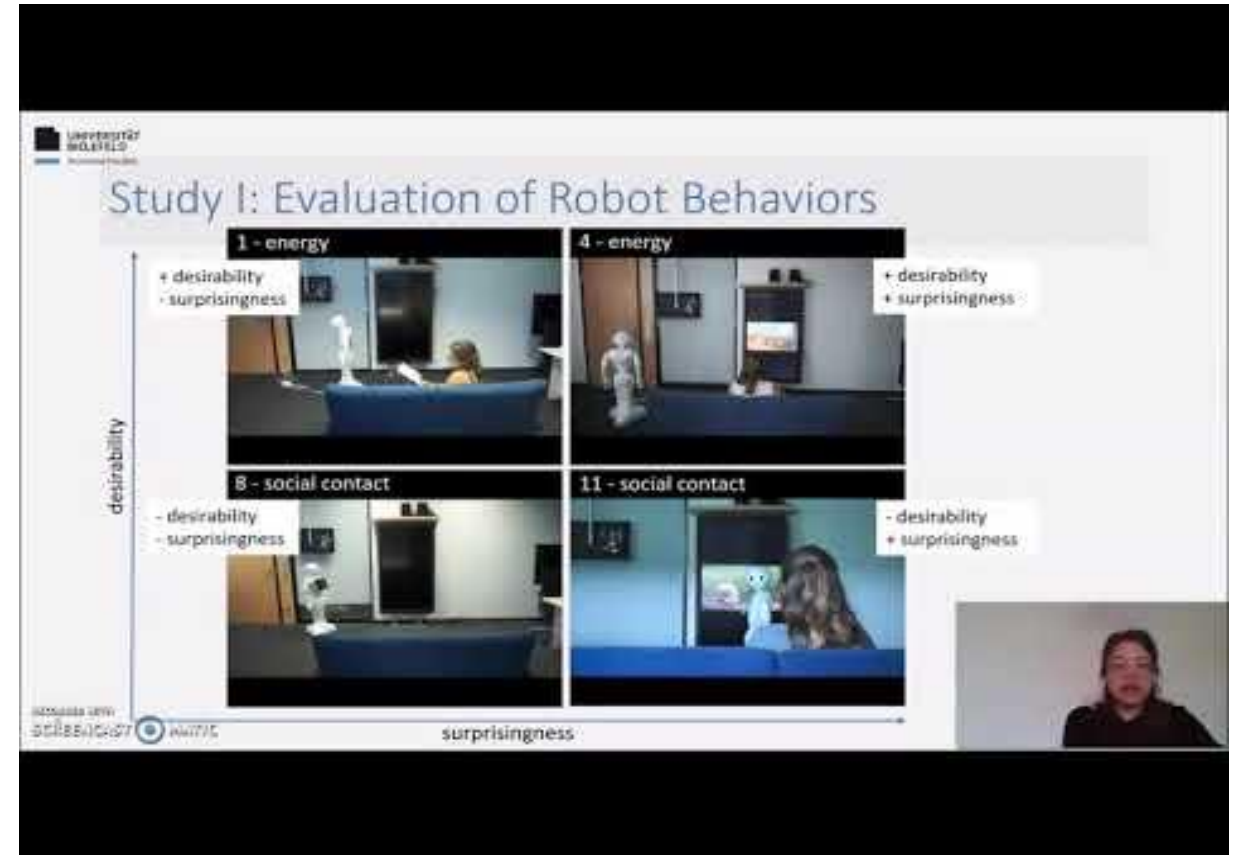


<https://youtu.be/-nrp7geg6Wg>

Combine the strengths of an embodied robot and virtual agent technologies...



<https://youtu.be/yHI-hTbRECQ>



<https://youtu.be/4SGNsOFyMwg>

An extension of this would be multimodal explanations that are both verbal and nonverbal...



<https://youtu.be/cKoYE969OvM>



<https://youtu.be/VN1-bToWlac>



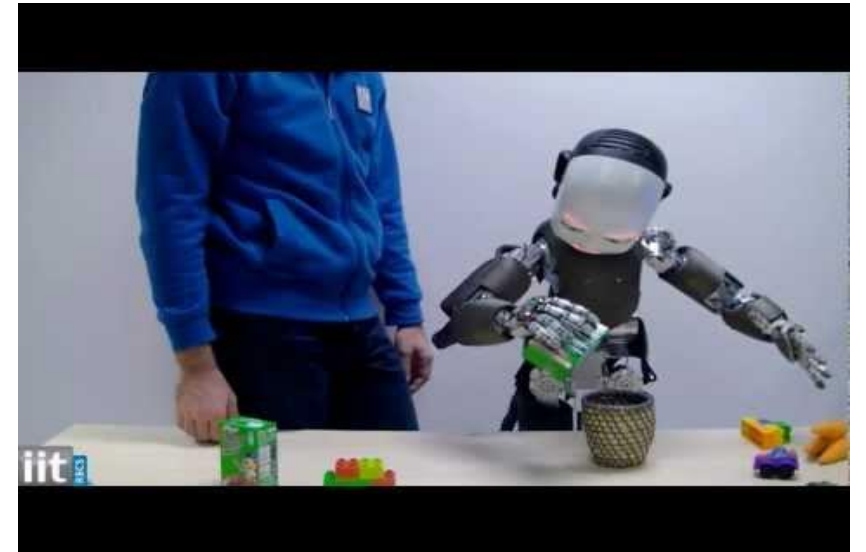
<https://youtu.be/5n4vYPmVug>

- Hard versus soft materials
- Compliant versus stiff design



<https://youtu.be/5n4vYPmVug>

Prof. Andrea Bonarini, Italy [Robotics and Design]



<https://youtu.be/ZcTwO2dpX8A>

qiBullet: Introduction and Installation.

- Installation

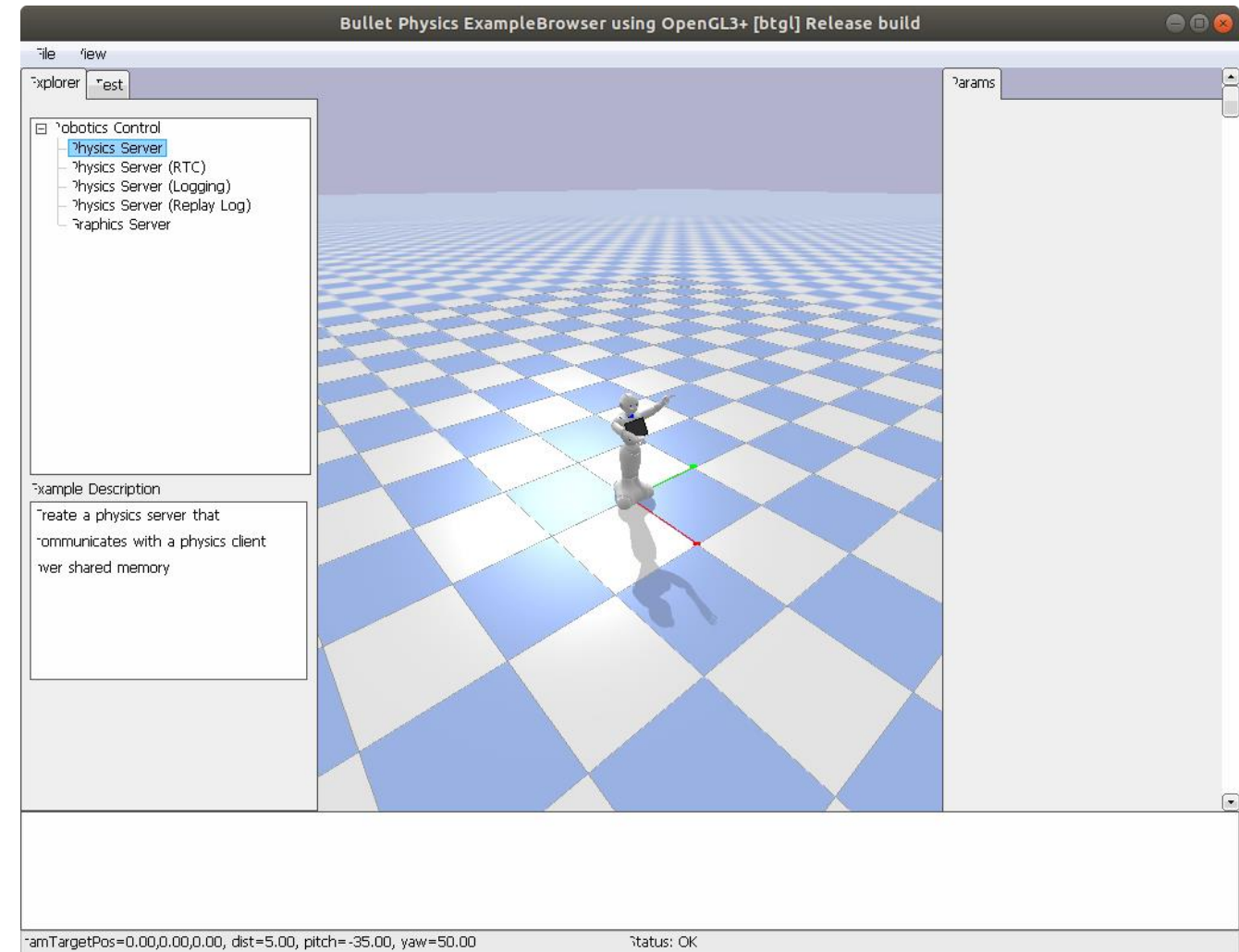
- <https://github.com/softbankrobotics-research/qibullet>

- Usage

- <https://github.com/softbankrobotics-research/qibullet/wiki/Tutorials:-Virtual-Robot>

- Warm-Up tasks:

- Spawn Pepper
- Make Pepper dance
- Add a table and objects to the environment
- Make Pepper lay the table



- Cost savings by not requiring physical robots.
- Faster development and testing.
- Safe environment for experimentation.



- High-quality physics simulation.
- Support for Pepper and NAO robots.
- Realistic sensor modeling.
- Integration with popular Python libraries.

- TTS Engines
 - There are many libraries that you could use
 - ▶ **gTTS** with **playsound**:
Documentation link or any other library of your preference.
 - » <https://pypi.org/project/gTTS/>
 - » <https://pypi.org/project/playsound/>
 - ▶ **pyttsx3**:
 - » <https://pypi.org/project/pyttsx3/>
 - If you use any other libraries, then please provide us the links with installation instruction.
- For parallel behaviors, use threads:
 - <https://docs.python.org/3/library/threading.html>

Thank you!

- For any queries:
 - LEA Forum
 - email to ritwik.sinha@smail.inf.h-brs.de