HRI Reading Group
@ Instituto Superior Técnico

Meeting #14 (22 June 2018)

Welcome!

Kehoe, Ben, Sachin Patil, Pieter Abbeel, and Ken Goldberg. **"A survey of research on cloud robotics and automation."** IEEE Transactions on automation science and engineering 12, no. 2 (2015): 398-409.

Cloud robotics

"Any robot or automation system that relies on either data or code from a network to support its operation, i.e., not all **sensing**, **computation** and **memory** is integrated into a standalone system."

Cloud robotics

Cloud computing for alleviating local computational resources

Collective robot learning for sharing knowledge

Crowdsourcing

Big data for training algos / accessing knowledge bases

What are benefits of cloud vs. standalone?

- Performance (quality and latency)
- Deployment, Scalability and initial investment
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What are the challenges of cloud vs. standalone?

- Reliability of users for crowdsourcing
- Real-time operation may not always be possible
- Generalizing knowledge across domains
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DESIGN EXERCISE

How can robots and their interfaces benefit from existing cloud-based technological tools?

Bootstrapping performance, and design and implementation - Transferring skills / solutions / policy - Collaborative / Multi-Agent scenarios - IoT applications

Cloud robotics redefined

"Any (group of) agent(s) or automation system(s) that partially or fully relies, a network to support, provide or enhance its capabilities through knowledge sharing and skill transfering."

Who is bringing the refreshment next week?

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Meeting #15 (**29 June** 2018)