

# Advanced Robotics Objective

- Industrial -> consumer, home and entertainment
- Intelligent, flexible, cost-effective, modular, safe, dependable, robust and user-driven
- **Robots in everyday human environments in close cooperation with people**

## → Develop humanoid robots!

- Human body well suited for acting in our everyday environments
- Stairs, door handles, tools, ... designed to be used by humans
- Intuitive multimodal communication: speech, eye movements, mimics, gestures, ...
- Imitation learning / programming by demonstration
- Japan and Korea are ahead.  
Where is the European industry?



Honda Asimo

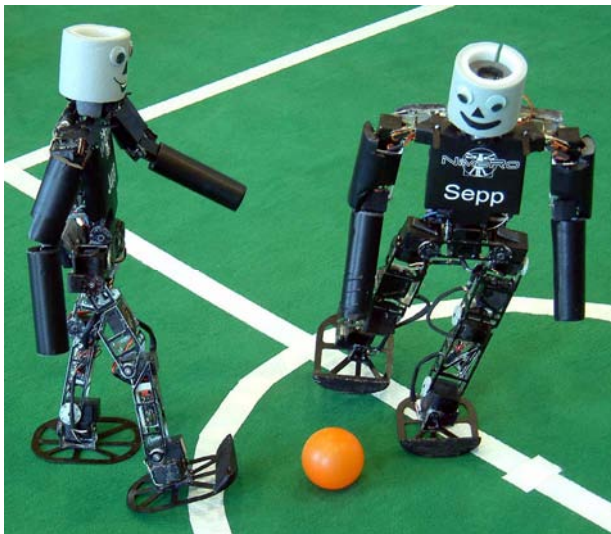


# Humanoid Robot Group Univ. of Freiburg, Germany



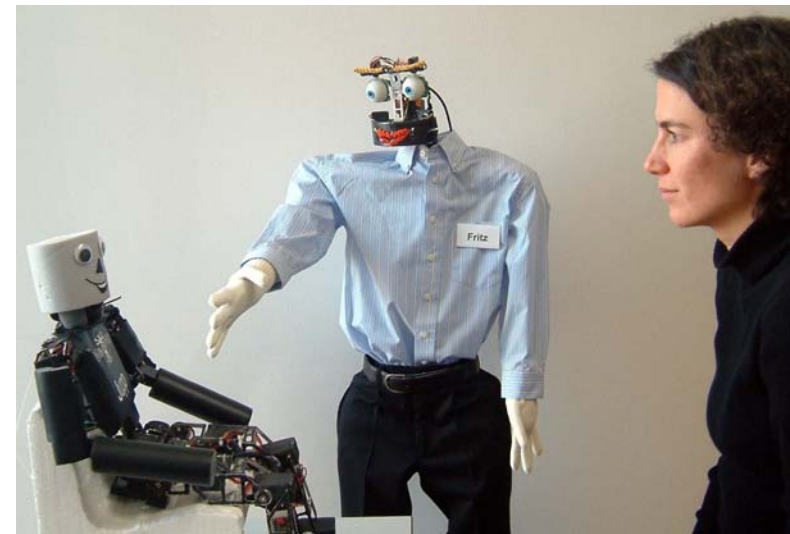
## RoboCup Soccer

- Robust walking, kicking
- Getting-up
- Team play



## Museum Guide

- Speech analysis & synthesis
- Gestures, expressive face
- Attention, eye contact



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