

ROBOTICS FOR CHILD HEALTH AND CARE: current practice and future perspectives

The Hague University of Applied Sciences, The Netherlands

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This presentation

- What is a robot and why are they interesting for health and care?
- What can robots do in health and care?
- How are they currently being used in child health and care?
- Some examples of promising applications
- The future potential: where will it go?



What is a robot?

Sensors

Actuators

Intelligence

Embodiment

Force or movement

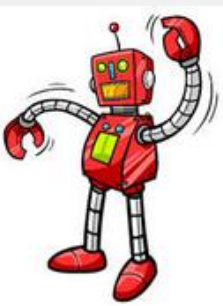
Autonomy



Strong sides of robots

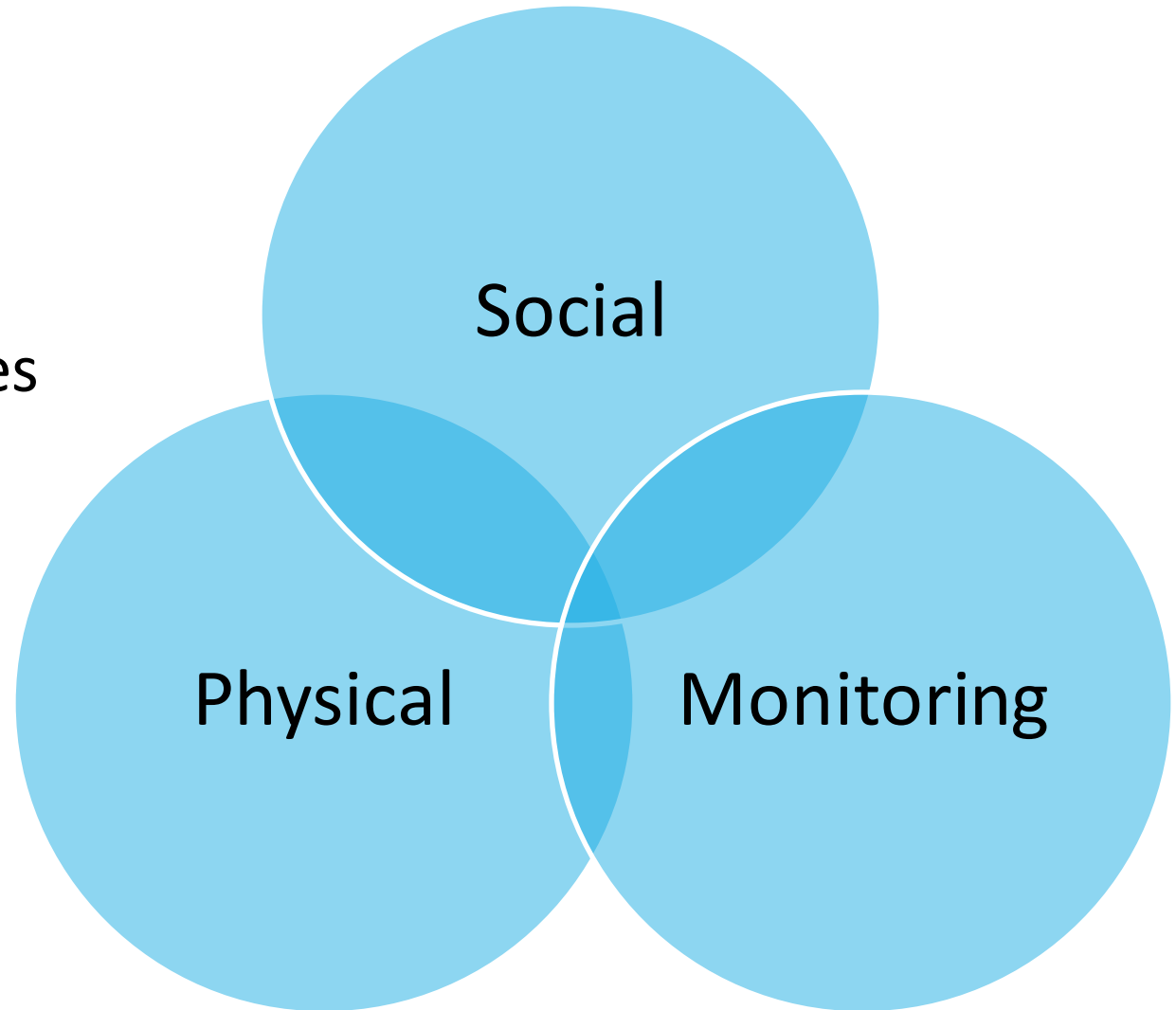
- Exert force
- Repetitive tasks
- 24 hours a day (if power allows)
- Impersonal assistance
- Continuous care
- 'Intelligence'
- Customizable, personalisation, programmable
- Can be embedded in a 'smart' environment

ROBOTS ... Our typical views



Robots in healthcare: potential roles

- Nursing tasks
- Companionship
- Physical assistance
- Surgical/therapeutic procedures
- Training/rehabilitation
- Monitoring
- Reminders, day structure etc.
- Intermediary role
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Robots in child health and care: current status

- Examples of promising applications in almost all roles mentioned
- Strong emphasis on social robots
 - *Companionship*
 - *Communication*
 - *Information / teaching assistance*
 - *Leisure and play*
 - *Training / support with activities*
 - *Day structure support*
- Only very few applications in actual use: mostly only studies/pilots

An example: children with autism



- Simple, predictable, safe
- Experience with a robot can be less complex and intimidating
- Intrinsic appeal and motivation for technology
- Robots enable embodied (social) interaction
- Robots can offer individualised care for specific child's needs



An example: play for children with physical disabilities



Playing for children who cannot participate in 'normal' play with peers

Simple individual or group Games

Setting: rehabilitation, school



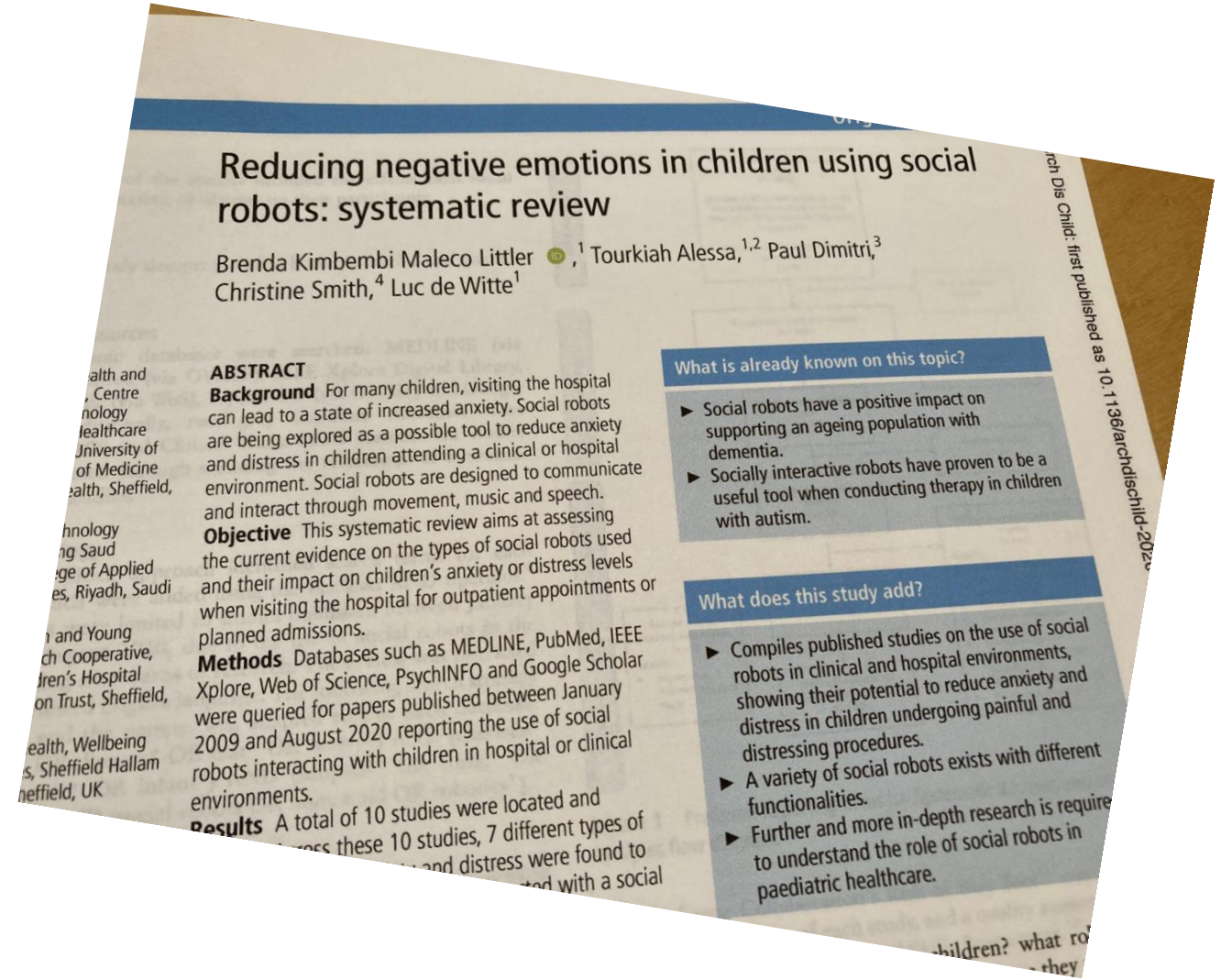
An example: managing anxiety in the hospital



Miro



Pepper





**Some
More
examples**

Future potential

- There is a massive amount of R&D in this field
- Robots are rapidly becoming smarter:
 - More adaptable, able to recognise people, adapting their behaviour
 - Able to recognise emotions
 - Learning faster, connected to the environment and using large language AI models etc.
 - Speaking different languages
 - etc.....
- Most promising fields: information / education support / companionship / monitoring / supporting day structure / remote care / social contact
- Go for it! Robots are there and can be of great help