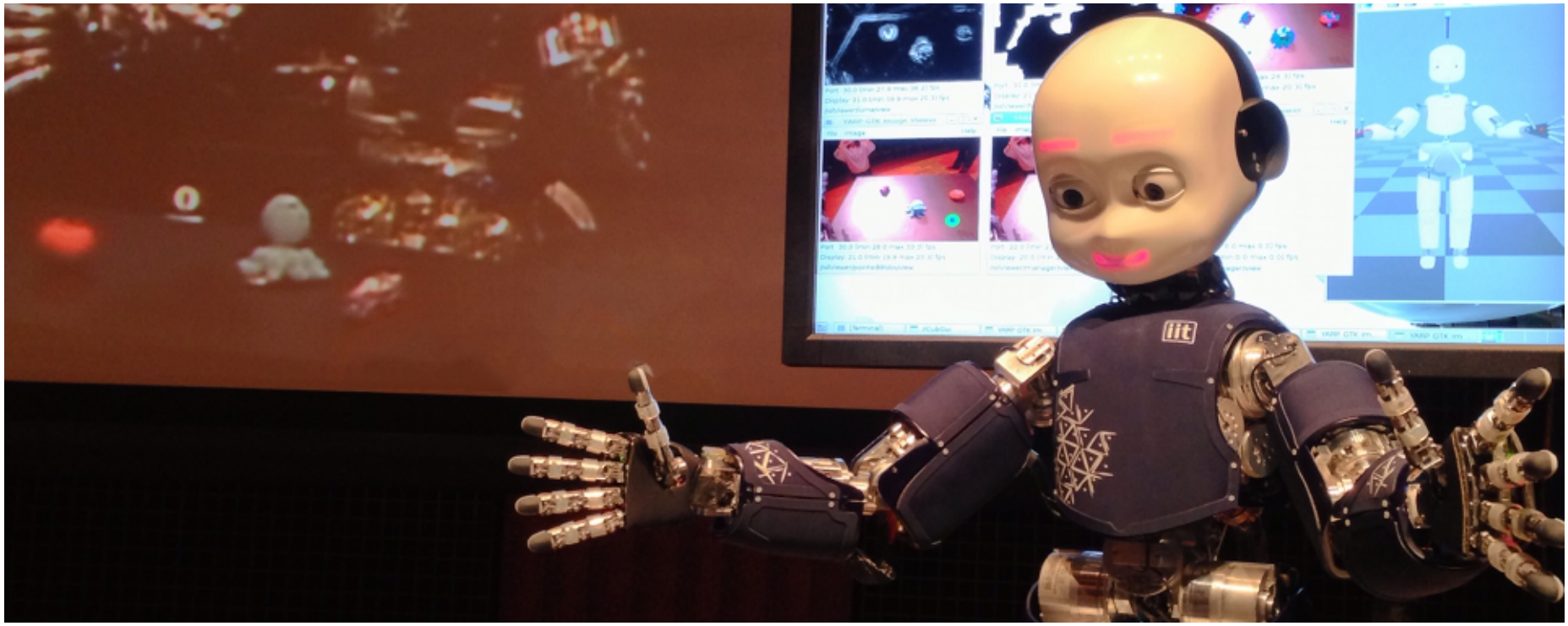
HRI: a bridge between Robotics and Neuroscience

HRI14
Human-Robot Interaction @ Bielefeld University



A. Sciutti, K.S. Lohan & Y. Nagai

3 March 2014 – Bielefeld – HRI 2014 workshop

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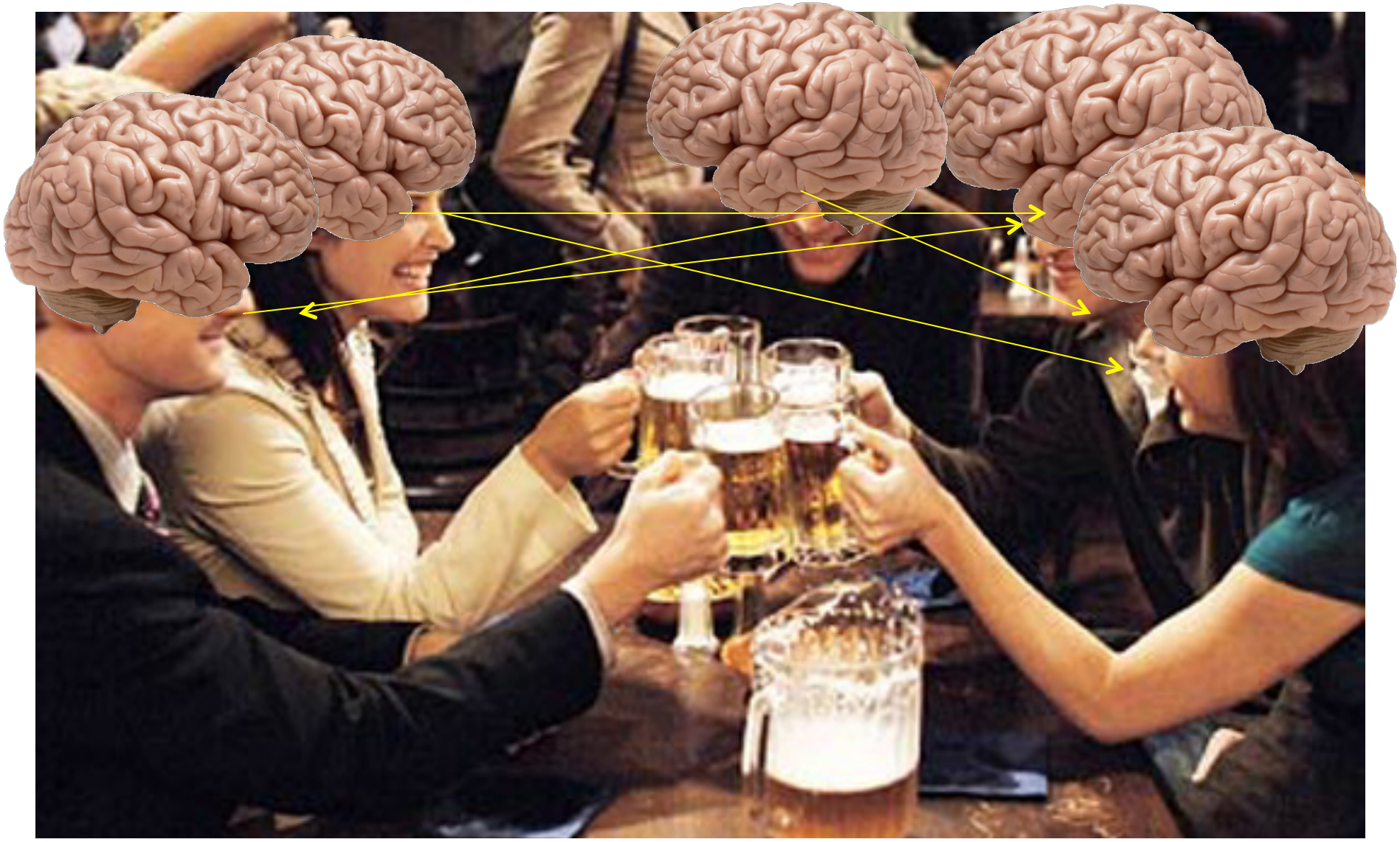
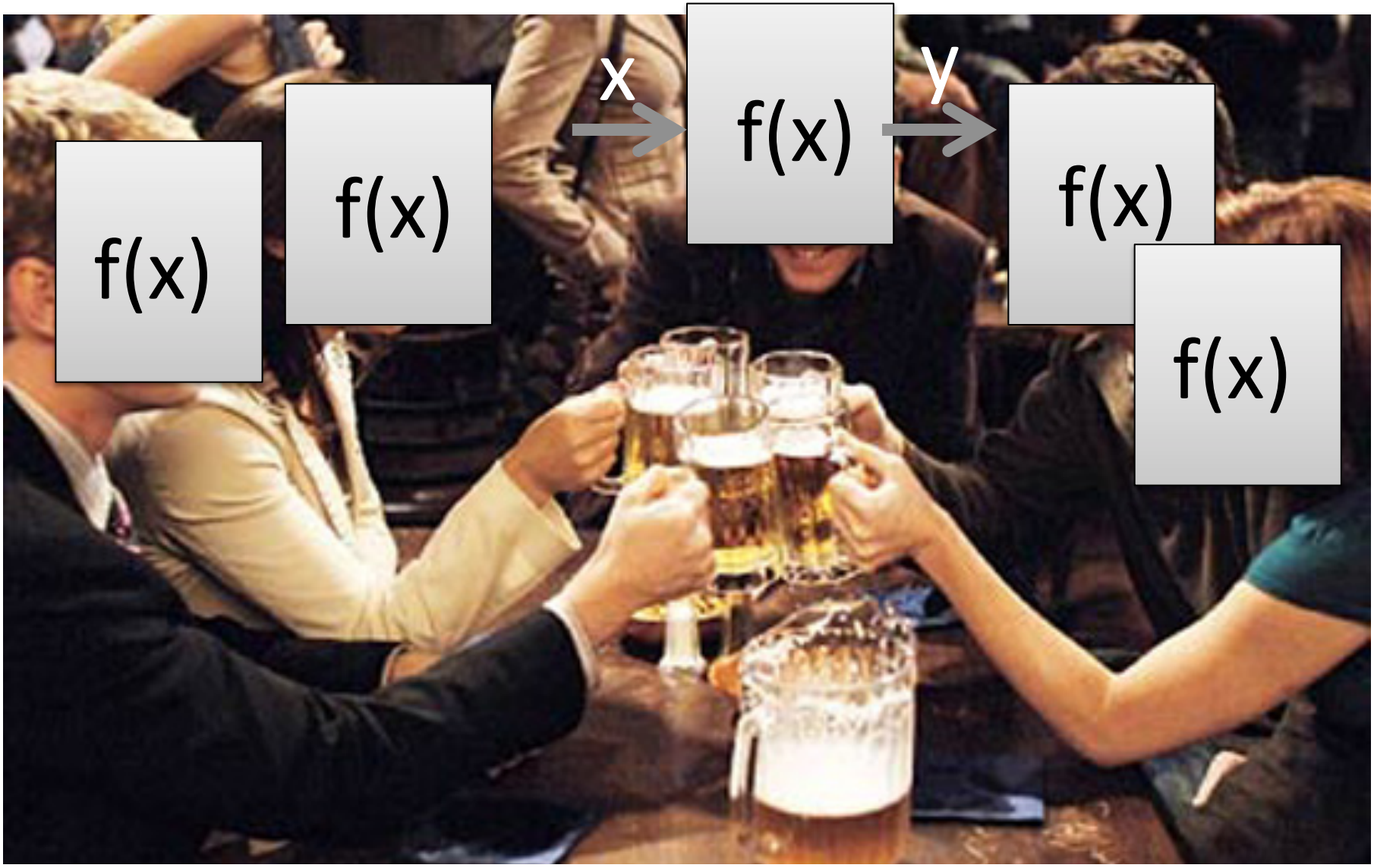
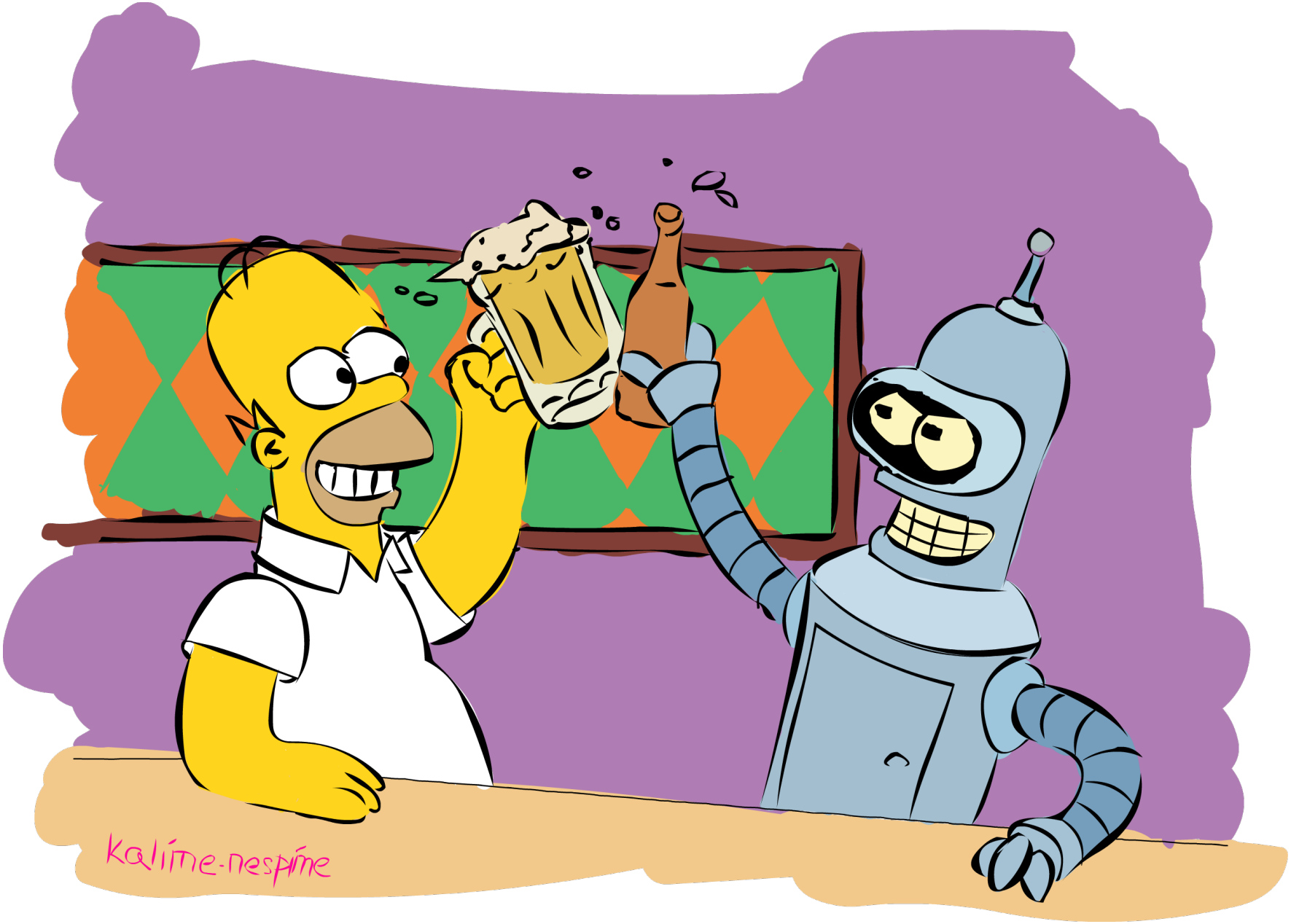
The neuroscientist's perspective:



The engineer's perspective:



The HRI perspective: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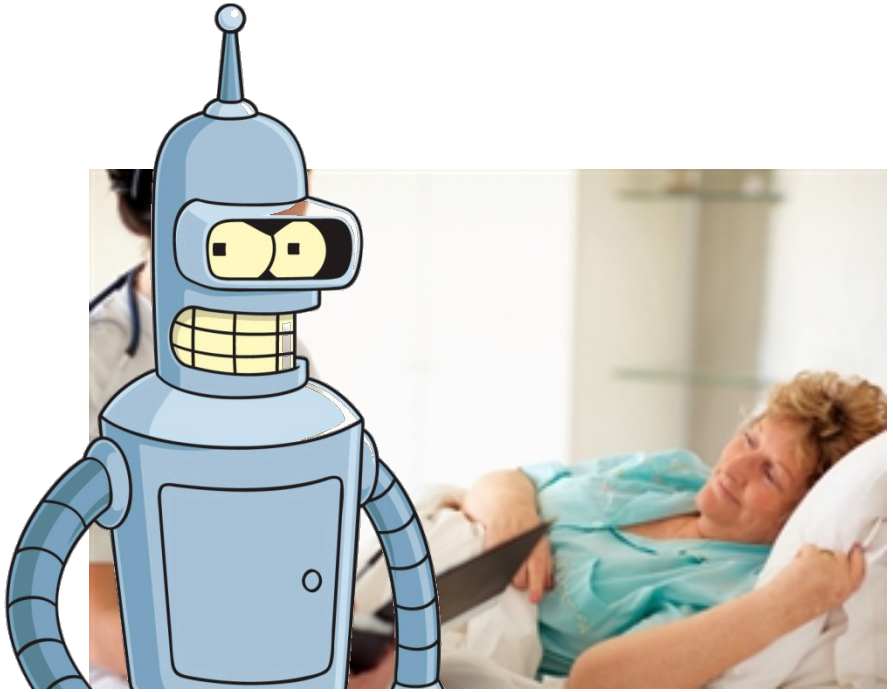
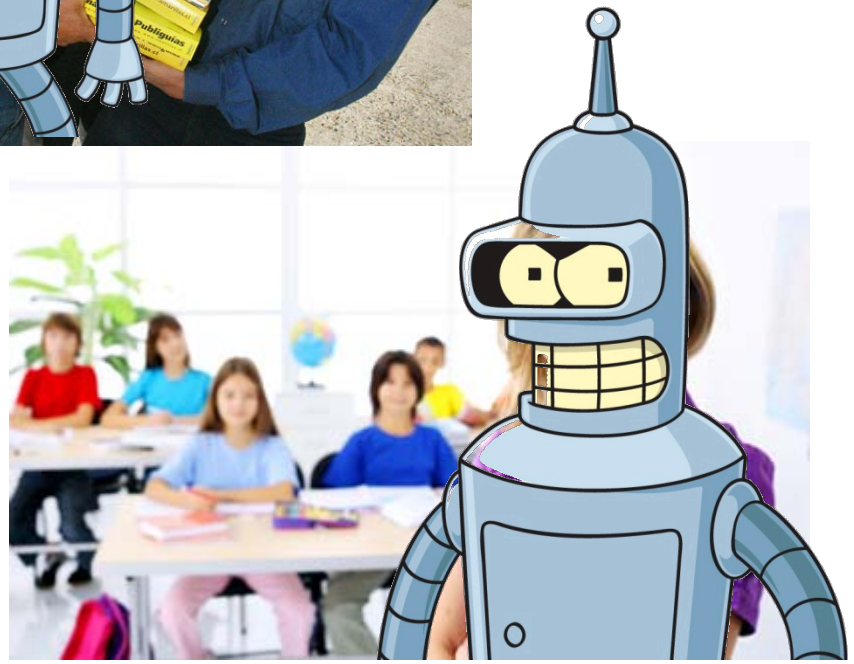
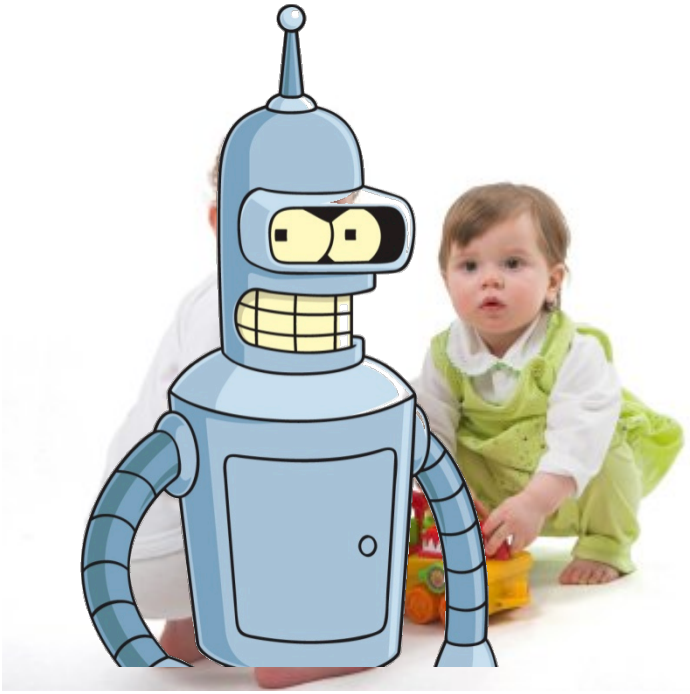






The robot as ...

- ***model*** or the robotics perspective.
- ***stimulus*** or the neuroscientific perspective.
- ***interaction partner***, the result of the integration of the former two.

QUESTIONS

- **Which outcomes should provide neuroscientific research to be useful to robotics?**

- **How can robotics research contribute to/influence neuroscience and/or psychology?**

- **Where the bridge between robotics and neuroscience is more useful, and where is it not (or less)?**

- **How this bridge should be built?** At the level of the single individual, at the level of a group, at the level of a department or a mix of the previous?

social behavior

joint attention

humanoid robots

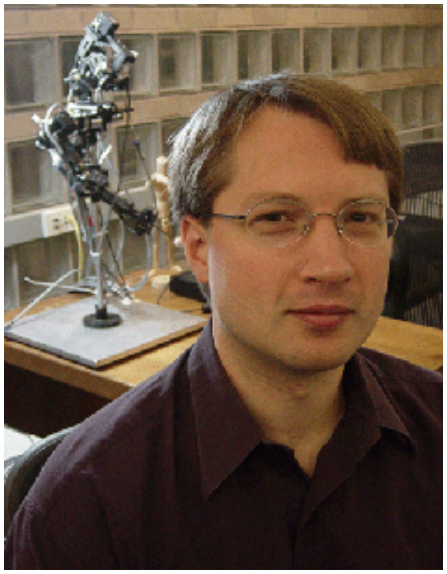
computational neuroscience

artificial intelligence

prosocial behaviour

development

nonverbal communication



human-robot interaction

social cognition

collaboration

cognitive neuroscience

social learning

machine perception

sensorimotor communication

evolution

joint attention

Morning session (1)

9:00 – 9:15 ***Opening***

9:15 – 9.50 Invited talk by **Prof. Malinda Carpenter**

9:50 – 10:10 **Bridging the Gap between HRI and Neuroscience in Emotion Research: Robots as Models** (Lola Canamero)

10:10 – 10:30 **The Cognitive Correlates of Anthropomorphism** (Séverin Lemaignan, Julia Fink, Pierre Dillenbourg, Claire Braboszcz)

10:30 – 11:00 *Coffee Break [10:30 – 10:50]*

Morning session (2)

11:00 – 11:35 Invited talk by **Prof. Giulio Sandini**

11:35 – 11:55 **A Robot for Brain–Controlled Grasping**
(Matthias Kennel, Christoph Reichert, Ulrich Schmucker, Hermann Hinrichs, Jochen W. Rieger) [S4]

11:55 – 12:05 ***Poster Teasers***

12:05 – 13:00 ***Poster Session***

13:00 – 14:35 *Lunch Break [13:00 – 13:30]*

Posters

- Neuroscience-inspired robot empathy
- Exploring the Estimation of Cognitive Load in Human Robot Interaction
- Memories and Dreams of Social Interaction
- Evaluating the Influence of Automatic Attentional Mechanisms in Human-Robot Interaction
- Toward analysis of emotional development using physiological and behavioral data
- A Biologically Inspired Model for Coding Sensorimotor Experience Leading to the Development of Pointing Behaviour in a Humanoid Robot
- Building a Literal Bridge Between Robotics and Neuroscience using Functional Near Infrared Spectroscopy (NIRS)
- Neuro-Robotic Technologies and Social Interactions
- Autism assessment through a small humanoid robot

Afternoon session

14:35 – 15:10 Invited talk by **Prof. Brian Scassellati**

15:10 – 15:30 **Affective Developmental Robotics: How can we design the development of artifcial empathy?** (Minoru Asada)

15:30 – 16:00 *Coffee Break [15:30 – 15:50]*

16:00 – 16:35 Invited talk by **Dr. Alessandro D'Ausilio**

16:35- 16:55 **Uncanny Valley Related Behavioral Responses Are Driven by Neural Processes of Face Perception** (Astrid M. Rosenthal-von der Pütten, Fabian Grabenhorst, Stefan Maderwald, Matthias Brand and Nicole C. Krämer)

16:55 – 17:30 ***Closing Remarks*** *and* ***Discussion***

WELCOME!