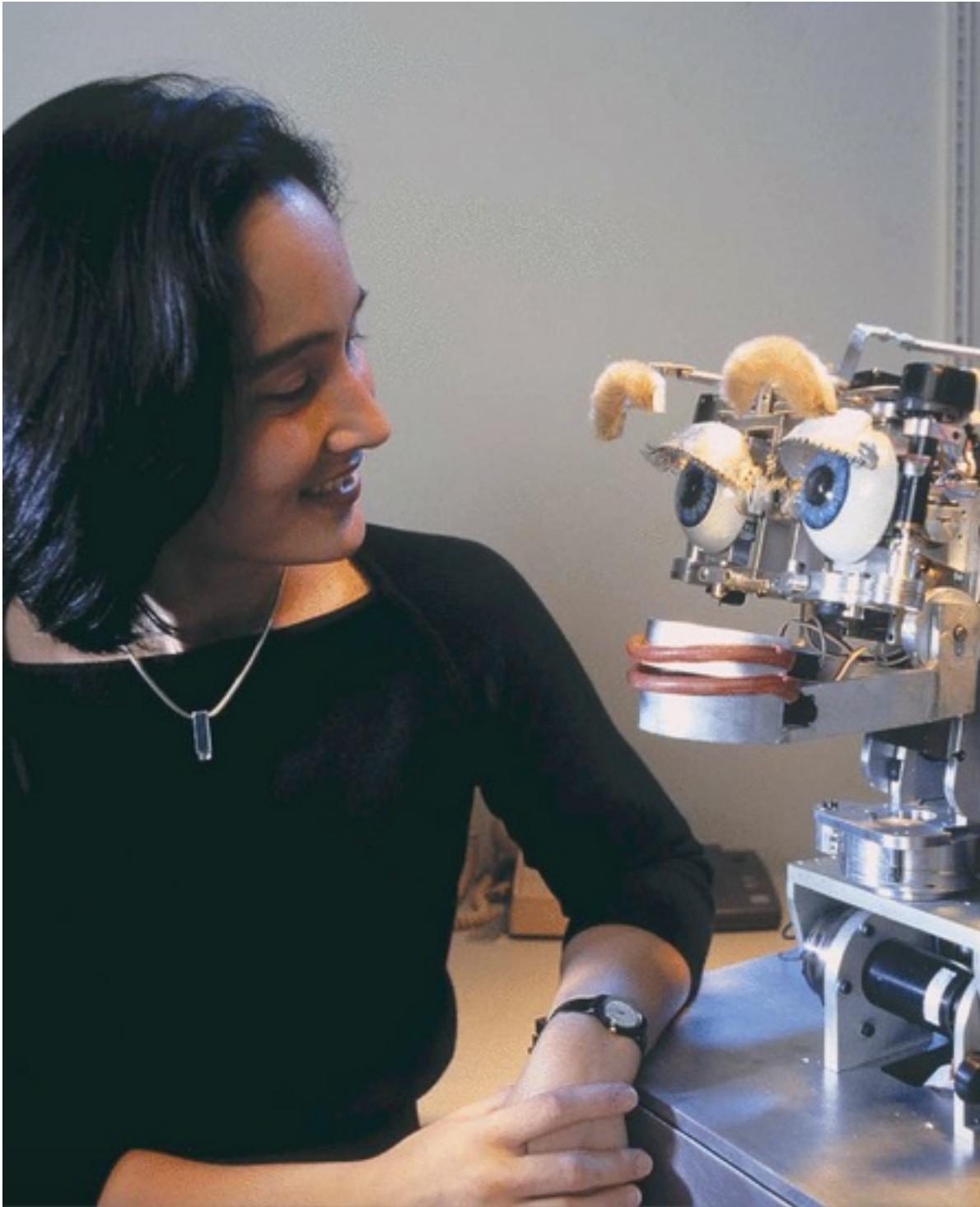


“Emotional” Robots:

(If Emotion Values Feed into Behavior, Are They Qualia?)



Cynthia Breazeal and her “Kismet” emotional robot, ca. 2000

Fellous & Arbib

Ch. 10 Breazeal & Brooks - Robot emotion (functional)

Topics covered:

- Future rampant with Robots
- Social usefulness of emotion (in people & robots)
- Kismet's abilities -
vision, speech tone analysis, facial expressions, turning head, attract attention with sounds.
- Architecture: hierarchy of "nodes", each node being a set of IF-THEN rules ["subsumption"]

incl. decision-making

• Computing emotions as function of current state & perceptions

• No real cognition (thinking)

• People's reactions to Kismet

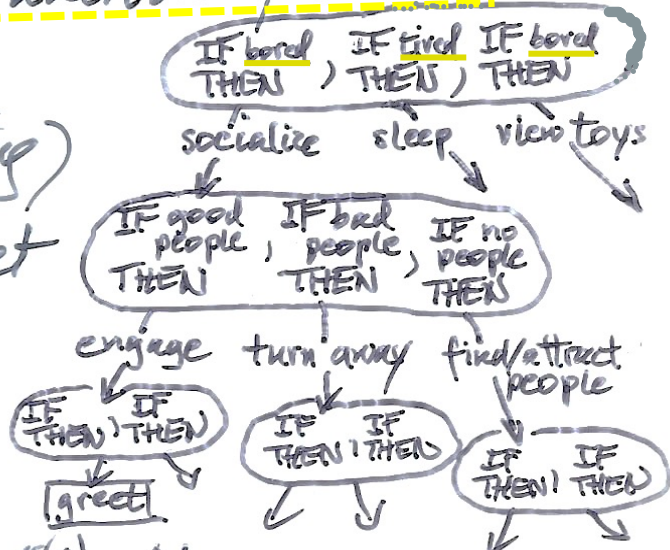
• Newer robots:

Leonardo, Nexi, Jibo

Elsewhere: Kobian, HRP-4C, Aibo, ...

ASIMO, CES 2018, Erica, ...

Honda 3-CIB



The "IF" parts of the rules check (a) current perceptions, (b) current internal state

fatigue, agitation, etc

Prob's of input types (e.g., friendly voice, vs chiding) were learned with supervised learning (expectation maximization)

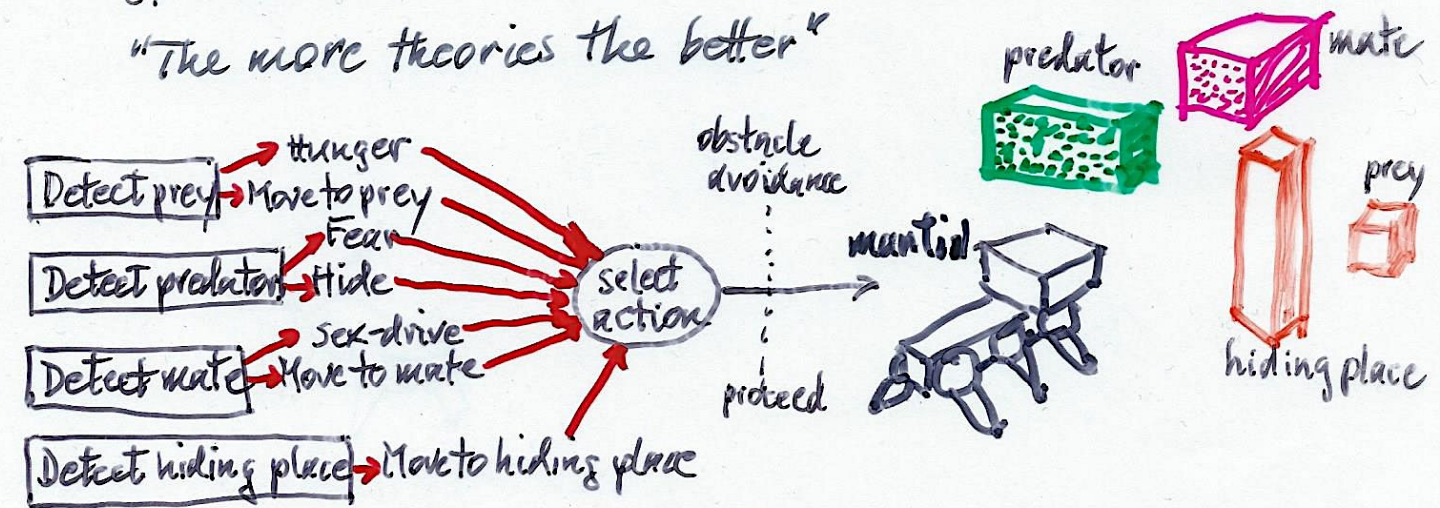
Fellous & Arbib

Ch. 9, Ronald Arkin, Moving up the food chain

Topics covered:

- Behavioral robotics (Brooks, etc.)
- Mapping percepts + current state → affect & behavior (new state)
- Emotion vs motivation
- "Sowbug"
- "Mantid"
- Aibo & attachment theory
- Later robots - ARIO, ASIMO, etc.
- OCEAN model of personality [based on factor analysis of English adjectives] (future work)

"The more theories the better"



"schema" architecture
(~ if-then rules, competing)
cf Kismet (ch.10)

"Mantid": if-then rules compete, check for

endogenous & exogenous variables



Simulated robot "attachment"

