Karakuri ningyō
Jacques de Vaucanson’s Duck
Maillardet’s Draughtsman-Writer
Karel Capek’s “Rossum’s Universal Robots”
W. Grey Walter’s Turtles
Shakey
The Traditional AI View

Quasilinguistic symbolic expressions formally manipulated

\[\begin{align*}
at(\text{block}1, [3,20, -10]) \\
at(\text{ramp}, [10, -10]) \\
at(\text{G}, P1) \land at(\text{ramp}, P2) & \Rightarrow go(\text{ramp}, P2) \\
\therefore go(\text{ramp}, [10, -10])
\end{align*}\]

Robot = \textbf{AI} + sensors/actuators
**Behavior and Cognition** are properties of the entire brain-body-environment system, not of any individual component.

*They can only be understood properly in this broader context.*
Robot Movies!
Robot Movies!

ROBO-ONE 11
YOKOZUNA GREAT
VS
CHROME KID
MARCH 25, 2007 - TOKYO, JAPAN
The Course

Course Goal: To teach you the basics of autonomous robotics

Mechanics

Electronics

Control
The Robot Kit
Course Design

- **Laboratory** Course
- Groups
  - 3 Students each
  - Programming experience + Hands-on experience
- Group Dynamics
  - Need to work together courteously and efficiently
  - Assign responsibilities fairly
  - Make sure everyone is well-versed on all aspects of each project
- Stations
  - Robot kits
  - Windows, RobotC, Office
  - Account
  - Desktop shortcuts
Course Design

- Course Web Page
  - Policies, Assignments, Syllabus, Documentation, Resources

- A Word About Documentation
  - Instructor
  - Assignment
  - Library Reference
  - Robot C Documentation
  - Vex Documentation

- Lab Access
  - Class times: T/Th 9:30-10:45, F 9:05-9:55
  - Extended class times
  - Generally around during the day (Email first)
  - After hours by arrangement
Assessment

- 15% Class Participation
  → Attendance
  → Contribution

- 5% Design Notebooks
  → A written record of your work in class
  → Graded at Spring Break and end of semester

- 30% Assignment Demonstrations

- 50% Written Reports

- Although work is done in groups,
  Design notebooks and written reports are prepared individually
Class Participation

• Actively participate in all group activities at all times
• You are expected to be in the lab on time for every class
• Absences may be excused with permission
  ➔ For interviews, contact me for prior approval
  ➔ For illness, contact me as soon as possible
• Unexcused absences will be penalized
• Unexcused late arrivals will be penalized
Design Notebooks

• A dated written entry for each day you are in the lab
• Each entry is a substantive summary of work done
  ➢ Design alternatives
  ➢ Design discussions
  ➢ Design decisions
  ➢ Include sketches as appropriate
  ➢ Include data collected as appropriate
• Each entry is legible
• Turn in on time
Assignment Demonstrations

• Follow specific directions for each assignment
Written Reports

• Typewritten
• Explicit labeled sections (format may vary across assignments)
  ➔ Introduction
  ➔ Mechanical Design (discussion and labeled sketches/photos)
  ➔ Algorithmic Design (discussion and visual overview)
  ➔ Performance Evaluation
  ➔ Conclusion
  ➔ Appendices containing commented code, data, etc.
• Detailed enough that someone else who has taken the class should be able to understand what you did, why you did it that way, and how well it worked
## Coming Attractions

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