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

\[ \text{at(block1, [3, 20, -10])} \]
\[ \text{at(ramp, [10, -10])} \]
\[ \text{at(G, P1)} \land \text{at(ramp, P2)} \Rightarrow \text{go(ramp, P2)} \]
\[ \therefore \text{go(ramp, [10, -10])} \]

Robot = \[\text{AI} + \text{sensors/actuators}\]
Braitenberg Vehicles
Rodney Brooks
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
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
  ➢ http://mypage.iu.edu/~rdbeer/COGS-Q360/
  ➢ 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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