

Robots of Today Companion Guide

by Ben Axelrod

“Robots of Today” gives a high level overview of modern robotics. Its aim is to give children a realistic view of what robots really are, and what they can and cannot do. It features many interesting clips from the web that are sure to inspire the budding scientist or engineer.

This guide contains a description of all the robots seen in the video.

Chapter 1. Introduction

0:04 – Rodney and Fender, *Robots*, 2005, 20th Century Fox

0:07 – R2D2 and C3PO, *Star Wars*, 1977, 20th Century Fox

0:10 – The Iron Giant, *The Iron Giant*, 1999, Warner Bros.

0:12 – Jonny 5, *Short Circuit*, 1986, TriStar Pictures / CBS/Fox Video

Chapter 2. What’s Hard for Robots?

0:18 – BIP

<http://www.inrialpes.fr/bipop/bip.html>

French National Institute for Research in Computer Science and Control

0:27 – Asimo by Honda

0:33 – RABBIT

<http://robot-rabbit.lag.ensieg.inpg.fr/English/>

Le Laboratoire d'automatique de Grenoble

(Despite not having feet, this was one of the most realistic humanoid walkers around at the time of the video’s creation in 2005)

0:42 – Dexter

http://www-robotics.cs.umass.edu/Research/Humanoid/humanoid_index.html

UMass, Amherst

(This robot is not really playing, like I say in the video, but rather learning how to move to grasp objects.)

Arms and hands by Barrett Technologies

0:47 – Unknown

I forget where I got this video. But it is probably some face recognition software, which

is more advanced than face detection software.

Chapter 3. What's Easy for Robots?

0:55 – Fanuc

There are many other industrial robot companies. But most notable for autonomous robotics is Kuka. They have sponsored RoboCup, and are also a partner with Microsoft Robotics Developer Studio.

Chapter 4. Remote Control Robots

1:21 – Spirit / Opportunity by NASA

1:29 – Robonaut by NASA

1:37 – Wolverine & Mini-ANDROS II robots by Northrop Grumman
Foster-Miller and iRobot also make several military robots.

1:45 – ?

The RoboCup rescue competition is significantly more complicated than what is shown in this clip. The real rescue robots in use by USF are much smaller than this robot.

1:53 – ?

http://download.srv.cs.cmu.edu/~biorobotics//projects/prj_search_rescue.html
CMU

Chapter 5. Robots in the Home

2:05 – Roomba by iRobot

2:13 – Robomower by Friendly Robotics

Chapter 6. Robot Body Types

2:22 – KHR1 by Kondo

The Bioloid from Tribotix is another interesting robot similar to this.

2:32 – Dartmouth Robotics Lab

This robot is learning how to escape from the sand trap.

<http://www.cs.dartmouth.edu/%7Erobotics/undergrad.html>

2:35 – uBot by UMass Amherst

http://www-robotics.cs.umass.edu/Research/Distributed_Control/uBot/uBot.html

2:43 – PackBot by iRobot

2:50 – Asterisk robot by Osaka University's Arai Lab

http://www-arailab.sys.es.osaka-u.ac.jp/e_index.html

3:00 – RHex

This is a non-standard gait for RHex.

This was a joint project between the University of Michigan, McGill University, UC Berkeley, CMU, and University of Pennsylvania. It is now being ruggedized for commercial sale by Mecheligent, Inc.

3:03 – QuadCrawler

Available as a kit from many hobbyist robotics stores. There are several varieties including 6 legged versions.

Chapter 7. Robots from Nature

3:10 – S5 by Dr. Gavin Miller

<http://www.snakerobots.com>

3:17 – Aibo by Sony. (ERS-210A)

This robot is demonstrating the fastest gait known for the Aibo. Notice that it is walking on its elbows and not on its front feet.

http://www.cs.utexas.edu/users/AustinVilla/?p=research/learned_walk

UT Austin

3:25 – Whegs from Case Western Reserve University

3:37 – Jumping Mini-Whegs from Case Western Reserve University

These robots have half wheels - half legs, called “whegs”. They allow it to climb over obstacles very easily.

3:49 – BEAM robots invented by Mark Tilden

Now sold as kits at various robot hobby stores

Chapter 8. Robots NOT from Nature

4:09 – Molecube by Stanford University

<http://ccsl.mae.cornell.edu/index.html>

4:19 – PolyBot by Xerox PARC

<http://www2.parc.xerox.com/spl/projects/modrobots/>

Chapter 9. Robot Games

4:45 – Ants robots by MIT

<http://www.ai.mit.edu/projects/ants/>

4:52 – Various maze solving robots. (Called a micromouse).

5:05 – RoboCup small size league

5:12 – RoboCup 4-legged league

Chapter 10. Dance Like a Robot

6:32 – Qrio by Sony

Chapter 11. You Can do It too

9:35 – Legs, a very simple geared hexapod. (It couldn't turn).

9:40 – Robotnik, four wheel steering (4WS) with infrared proximity detection (IRPD).

9:48 – Robo-Snake, a five segmented snake with red LED eyes. (It has drive wheels so it does not actually get its forward velocity through serpentine motion).

9:55 – Learn to turn, this robot learns what to do when it hits a wall.

If you would like to see additional robot videos. You can find the original clips and many others that didn't make it into the video on my web page:

<http://www.benaxelrod.com/robotvideo/>

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