

Pervasive Impact of Robotics in Education

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Tell me and I will forget.
Show me and I will remember.
Involve me, and I will understand.
Confucius (551 - 479 b.C.)



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Alumni Classi 5^A – 5^B

Scuola Elementare Statale “Papa Giovanni XXIII”

Valgrehentino (LC)



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Teaching Children at CMU-RI

Illah Nourbakhsh
 NASA/Ames Robotics
 CMU Robotics
 April 2004

- Insect World
- Museum Guide



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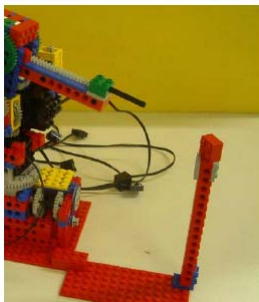
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High School Examples

- The CMU-RI approach
- UNIVR Tandem Courses

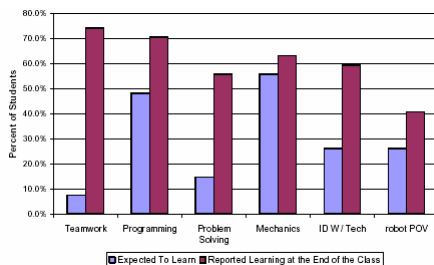


Designing and Evaluating Educational Robotics Curricula

Illah Nourbakhsh
NASA/Ames Robotics
CMU Robotics
April 2004



Evaluation Results



• There were no significant differences in what girls reported learning in the class as compared to boys.

• Girls entered the class reporting less confidence with technology than boys but reported greater increases in confidence than boys by the end of the class.

• “That no matter what the bstacle we have, we can still overcome it and solve it.”

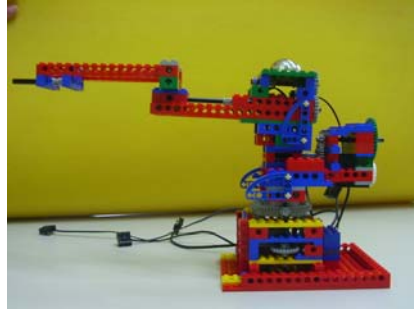
• “Have more confidence with myself.”

• “Teamwork takes a lot of communication.”

• “I learned that doing something slow is better than doing it twice.”



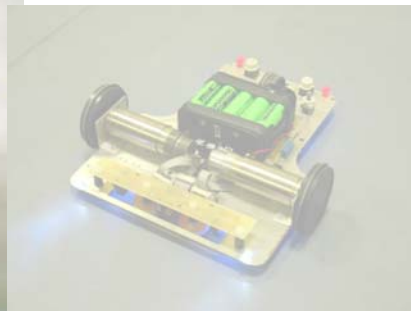
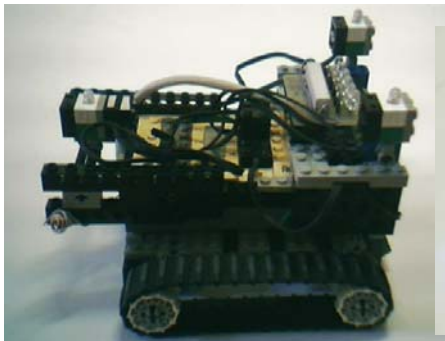
Tandem Project at Univ. Verona



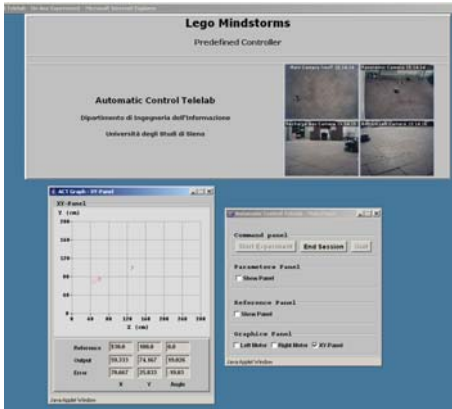
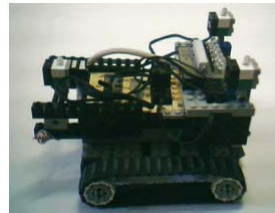
Andrea Castellani e Stefano Galvan
University of Verona -- 2002-2005



Robotics Teaching at Universities



A remote control experiment based on a two tracks vehicle built with Lego Mindstorms bricks is presented.



- The experiment can be accessed from any Internet browser.
- The user can design his own controller using Matlab/Simulink and tests it on the actual robot.
- The user can change the set-point and controller parameters during the experiment.



Project in Robotics at the Copenhagen University College of Engineering

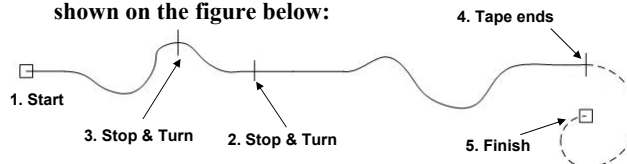
Prof. Anna Friesel



In the project students build the robots, which perform:

- a compulsory task decided by professors,
- a free task decided by us (students).

Specification of the compulsory task is to follow the stripe as shown on the figure below:



The course ends with a competition where:

ie fastest, the most precise and the most elegant robots
– 3 STARS – win prizes.

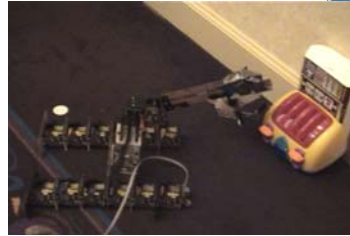


PolyBot and PolyKinetic™ System:

A Modular Robotic Platform for Education

A. Golovinsky*, M. Yim, Y. Zhang, C. Eldershaw, D. Duff
MIT*, Palo Alto Research Center

- 8 highschool students for 3 weeks
 - Developed search and rescue snake like robot under teleoperated control



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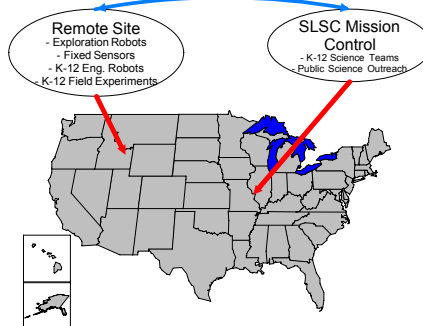
Robots in the Wild

The Remote Exploration Program: Integrating Education and Real Research

Jim Garner – Washington University in St. Louis

Remote Operations

- Populate a remote site with a set of rovers and sensors
- K-12 Students Remotely operate to gather information about site



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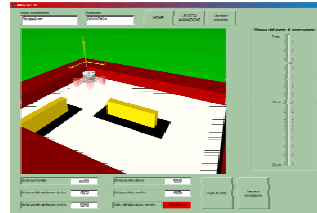
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Robot Control Designer Education on the Web

D. Fabbri, C. Falsetti, S. Ramazzotti, T. Leo
Universita Politecnica delle Marche (Italy)

- description of the e-learning potentialities in the robotics field
- use of a Mobile Robotics Telaboratory to acquire design ability
- learning design characterized by “learning by doing” and “active learning”
- design of a telaboratory experiment as Learning Object
- telaboratory characterized by high immersivity



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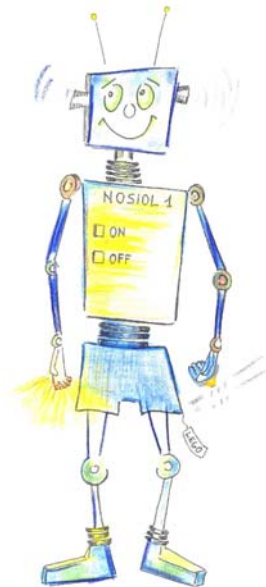
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However....
Who teaches
the Teachers?



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Considerata l'importanza del convegno e la limitata disponibilità di posti, si prega di comunicare

entro venerdì 10 marzo 2006

la propria adesione a:

Raffaella Paoli raffaella.paoli@univr.it - tel. 045/762367
fax 045/8999868

Marta Pia Castelli martapiacastelli@univr.it - tel. 045/762367
fax 045/8999868

M. Loretta Ghilardi ghilardi@univr.it

Al termine del Convegno verrà rilasciato attestato di partecipazione.

Con il Patrocinio di...



ISTITUTO COMPRENSIVO STATALE
SCUOLA PRIMARIA e SECONDARIA di I grado
"ROSSI LORRINO MILANI"
via Casale, 1 - 37030 LAVAGNO (VR)
Tel. 045/762367 - Fax 045/8999868

Convegno di studio
per docenti di
Scuola Primaria e Secondaria di I grado



**... si fa presto
a dire robot!**

giovedì 23 marzo 2006
ore 14.30
Aula magna - via Casale 1 - Lavagno



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The Goals of Robotics Teaching in Scientific High Schools

- 1° Meeting: Integration of robotics and teaching
- 2° Meeting: Multi-discipline of robotics teaching
- 3° Meeting: Robotics at school to understand and live in the future society
- 4° Meeting: laboratory visit and experience

Two 8-hour short courses to teachers of two scientific high schools in Verona



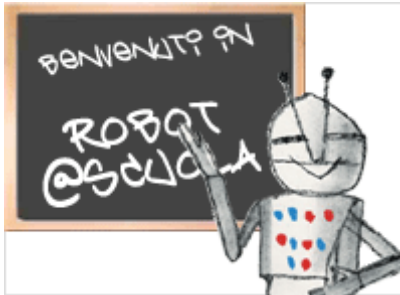
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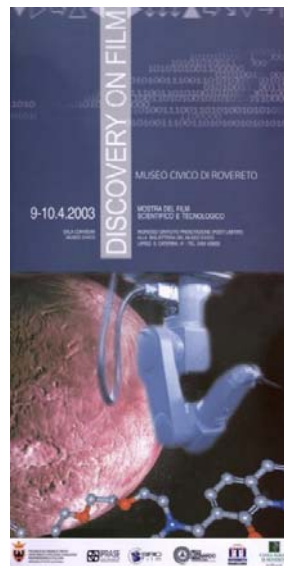


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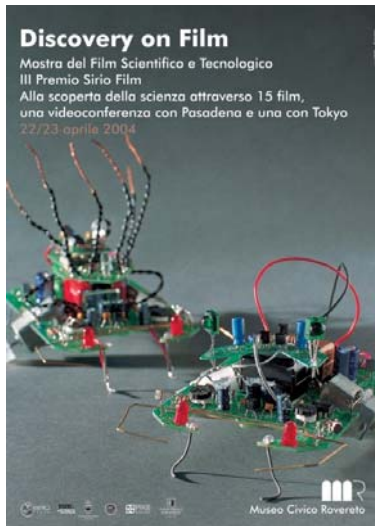
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"Cafè scientifico",

"Robotica, roboetica, nanotecnologie"

"Blade Runner"

"I robot e l'esplorazione dello spazio: la missione Cassini-Huygens",

"Tecnologie per l'elaborazione del linguaggio parlato" robot Guido



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Robotics and the Humanities?

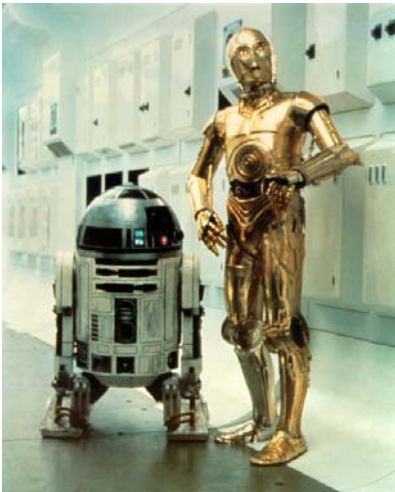


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**Thank You for
Your Attention**



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