VVV17

Welcome!

2nd Winter School on Humanoid Robot Programming

ISTITUTO ITALIANO DI TECNOLOGIA
iCUB FACILITY

IEEE Robotics & Automation Society

- Humanoid robots are complex machines
- Programming robots require expertise in different fields, **control theory**, **computer vision**, **machine learning**, **software engineering**

Goals of the school & program

- To provide students with an overview of the research problems related to the programming of humanoid robots
  - Methods and tools for software integration and concurrent development (day1)
  - Software architectures for robot programming (i.e. ROS, YARP) (day1 and day2)
  - Robot kinematics, control in task and joint space (day 3)
  - Robot vision (day 4)
  - Direct and inverse dynamics for whole-body control (day 5)
  - Neuromorphic sensors and event-driven vision (day 6)
  - Machine Learning including Deep-learning (day 8)
  - Building an integrated demo (day 9 & 10)

Detailed program: http://www.icub.org/winterschool/

Goals of the school & program

- Frontal lessons, slides and code tutorials
- Hands-on: code assignments (check out the gradebook)
- Invited speakers

Invited speakers: all talks @6-7pm (exception: Rich's talk is at 12pm)

Luis Sentis
University of Texas at Austin

Katerina Pastra
Cognitive Systems Research Institute

Francesco Nori
Google DeepMind

Michael Zillich
Technische Universitat Wien

Rich Walker
Shadow Robot Company

Meet the teachers (1)

Chiara Bartolozzi
Istituto Italiano di Tecnologia

Lorenzo Natale
Istituto Italiano di Tecnologia

Ugo Pattacini
Istituto Italiano di Tecnologia

Vadim Tikhanoff
Istituto Italiano di Tecnologia

Daniele Pucci
Istituto Italiano di Tecnologia

Alex Bernardino
Instituto Superior Técnico

Bence Magyar
Heriot-Watt University, Edinburgh Centre for Robotics

Arren Glover
Istituto Italiano di Tecnologia

fabio Anselmi
Istituto Italiano di Tecnologia and Massachusetts Institute

Meet the teachers (2)

Elisa Maiettini
Istituto Italiano di Tecnologia

Claudio Fantacci
Istituto Italiano di Tecnologia

Nicoló Genesio
Istituto Italiano di Tecnologia

Giulia Pasquale
Istituto Italiano di Tecnologia

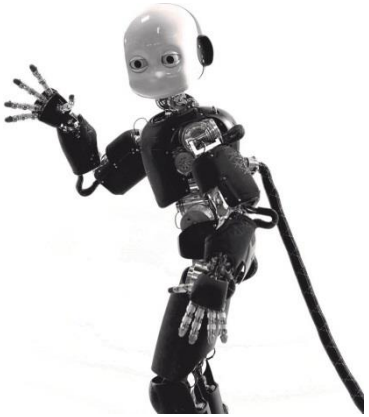
Valentina Vasco
Istituto Italiano di Tecnologia

Diego Ferigo
Istituto Italiano di Tecnologia

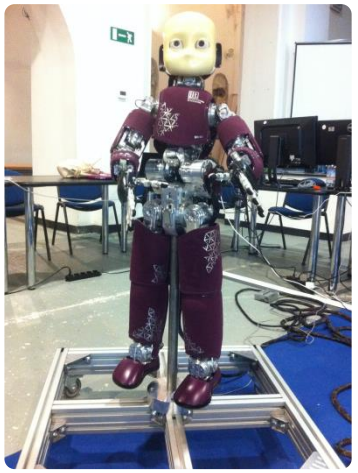
Silvio Traversaro
Istituto Italiano di Tecnologia

Meet the robots…

Tiago (simulated)



Blacky



Purpley

Gazebo simulator

GOOS (Good Old ODE Simulator)

Resources

- We will rely heavily on **github**, make sure you have an account
- School's **wiki**, **Q&A**, **robot booking tool**, **instructions for completing assignments**, **VM**, etc:
  - **HTTPS://VVV-SCHOOL.GITHUB.IO/VVV18**

Schedule

- Start 9am, end 6pm or 7pm
- Free coding time after dinner (ask organizers)
- Coffee break (approx), 11am, 4pm
- Lunch 1pm
- Dinner 8pm, try to be on time!
- Sunday is free (lunch is NOT included)
- Social dinner on the 15/2 (restaurant “La Darsena”, Via Gramsci 6, Santa Margherita Ligure, walking distance)

Other important notes

- Hotel, beware of:
  - Fee includes + lunch and dinner
  - Wine at lunch is NOT included
  - Extras are **on you** (not the school)
    - Including: minibar, liquors, extra coffee, etc. watch out, when you're asked your room number it means that you'll pay at checkout
  - Try to be **punctual** at lunch (1pm) and dinner (8pm)
- Don't bring wine to school room after dinner

Enjoy!!