Post-graduate Master's on

Robotics and Intelligent Systems

Master RIS

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Coordinator

Odense, 6 March 2012

Robotics and Intelligent Systems

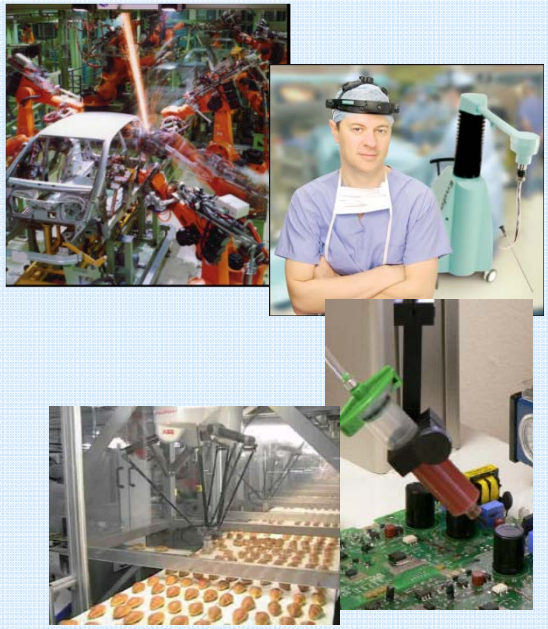
- Robotics and intelligent systems
- Goals
- Organisation
- Course
- Admission and selection
- Wrap-up

Robotics and Intelligent Systems

Robotics and intelligent systems

from industrial robotics to advanced robotics

industry



automotive
chemical
electronics
food

field

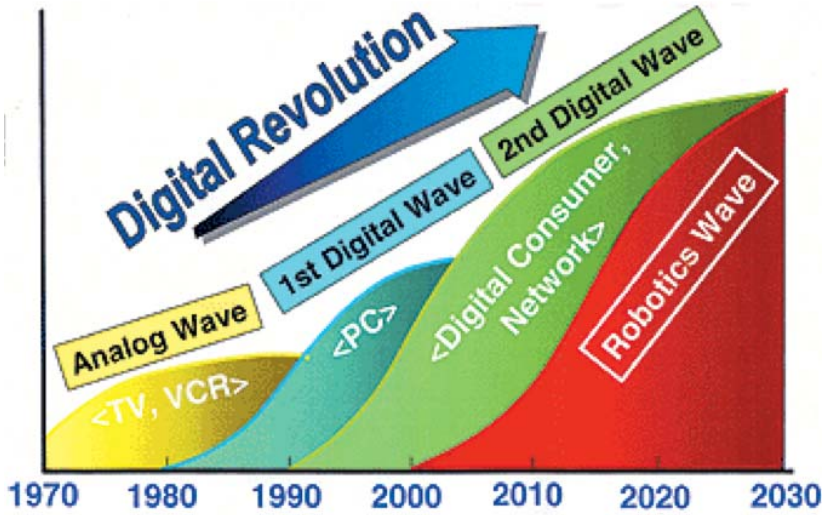
aerial
space
underwater
search & rescue

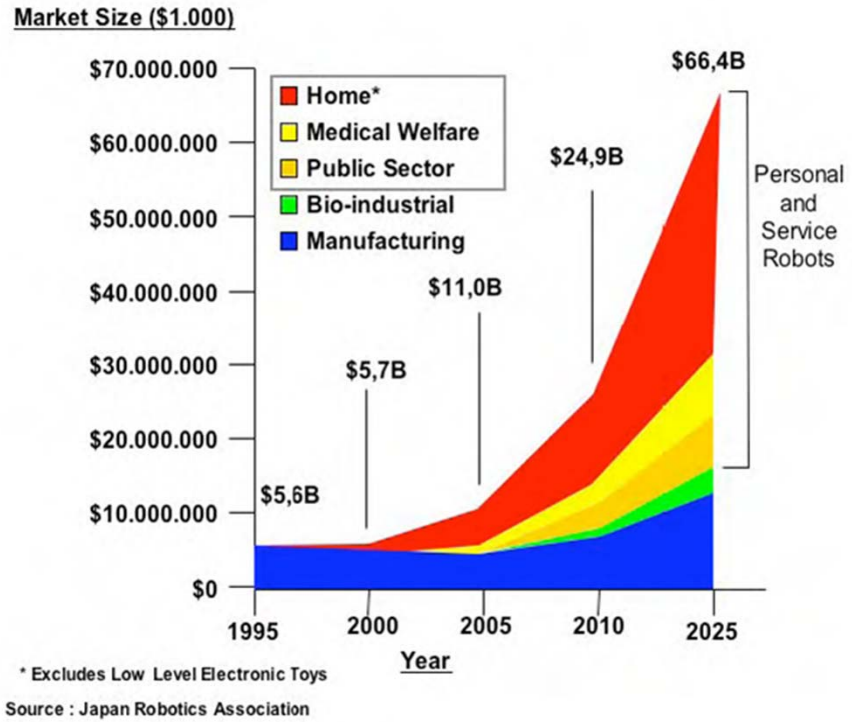
service

domestic
edutainment
rehabilitation
medical

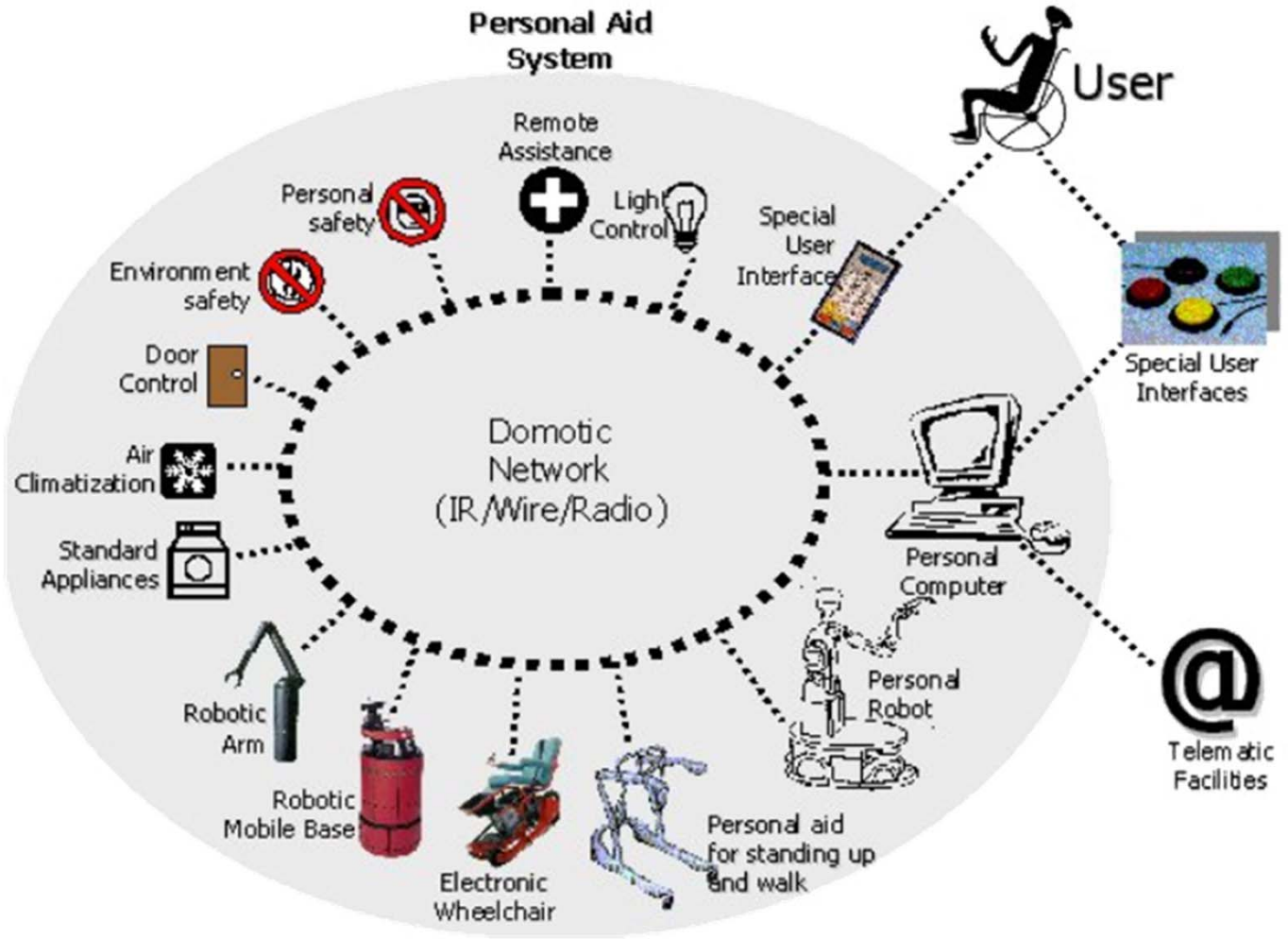
level of autonomy

market perspectives





toward intelligent environments



professional profiles

- Design, integration, planning and management of robotic devices and intelligent systems
- Engineering methodologies and technologies in controls, computers, electronics and mechanics along with knowledge about logics, cybernetics, AI and cognitive science
- Training of experts who will have leading roles in different fields
  - automation of manufacturing processes
  - surveillance and security
  - transportation systems
  - medical and rehabilitation
  - domestic applications

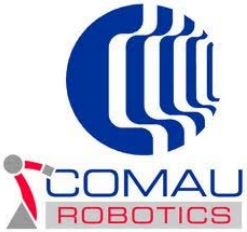
a strategic choice

- Inter-departmental / inter-faculty programme
  - Department of Computer and Systems Engineering / Faculty of Engineering
  - Department of Physical Sciences / Faculty of Sciences
- Course entirely in English
  - providing graduates with an authentic training for global oriented job placement
  - attracting students from European and non-European countries

sponsoring companies

- First edition (2011)

- Second edition (2012)



supporting institutions

Scuola di Robotica

Scientific Board

- All the professors of the Master's and the representatives of the sponsoring companies

Advisory Board

- Gerhard Hirzinger (DLR)
- Katsushi Ikeuchi (University of Tokyo)
- Oussama Khatib (Stanford University)
- Jean-Paul Laumond (LAAS–CNRS)
- Roland Siegwart (ETH Zurich)

workload

ACTIVITY	ECTS	HOURS	WEEKS
Lectures	4 × 5	160	10
Laboratories	2 × 1	60	5
Lectures	4 × 5	160	10
Laboratories	2 × 1	60	5
Stage	10	250	6
Thesis	2	50	2
Seminars	4	32	
Study		728	
TOTAL	60	1500	

class work

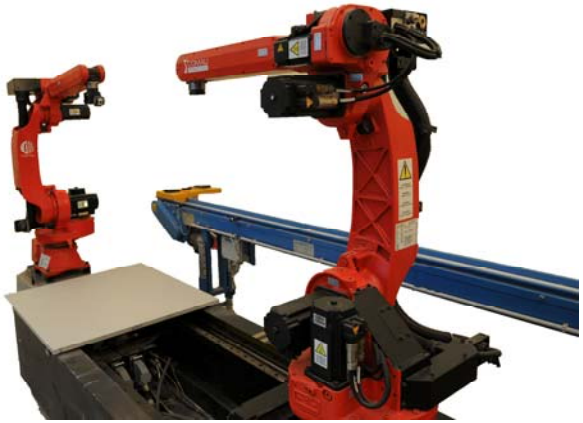
LECTURES
Artificial Intelligence
Industrial Robotics
Neural Networks and Machine Learning
Sensor Networks

LECTURES
Computational Vision
Distributed Systems
Field and Service Robotics
Robot Architectures

LABORATORIES
Sensing
Manipulators

LABORATORIES
Mobile Robots
Vision

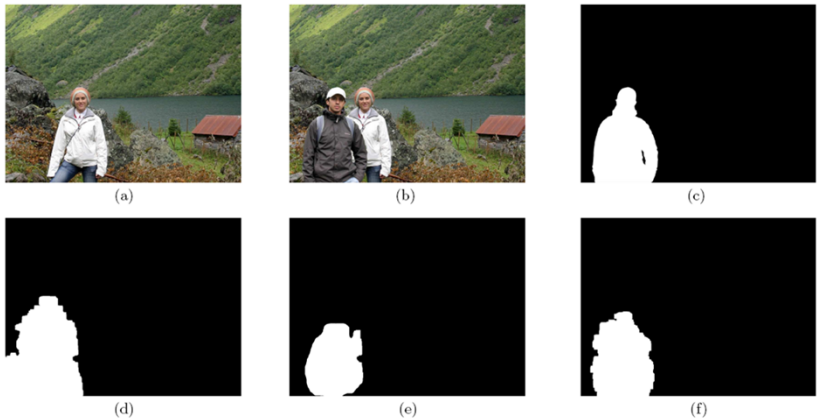
labs



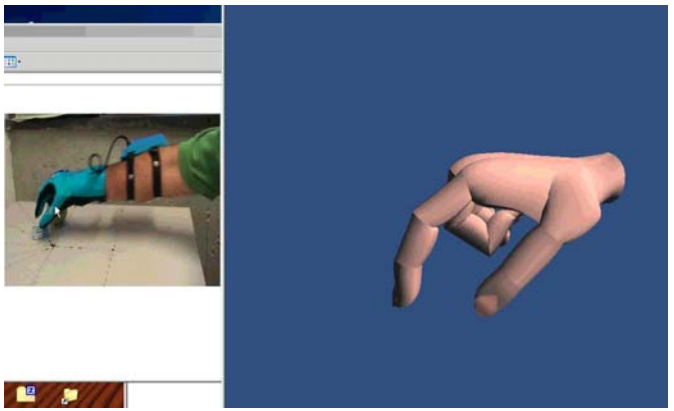
PRISMA Lab

PRISCA Lab

SINCRO Lab



SIVA Lab



ViNe Lab

seminars (1st edition)

TOPIC	LECTURER
Human-friendly robotics	O. Khatib
Mobile manipulation — A key technology for the factory of the future	R. Bischoff
Foundations, current and future applications of haptics in medicine	D. Prattichizzo
Robotic tools for upper limb motor therapy and assessment	L. Zollo
Interconnected dynamic systems and multiple robots	G. Antonelli
Reengineering the hand: Novel approaches to robotic manipulation	A. Dollar
Ensemble methods for tracking and segmentation	S. Avidan
A mechatronic approach to modeling and control of non-rigid robots in industrial practice	A. Bottero
Robot hands: Current trends in design and control	C. Melchiorri
Why do we want to live with robots? Analysing rational, irrational, and ideological motives	G. Tamburrini
Design of power dense mechatronic robot components	S. Haag
Fault diagnosis for robotic systems: From theory to practical implementation	F. Caccavale
I am a speech technologist: What can I offer to robots and to their owners?	F. Cutugno
Robotics: From fundamental research to market success	R. Siegwart

stage & thesis

- Identification of relevant topics
- Assignment of students to available stages (companies, research labs)
- Appointment of tutor
- Development of project work
- Preparation of thesis

graduation

- Final examination
  - presentation of project work
  - discussion

requested degree

- Five-year academic degree (≡ M.Sc.) in engineering, mathematics or science disciplines
  - B.Sc. (4 years) not enough to be admitted

tuition fee

- € 4000
  - 8 grants available for Italian students whose parents are (were) public employes
  - additional grants provided by sponsoring companies (?)
- Accommodation
  - full-board lodge for foreign students at convenient college fee of € 450 per month

pre-application

- Online form
  - pre-selection of applicants with qualifying degree
  - keep potential applicants informed
  - facilitate visa procedures to foreign applicants

deadline

- 26 March 2012

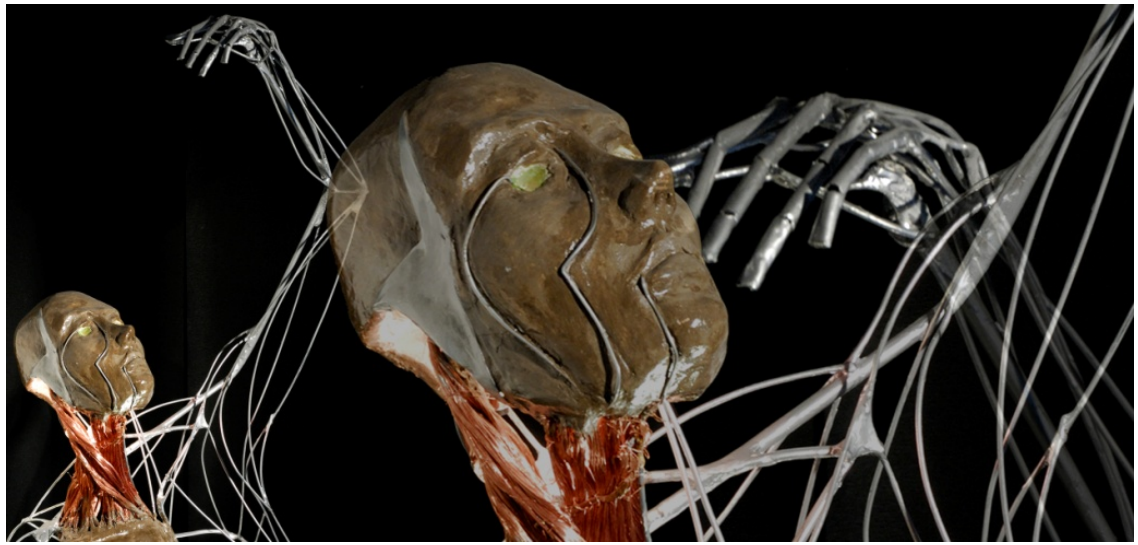
screening of applications

- Up to 25 students
  - selection by qualification and interview (telecon for foreign applicants)

Master RIS in a nutshell

- To disseminate the science of robotics and intelligent systems, through the assessment and transfer of technologies and multiple disciplines
- To provide a high-quality, prestigious and attractive training programme for foreign students
- To create a pool of resources for developing new ideas in a high-tech and innovative field
- To offer sponsoring companies an opportunity to recruit high-potential human resources with specific skills in the area of robotics and intelligent systems
- To offer the Master's graduates an opportunity to network with company management as well as with the main stakeholders in industry and research

Robotics and Intelligent Systems



www.master-ris.unina.it