

## CURRICULUM VITAE

### Personal Details

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**First name :** Giulio  
**Last Name:** Sandini  
**Date and Place of Birth:** September 7, 1950, Correggio, Italy  
**Nationality / Status:** Italian / married with two sons  
**Languages:** English      Excellent  
**Professional Address:** Department of Robotics, Brain and Cognitive Sciences  
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### Short Biography

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Director of Research at the Italian Institute of Technology and full professor of bioengineering at the University of Genoa. After graduating in Electronic Engineering (Bioengineering) at the University of Genova in 1976 he was research fellow and assistant professor at the Scuola Normale Superiore in Pisa until 1984. During this period, working at the Laboratorio di Neurofisiologia of the CNR, he investigated aspects of visual processing at the level of single neurons as well as aspects of visual perception in human adults and children. He has been Visiting Research Associate at the Department of Neurology of the Harvard Medical School in Boston where he developed diagnostic techniques based on brain electrical activity mapping. After his return to Genova in 1984 as associate professor, in 1990 he founded the LIRA-Lab (Laboratory for Integrated Advanced Robotics, [www.liralab.it](http://www.liralab.it)). In 1996 he was Visiting Scientist at the Artificial Intelligence Lab of MIT. Since July 2006 Giulio Sandini has been appointed Director of Research at the Italian Institute of Technology where he has established and is currently directing the department of Robotics, Brain and Cognitive Sciences.

### Research Focus and Current Activities

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Giulio Sandini research activities are in the fields of Biological and Artificial Vision, Computational and Cognitive Neuroscience and Robotics with the objective of understanding the neural mechanisms of human sensory-motor coordination and cognitive development from a biological and an artificial perspective. A distinctive aspect of his research has been the multidisciplinary of the approach expressed through national and international collaborations with neuroscientists, developmental psychologists.

Currently, the research activity carried out at the Robotics, Brain and Cognitive Sciences department develops *around the human being* along three main research streams: i) **humanoid robotics** with a focus on cognition; ii) **human behavioral studies and rehabilitation** with a focus on action and perception; iii) **human-machine communication and interaction** with a strong emphasis on the technological and scientific advancement of bidirectional direct interface to the nervous systems. A factor, common to all three streams is the focus on learning and development and, in general, on the dynamics of knowledge acquisition and update in the framework of goal directed actions. These streams of research are carried out with two objectives:

1. to advance knowledge and technologies in the area of artificial systems by performing targeted investigation of human motor and perceptual abilities and by implementing autonomous humanoid robots able to learn from experience and interacting naturally with humans;
2. to investigate how the merging of robot technologies with systems neuroscience research can contribute to the improvement of the quality of life, particularly of the weak components of our society.

The RBCS department's multidisciplinary research staff is currently composed of about 80 researchers with different backgrounds (engineers, biologists, psychologists, mathematicians, physicists, medical doctors) addressing three, strictly interconnected, streams of research: Humanoid Cognition, Human Behavior and Biomechanics, Brain Machine Interface.

## Education

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1976 *DEGREE IN ELECTRONIC ENGINEERING AND BIOENGINEERING (MAGNA CUM LAUDE) AT THE UNIVERSITY OF GENOA - ITALY*

## Academic Appointments

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SINCE 2006 *DIRECTOR OF RESEARCH – START-UP AND CONSOLIDATION OF THE “DEPARTMENT OF ROBOTICS, BRAIN AND COGNITIVE SCIENCES” – ITALIAN INSTITUTE OF TECHNOLOGY*

SINCE 2000 *FULL PROFESSOR OF BIOENGINEERING (WITH TENURE)*

1995 – 1996 *VISITING SCIENTIST AT THE ARTIFICIAL INTELLIGENCE LAB AT MIT*

1987 - 2000 *ASSOCIATE PROFESSOR OF BIOENGINEERING (WITH TENURE) AT THE DEPARTMENT OF COMMUNICATIONS, COMPUTERS AND SYSTEM SCIENCE OF THE UNIVERSITY OF GENOA*

1984 - 1987 *ASSISTANT PROFESSOR AT THE DEPARTMENT OF COMMUNICATIONS, COMPUTERS AND SYSTEM SCIENCE OF THE UNIVERSITY OF GENOA*

1983 *RESEARCH ASSOCIATE IN NEUROLOGY AT HARVARD MEDICAL SCHOOL IN BOSTON*

1980 – 1984 *ASSISTANT PROFESSOR OF BIOENGINEERING AT THE SCUOLA NORMALE SUPERIORE IN PISA - NEUROPHYSIOLOGY LAB OF THE OF THE ITALIAN NATIONAL COUNCIL OF RESEARCH (CNR) IN PISA*

1978 – 1979 *VISITING RESEARCH ASSISTANT AT THE DIVISION OF NEUROPHYSIOLOGY AND SEIZURE UNIT THE CHILDREN’S HOSPITAL IN BOSTON – USA*

1976 – 1980 *RESEARCH FELLOW AT THE NEUROPHYSIOLOGY LAB OF THE OF THE ITALIAN NATIONAL COUNCIL OF RESEARCH (CNR) IN PISA WITH A FELLOWSHIP FROM THE SCUOLA NORMALE SUPERIORE IN PISA*

## Professional Appointments

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SINCE 2011	<i>ROBOTICS AND AUTONOMOUS SYSTEMS JOURNAL (ELSEVIER)</i>	<i>EDITORIAL BOARD</i>
SINCE 2011	<i>SPRINGER BOOK SERIES COGNITIVE SYSTEMS MONOGRAPH (COSMOS)</i>	<i>ADVISORY BOARD</i>
SINCE 2010	<i>SWISS NATIONAL CENTER OF COMPETENCE IN ROBOTICS</i>	<i>ADVISORY BOARD</i>
SINCE 2010	<i>GLOBAL COE "COGNITIVE NEUROSCIENCE ROBOTICS" – JAPAN</i>	<i>EVALUATION COMMITTEE</i>
SINCE 2010	<i>INTERNATIONAL JOURNAL OF HUMANOID ROBOTICS</i>	<i>ADVISORY BOARD</i>
2008	<i>GLOBAL CENTERS OF EXCELLENCE (COE) PROGRAM – MEXT JAPAN</i>	<i>PROJECT EVALUATOR</i>
2004	<i>ITALIAN INSTITUTE OF TECHNOLOGY</i>	<i>EXPERT OF BIROBOTICS</i>
2004	<i>EUROPEAN COMMISSION – NEW AND EMERGING SCIENCE AND TECHNOLOGY (NEST)</i>	<i>PROJECT EVALUATOR</i>
2004	<i>MINISTRY OF RESEARCH AND UNIVERSITY OF PORTUGAL "NATIONAL PROGRAM FOR THE RENEWAL OF SCIENTIFIC EQUIPMENT) (TOTAL FUNDING ASSIGNED 60 M€)</i>	<i>EVALUATION AND SELECTION PANEL</i>
SINCE 2003	<i>JOURNAL "INTERACTION STUDIES" – JOHN BENJAMINS PUBLISHING COMPANY</i>	<i>ASSOCIATE EDITOR</i>
SINCE 2002	<i>INTERNATIONAL JOURNAL OF HUMANOID RESEARCH – WORLD SCIENTIFIC</i>	<i>EDITORIAL BOARD</i>
SINCE 2002	<i>JOURNAL OF APPLIED BIONICS AND BIOMECHANICS</i>	<i>HONORARY EDITORIAL BOARD</i>
SINCE 2002	<i>SCIENCE AND TECHNOLOGY PARK OF THE LIGURIA REGION</i>	<i>SCIENTIFIC BOARD</i>
2002 – 2006	<i>NEURO-IT-NET (NETWORK OF EXCELLENCE SUPPORTED BY CEC)</i>	<i>STEERING COMMITTEE</i>
2002 – 2006	<i>CENTER FOR APPLIED AUTONOMOUS SENSORS SYSTEMS – OREBRO SWEDEN</i>	<i>INTERNATIONAL SCIENTIFIC BOARD</i>
SINCE 2005	<i>IEEE INTERNATIONAL CONFERENCE ON HUMANOID ROBOTS</i>	<i>PROGRAM COMMITTEE</i>
SINCE 2000	<i>ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH, MINISTRY FOR PRODUCTIVE ACTIVITIES</i>	<i>EXPERT EVALUATOR OF ACADEMIC AND INDUSTRIAL PROJECTS</i>
2000 – 2001	<i>ITALIAN SPACE AGENCY</i>	<i>SCIENTIFIC COMMITTEE ON ROBOTICS</i>
1998 – 2004	<i>INSTITUTE OF INTELLIGENT SYSTEMS FOR</i>	<i>SCIENTIFIC BOARD</i>

*AUTOMATION (THE FORMER IMAGE PROCESSING LAB) OF THE ITALIAN CNR*

1998	<i>MINISTRY OF TRADE AND INDUSTRY OF JAPAN</i>	<i>FOREIGN SCIENTIFIC EXPERT</i>
1998	<i>DUTCH SCIENTIFIC RESEARCH COUNCIL</i>	<i>EVALUATOR OF NATIONAL PROJECTS ON "PHYSICAL BIOLOGY"</i>
SINCE 1997	<i>EUROPEAN COMMISSION - FUTURE AND EMERGING TECHNOLOGIES</i>	<i>EXPERT FOR 5<sup>TH</sup> AND 6<sup>TH</sup> FRAMEWORK PROGRAM PLANNING</i>
1995 – 1997	<i>EUROPEAN COMMISSION – LONG TERM RESEARCH AND INFORMATION SCIENCE TECHNOLOGY</i>	<i>PROJECT EVALUATOR</i>
1992 – 1998	<i>INTERUNIVERSITY CENTER OF AGRICULTURAL AND ENVIRONMENTAL ROBOTICS</i>	<i>DIRECTOR</i>
SINCE 1992	<i>IMAGE AND VISION COMPUTING JOURNAL – ELSEVIER SCIENCE B.V.</i>	<i>ADVISORY EDITORIAL BOARD</i>
SINCE 1990	<i>LABORATORY FOR INTEGRATED ADVANCED ROBOTICS (LIRA-LAB)</i>	<i>FOUNDING DIRECTOR</i>
SINCE 1980	<i>SERVED IN THE PROGRAM COMMITTEE OF MAJOR INTERNATIONAL CONFERENCES IN ROBOTICS SUCH AS: IEEE INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICAR), IEEE INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS)</i>	
SINCE 1990	<i>SERVED ON ACADEMIC PROMOTION AND HIRING COMMITTEES AT: TRINITY COLLEGE DUBLIN, CARNEGIE MELLON UNIVERSITY, ROCHESTER UNIVERSITY, UNIVERSITY COLLEGE LONDON; ISTITUTO SUPERIOR TECNICO IN LISBON; UNIVERSITY OF ALBERTA, YALE UNIVERSITY, CARNEGIE MELLON UNIVERSITY UNIVERSITY OF CANBERRA, ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE.</i>	
SINCE 1998	<i>EVALUATOR OF RESEARCH PROJECTS FOR ITALIAN AND FOREIGN UNIVERSITIES AMONG WHICH: BOLOGNA, SIENA, LISBON, ZURICH.</i>	
SINCE 1980	<i>REVIEWER FOR INTERNATIONAL JOURNALS INCLUDING: INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH; IEEE TRANS. PAMI, IEEE TRANS. SMC, IEEE TRANS. BE, ARTIFICIAL INTELLIGENCE, INTERNATIONAL JOURNAL OF COMPUTER VISION, VISION RESEARCH, JOURNAL OF THE OPTICAL SOCIETY OF AMERICA, COMPUTER VISION AND IMAGE UNDERSTANDING, MACHINE VISION AND APPLICATIONS, ROBOTS AND AUTONOMOUS SYSTEMS.</i>	

### **Organization of Scientific Events**

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2010	<i>EUROPEAN SCIENCE FOUNDATION – US-EUROPE WORKSHOP ON "REVERSE ENGINEERING OF THE HUMAN BRAIN" – DUBROVNIK, CROATIA</i>	<i>CO-CHAIR (WITH PROF. RAHMAT SHOURESHI)</i>
2006	<i>IEEE INTERNATIONAL CONFERENCE ON HUMANOID ROBOTS – GENOA, ITALY</i>	<i>CO-CHAIR (WITH AUDE BILLARD)</i>

1998	<i>INTERNATIONAL WORKSHOP ON "ARTIFICIAL SYSTEMS AND NEUROSCIENCE" – GENOA, ITALY</i>	CO-CHAIRMAN
1998	<i>14<sup>TH</sup> INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION – ICPR 98 – BRISBANE, AUSTRALIA</i>	CONFERENCE TRACK CHAIR
1996	<i>IEEE/RSJ INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS '96) – OSAKA, JAPAN</i>	EUROPEAN PROGRAM CO-CHAIR
1995	<i>INTERNATIONAL WORKSHOP ON BIORBOTICS – HUMAN-ROBOT SYMBIOSIS – TSUKUBA, JAPAN</i>	INTERNATIONAL LIAISON
SINCE 1995	<i>INTERNATIONAL CONFERENCE ON ADVANCED ROBOTICS (ICAR)</i>	PERMANENT INTERNATIONAL COMMITTEE
1994-2007	<i>EUROPEAN CONFERENCE ON COMPUTER VISION (ECCV)</i>	PERMANENT CONFERENCE BOARD
1994	<i>WORKSHOP ON NATURAL AND ARTIFICIAL VISUAL SENSORS – STOCKHOLM, SWEDEN</i>	CHAIRMAN
1992	<i>SECOND EUROPEAN CONFERENCE ON COMPUTER VISION – ECCV'92 – SANTA MARGHERITA, ITALY</i>	CHAIRMAN
1991	<i>INTERNATIONAL CONFERENCE ON ADVANCED ROBOTICS - ICAR'91 – PISA – ITALY</i>	CO-CHAIRMAN
1990	<i>NATO ADVANCED RESEARCH WORKSHOP: ROBOTS AND BIOLOGICAL SYSTEMS" IL CIOCCO – ITALY</i>	CO-DIRECTOR

### **Selected Invited Talks**

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2010	<i>HUMANS AND ROBOTS (HOW MUCH CAN ROBOT LEARN) EUROSCIENCE OPEN FORUM – TURIN – ITALY</i>
2010	<i>REVERSE ENGINEERING OF THE HUMAN BRAIN ESF WORKSHOP ON "GRAND CHALLENGES AND INTERDISCIPLINARITY" – ISTAMBUL – TURKEY</i>
2010	<i>ROBOTICS, BRAIN AND COGNITIVE SCIENCES INSTITUTE OF COGNITIVE SYSTEMS – MUNICH – GERMANY</i>
2010	<i>FROM NEUROSCIENCE TO HUMANOIDS (THE PRE-ICUB ERA) EES WORKSHOP ON HUMANOID ROBOTICS – LONDON - UK</i>
2009	<i>HUMAN CENTERED ROBOTICS RESEARCH 3RD INT. WORKSHOP ON HUMAN CENTERED ROBOTICS SYSTEMS (HCRS09) – BIELEFELD – GERMANY</i>
2009	<i>FROM NEUROSCIENCE TO HUMANOIDS (AND BACK) WORKSHOP "HUMANOIDS-AT-HOME" – KARLSRUHE – GERMANY</i>
2009	<i>DEVELOPING COGNITIVE SKILLS ON A CHILD HUMANOID ROBOT: THE ICUB ISRR 2009 – LUCERNE – SWITZERLAND</i>

- 2009 *INTERACTION TECHNOLOGIES*  
COST – FORESIGHT 2030 – BRUGES – BELGIUM
- 2009 *HOW TO ADVANCE HUMANOIDS RESEARCH*  
WASEDA UNIVERSITY – TOKYO – JAPAN
- 2009 *HUMANOIDS BRAIN AND COGNITIVE SCIENCES*  
INFORMATION AND COMMUNICATION TECHNOLOGY RESEARCH FORUM 2009 – ABU  
DHABI
- 2009 *ROBOTS AND BRAIN SCIENCES*  
WORKSHOP ON "COGNITION FOR TECHNICAL SYSTEMS"- MUNICH – GERMANY
- 2007 *INTELLIGENT AND COGNITIVE SYSTEMS*  
WORKSHOP ON "FUTURE AND EMERGING TECHNOLOGIES" – EZE –FRANCE
- 2007 *HUMANS AND HUMANOIDS*  
Honda Research Institute – Frankfurt
- 2007 *HUMANOID VISION*  
Workshop on "The active vision of Humanoid Robots" – Pittsburg
- 2005 *BIOINGEGNERIA E ROBOTICA.*  
UNIVERSITÀ COMMERCIALE LUIGI BOCCONI – AS PART OF THE MODULE: "SAPERE A  
TUTTO CAMPO" MILAN ITALY
- 2004 *COGNITIVE DEVELOPMENT IN A ROBOT-CUB.*  
TALKS ON "COMPLEX SYSTEMS AND HUMANITIES" UNIVERSITY OF LILLE FRANCE
- 2004 *LEARNING VISUO-MOTOR COORDINATION IN A DEVELOPING ROBOT:*  
CONFERENCE ON "MATHEMATICAL MODELS OF VISUAL PERCEPTION" – BOLOGNA,  
ITALY
- 2004 *MOVIMENTO-AZIONE-COMUNICAZIONE: DALL'UOMO ALLA MACCHINA.*  
SCHOOL OF EXCELLENCE COLLEGIO DI MILANO ITALY
- 2003 *HUMAN BABIES AND ROBOT CUBS.*  
AIBS 2003 - COGNITION IN MACHINES AND ANIMALS – ABERYSTWYTH, UK
- 2003 *HUMANOIDS AS RESEARCH TOOLS.*  
RESEARCH ON HUMANOID, SERVICE AND RESCUE ROBOTS IN ITALY AND JAPAN –  
TOKYO
- 2003 *EXPLOITING EYE-HEAD-ARM COORDINATION FOR THE COGNITIVE DEVELOPMENT OF A*  
*BABY HUMANOID.*  
ROSE 2003: SENSING AND PERCEPTION IN 21<sup>ST</sup> CENTURY ROBOTICS – OREBRO –  
SWEDEN
- 2002 *COGNITIVE DEVELOPMENT: FROM HUMANS TO ARTIFICIAL BEINGS.*  
WORKSHOP "BEYOND ROBOTICS" - CEC – FUTURE AND EMERGING TECHNOLOGIES -  
COPENHAGEN DENMARK
- 2002 *SENSORY-MOTOR COORDINATION IN HUMAN-ROBOT INTERACTION*  
IROS-2002 INT. CONF. ON INTELLIGENT ROBOTS AND SYSTEMS – LAUSANNE  
SWITZERLAND
- 2002 *FOVEAL IMAGING AND IMAGE ANALYSIS*  
AUSTRIAN PHOTOGRAMMETRY SOCIETY – GRAZ AUSTRIA

- 2001 *FROM HUMANS TO HUMANOIDS – WORKSHOP “HUMANOIDS: A TECHNO-ONTOLOGICAL APPROACH”*  
WASEDA UNIVERSITY – TOKYO JAPAN
- 2001 *SENSORIMOTOR TECHNOLOGIES: FROM BIOLOGY TO ARTIFICIAL SYSTEMS (AND VICE VERSA).*  
WORKSHOP “NEW DIRECTIONS IN MATERIALS FOR BIOMIMETIC AND BIOINTERACTIVE PROCESSES” - DARPA-ONRIFO - IL CIOCCO – ITALY
- 2000 *RETINA-LIKE SENSORS AND APPLICATIONS*  
ELECTRO TECHNICAL LAB - TSUKUBA JAPAN
- 1998 *20/20 VISION*  
OPTICAL ENGINEERING SOCIETY OF IRELAND - MAYNOOTH
- 1998 *ARTIFICIAL SYSTEMS AND NEUROSCIENCE:*  
WORKSHOP ON “NEUROINFORMATICS”  
CEC – POTSDAM GERMANY
- 1997 *SENSORIMOTOR COORDINATION IN ARTIFICIAL SYSTEMS:*  
WORKSHOP ON: “PROCESSING VISUAL MOTION IN THE REAL WORLD”  
AUSTRALIAN NATIONAL UNIVERSITY – CANBERRA AUSTRALIA
- 1997 *ARTIFICIAL SYSTEMS AND NEUROSCIENCE:*  
WORKSHOP ON ACTIVE VISION  
INSTITUTE OF ADVANCED STUDY, BERLIN GERMANY
- 1995 *COMPUTER VISION AND ROBOTICS – A BIOMORPHIC APPROACH.*  
WORKSHOP ON: “TRENDS IN COMPUTER SCIENCE”  
MAX-PLANK INSTITUTE FOR COMPUTER SCIENCE – SAARBRÜCKEN GERMANY
- 1993 *TUTORIAL ON NATURAL VISION SYSTEMS IN ROBOTICS RESEARCH:*  
IEEE/RSJ INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS '93) YOKOHAMA, JAPAN
- 1993 *PANELIST: ACTION, REPRESENTATION, AND PURPOSE: RE-EVALUATING THE FOUNDATIONS OF COMPUTATIONAL VISION”.*  
JOINT CONFERENCE ON ARTIFICIAL INTELLIGENCE (IJCAI'93) - CHAMBERY, FRANCE
- 1990 *PANELIST OF THE "BIROBOTICS" TRACK OF: IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY - PHILADELPHIA, U.S.A.*

## Teaching

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2002 – 2006	<i>ANTHROPOMORPHIC ROBOTICS</i> COURSE FOR BIOMEDICAL ENGINEERING DEGREE	<i>ENGINEERING SCHOOL</i> <i>UNIVERSITY OF GENOA</i>
2002 – 2006	<i>HUMAN PHYSIOLOGY</i> COURSE FOR BIOMEDICAL ENGINEERING DEGREE	<i>ENGINEERING SCHOOL</i> <i>UNIVERSITY OF GENOA</i>
1991 – 2006	<i>NATURAL AND ARTIFICIAL INTELLIGENT SYSTEMS</i> COURSE FOR EE AND EO DEGREE	<i>ENGINEERING SCHOOL</i> <i>UNIVERSITY OF GENOA</i>
1987 – 1991	<i>BIOMEDICAL DATA PROCESSING</i> COURSE FOR EE AND EO DEGREE	<i>ENGINEERING SCHOOL</i> <i>UNIVERSITY OF GENOA</i>
1981 – 1998	<i>PRINCIPLES OF PHYSICS AND ELECTRONICS</i> COURSE FOR SECONDARY DEGREE ON NEUROPHYSIOPATHOLOGY	<i>MEDICAL SCHOOL</i> <i>UNIVERSITY OF GENOA</i>

## Supervision of Higher Degrees

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SINCE 1980	<i>SUPERVISOR OF MASTER STUDENTS IN</i> <i>ELECTRICAL AND ELECTRONIC ENGINEERING AND</i> <i>BIOMEDICAL ENGINEERING AND COMPUTER</i> <i>SCIENCE (25 MASTER STUDENTS IN THE LAST FIVE</i> <i>YEARS)</i>	<i>ENGINEERING SCHOOL</i> <i>UNIVERSITY OF GENOA</i>
SINCE 1985	<i>SUPERVISOR OF DOCTORAL STUDENTS IN</i> <i>ROBOTICS, COMPUTER SCIENCE, BIOMEDICAL</i> <i>ENGINEERING</i>	<i>ENGINEERING SCHOOL</i> <i>UNIVERSITY OF GENOA</i>
SINCE 1990	<i>PARTICIPATION IN PHD DEFENSE COMMITTEES AT: TRINITY COLLEGE DUBLIN,</i> <i>UNIVERSITY COLLEGE LONDON; ROYAL INSTITUTE OF TECHNOLOGY IN</i> <i>STOCKHOLM; ISTITUTO SUPERIOR TECNICO IN LISBON; AUSTRALIAN NATIONAL</i> <i>UNIVERSITY; BRAIN AND COGNITIVE SCIENCE DEP. AND AI-LAB MIT, INRIA IN</i> <i>FRANCE; UNIVERSITY OF MELBOURNE, UNIVERSITY OF SUSSEX, UNIVERSITY</i> <i>JAUME I DE CASTELLON..</i>	

## Research Project's Coordination and Funding

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<i>2011 – 2012</i> <i>PROJECT'S</i> <i>PARTNER</i>	<i>EUROPEAN COMMISSION</i> <i>FUTURE AND EMERGING</i> <i>TECHNOLOGIES</i>	<i>ROBOCOM – P284951</i> <i>FLAGSHIP PILOT</i>
<i>2012 – 2014</i> <i>PROJECT'S</i> <i>PARTNER</i>	<i>EUROPEAN COMMISSION</i> <i>COGNITIVE SYSTEMS UNIT</i>	<i>POETICON++ – P288382</i> <i>FUNDING 752,000 €</i>
<i>2009 – 2012</i> <i>PROJECT'S</i> <i>PARTNER</i>	<i>EUROPEAN COMMISSION</i> <i>FUTURE AND EMERGING</i> <i>TECHNOLOGIES</i>	<i>DARWIN – P270138</i> <i>FUNDING 530,000 €</i>
<i>2011 – 2014</i> <i>PROJECT'S</i> <i>PARTNER</i>	<i>EUROPEAN COMMISSION</i> <i>COGNITIVE SYSTEMS UNIT</i>	<i>EFAA – P270490</i> <i>FUNDING 541,000 €</i>

2011 – 2014 PROJECT'S PARTNER	EUROPEAN COMMISSION COGNITIVE SYSTEMS UNIT	XPERIENCE – P270273 FUNDING 860,000 €
2010 – 2013 PROJECT'S PARTNER	EUROPEAN COMMISSION "MARIE CURIE GRANTS"	SIEMPRE – P250026 FUNDING 314,000 €
2009 – 2012 PROJECT'S PARTNER	EUROPEAN COMMISSION "MARIE CURIE GRANTS"	ROBOTDOC – P FUNDING 377,000 €
2008 – 2012 PROJECT'S PARTNER	EUROPEAN COMMISSION COGNITIVE SYSTEMS UNIT	ITALK – P214668 FUNDING 820,000 €
2008 – 2012 PROJECT'S PARTNER	EUROPEAN COMMISSION COGNITIVE SYSTEMS UNIT	CHRIS – P 215805 FUNDING 600,000 €
2008 – 2011 PROJECT'S PARTNER	EUROPEAN COMMISSION COGNITIVE SYSTEMS UNIT	POETICON – P215843 FUNDING: 310,000 €
2009 – 2012 PROJECT'S PARTNER	EUROPEAN COMMISSION FUTURE EMERGING TECHNOLOGIES	ROBOSKIN FUNDING: 390,000 €
2009 – 2012 COORDINATOR	EUROPEAN COMMISSION COGNITIVE SYSTEMS UNIT	HUMOR FUNDING: 550,000 €
2009 – 2012 COORDINATOR	EUROPEAN COMMISSION FUTURE EMERGING TECHNOLOGIES	E-MORPH FUNDING: 400,000 €
2009 – 2012 PROJECT'S PARTNER	EUROPEAN COMMISSION COGNITIVE SYSTEMS UNIT	VIATORS FUNDING: 390,000 €
2005 – 2007 COORDINATOR	EUROPEAN COMMISSION – NEW AND EMERGING SCIENCE AND TECHNOLOGY (NEST)	CONTACT - PROJECT (NEST-5010) FUNDING: 450,000 €* (2 M€)+
2005-2006 PRINCIPAL INVESTIGATOR	TOYOTA MOTOR CORPORATION	BODY-MELODIES: HUMANOID MANIPULATION FUNDING: 200,000 €
2005 – 2009 COORDINATOR	EUROPEAN COMMISSION – COGNITIVE SYSTEMS UNIT	ROBOTCUB, INTEGRATED PROJECT (IST-4370) FUNDING: 4 M€* (8.5 M€)+
2004-2006 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION IMPROVING RISK MANAGEMENT	RESCUER PROJECT FUNDING 290,000 €

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\* as Principal Investigator of the University of Genoa

+ as International Consortium Coordinator

2004–2007 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – FUTURE AND EMERGING TECHNOLOGIES	NEUROBOTICS (IST-1917) FUNDING: 280,000 €
2004-2005 PRINCIPAL INVESTIGATOR	TOYOTA MOTOR CORPORATION	BODY MELODIES: HUMANOID MANIPULATION FUNDING: 175,000 €
2002 – 2005 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – FUTURE AND EMERGING TECHNOLOGIES	NEURO-IT NETWORK OF EXCELLENCE (NEURO-IT-NET IST-2001-35498) FUNDING: 200,000 €
2002 – 2005 COORDINATOR	EUROPEAN COMMISSION – FUTURE AND EMERGING TECHNOLOGIES	ARTIFICIAL DEVELOPMENT APPROACH TO PRESENCE TECHNOLOGY (ADAPT IST-2001-27173) FUNDING: 280,000€* (470.000 €)+
2001 – 2004 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – KEY ACTION IV: ESSENTIAL TECHNOLOGIES	COGNITIVE VISION SYSTEM (COGVIS IST-2000-29375) FUNDING: 520,000 €
2000 – 2003 COORDINATOR	EUROPEAN COMMISSION – FUTURE AND EMERGING TECHNOLOGIES	MIRROR NEURON BASED ROBOT RECOGNITION (MIRROR IST-2000-28159) FUNDING: 220,000* € (720,000 €)+
1999 – 2002 COORDINATOR	EUROPEAN COMMISSION – INFORMATION SCIENCE AND TECHNOLOGY	ADVANCED MOBILE VIDEO COMMUNICATION TECHNOLOGIES (AMOVITE IST-1999-11156)
1998 – 2000 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – INFORMATION SCIENCE AND TECHNOLOGY	ROBUST VISION FOR SENSING IN INDUSTRIAL OPERATIONS AND NEEDS (ROBVISION)
1996 – 2000 COORDINATOR	EUROPEAN COMMISSION – FUTURE AND EMERGING TECHNOLOGIES	SPACE-VARIANT VISUAL SENSOR WITH COLOR ACQUISITION (SVAVISCA)
1996 – 2000 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – MOBILITY OF RESEARCHERS	VISION-BASED ROBOT NAVIGATION RESEARCH NETWORK (VIRGO)
1996 – 2001 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION	NAVIGATION OF AUTONOMOUS ROBOTS VIA ACTIVE ENVIRONMENTAL PERCEPTION (NARVAL)
1997 – 2000 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – MOBILITY OF RESEARCHERS	SEMI-AUTONOMOUS MONITORING AND ROBOTICS TECHNOLOGY (SMART-2)
1997 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION INNOVATION	VIDEOPHONE ACCESSORY FOR SPEECHLESS COMMUNICATION (FEASIBILITY STUDY)
1994 – 1997 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION NETWORK OF EXCELLENCE	EUROPEAN COMPUTER VISION NETWORK OF EXCELLENCE (ECVNET)

1994– 1996 COORDINATOR	EUROPEAN COMMISSION – TELEMATICS FOR THE INTEGRATION OF DISABLED AND ELDERLY	IMAGE BASED INTERACTIVE DEVICE FOR EFFECTIVE COMMUNICATION (IBIDEM)
1994– 1997 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION - ESPRIT	MOBILITY AND ACTIVITY ASSISTANCE SYSTEMS FOR THE DISABLED (MOVAID)
SINCE 1994	ERASMUS	EXCHANGE PROGRAM IN THE FIELD OF ARTIFICIAL VISION
1993– 1995 COORDINATOR	EUROPEAN COMMISSION – MOBILITY OF RESEARCHERS	FOUNDATION OF A VISUAL EUROPEAN ARCHITECTURE (FOVEA)
1993– 1996 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – MOBILITY OF RESEARCHERS	SEMI-AUTONOMOUS MONITORING AND ROBOTICS TECHNOLOGY (SMART)
1992-1995 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – ESPRIT	VISION AS PROCESS (VAP)
1992-1993 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – ESPRIT	SENSORY CONTROLLED DEXTEROUS ROBOTS (SECOND)
1989-1992 PRINCIPAL INVESTIGATOR	EUROPEAN COMMISSION – ESPRIT	VISION RESEARCH PILOT PROJECT (VOILA)
1989-1991 INVESTIGATOR	EUROPEAN COMMISSION – ESPRIT	FUNDAMENTALS OF INTELLIGENT RELIABLE ROBOT SYSTEMS (FIRST)
1988-1989 COORDINATOR	NATO (WITH UNIVERSITY OF PENNSYLVANIA)	HARDWARE IMPLEMENTATION OF AN ANTHROPOMORPHIC SPACE-VARIANT VISUAL SENSOR
1985-1990 INVESTIGATOR	EUROPEAN COMMISSION – ESPRIT	IMAGE AND MOVEMENT UNDERSTANDING– P419

### National Research Grants

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2004-2005	ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH	ACTION RECOGNITION: FROM BIOLOGICAL ACTIONS TO ROBOT HANDS. COORDINATED BY PROF. GIACOMO RIZZOLATTI (UNIV. OF PARMA)
2002 – 2004	ITALIAN SPACE AGENCY	SCALABLE ARTIFICIAL VISION SYSTEM FOR SPACE ROBOTICS FUNDING (2002): 120,000 €
2001 – 2002	ENEA	SURFACE ROBOT FOR ANTARCTICA EXPLORATION FUNDING (2002): 30,000 €
1999 – 2001	ITALIAN SPACE AGENCY	METHODS OF SELF-ADAPTATION TO LOSS OF PERFORMANCE DUE TO AGING OF COMPONENTS

1998– 1999	ITALIAN SPACE AGENCY	EFFECTS OF MICROGRAVITY ON THE NEUROBEHAVIORAL DEVELOPMENT OF RODENTS.
1997– 1999	ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH	MOTOR AND VISUOMOTOR PLASTICITY AND DEVELOPMENT IN BIOLOGICAL AND ARTIFICIAL SYSTEMS.
1996– 1999	ITALIAN SPACE AGENCY	OPTICAL MICROSYSTEMS OF SPACE ROBOTICS
1992 - 1995	ITALIAN SPACE AGENCY	A SYSTEM FOR THE CONTROL OF A BINOCULAR ROBOT HEAD WITH SELF-STABILIZATION CAPABILITIES
1992 - 1994	CNR – SPECIAL PROJECT ON ROBOTICS	URMAD: MOBILE ROBOT FOR DISABLED PERSONS
1992 - 1994	CNR – SPECIAL PROJECT ON ROBOTICS	AGROBOT: A ROBOTIC SYSTEM FOR AGRICULTURAL APPLICATIONS.
1989 - 1991	CNR – SPECIAL PROJECT ON ROBOTICS	DYNAMIC VISION FOR AUTONOMOUS ROBOTS
1987 - 1991	CNR – SPECIAL PROJECT ON ROBOTICS	STUDY AND FABRICATION OF SPACE-VARIANT VISUAL SENSORS
1985 - 1988	CNR– SPECIAL PROJECT ON BIOMEDICAL ENGINEERING	SPATIO-TEMPORAL ANALYSIS OF BRAIN ELECTRICAL ACTIVITY BY MEANS OF 2D MAPS.

### **Inventor of International Patents**

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2008	<i>TOUCH SENSORS TASSELLATON AND RELATED SENSORY SYSTEM – DISPOSIZIONE DI SENSORI TATTILI E SISTEMA SENSORIALE CORRISPONDENTE - FILED</i>
2008	<i>PROCEDURE AND MACHINERY FOR THE FABRICATION OF MULTILAYER POLYMERIC ACTUATORS FOR THE FABRICATION OF ARTIFICIAL MUSCLES – PROCEDIMENTO ED APPARECCHIATURE PER LA FABBRICAZIONE DI ATTUATORI POLIMERICI MULTISTRATO ADATTI ALLA REALIZZAZIONE DI UN MUSCOLO ARTIFICIALE – FILED</i>
2008	<i>AUTOSHIELDED MAGNET AND THE RELATED DESIGN METHODOLOGY – MAGNETE AUTOSCHERMATO E RELATIVO METODO DI PROGETTAZIONE - FILED</i>
1999-2001	<i>FILED: “CONSTANT RESOLUTION AND SPACE-VARIANT SENSOR ARRAYS”: CANADIAN APPLICATION: 2 321 397 JAPAN APPLICATION (2000): 298896/2000 EUROPEAN APPLICATION (1999): EP-A-1 089 342 (EP 99203202.9)</i>
1997	<i>EUROPEAN PATENT No. EP 0 397 272 B1: RADIATION-SENSITIVE MEAN OR SENSOR IN RETINA-LIKE CONFIGURATION (SUBMITTED IN 1990).</i>
1992	<i>1992 US PATENT No. 5,166,511: RADIATION SENSITIVE SENSOR HAVING A PLURALITY OF RADIATION SENSITIVE ELEMENTS ARRANGED SUBSTANTIALLY CIRCULAR WITH RADIALLY DECREASING DENSITY (FILED IN 1990);</i>

## Publications

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I have published over 300 papers and more than 90 in International Journals. The most relevant journal articles and book contributions are the following:

- BOOK CHAPTER 2010** FUMAGALLI M., GIJSBERTS A., IVALDI S., JAMONE L., METTA G., NATALE L., NORI F. & SANDINI G. 2010, 'LEARNING TO EXPLOIT PROXIMAL FORCE SENSING: A COMPARATIVE APPROACH', IN O. SIGAUD & J. PETERS (EDS.), FROM MOTOR LEARNING TO INTERACTION LEARNING IN ROBOTS, STUDIES IN COMPUTATIONAL INTELLIGENCE, V. 264, SPRINGER-VERLAG PP.159-177
- ARTICLE 2010** SCIUTTI A., SQUERI V., GORI M., MASIA L., SANDINI G. & KONCZAK J. 2010, 'PREDICTED SENSORY FEEDBACK DERIVED FROM MOTOR COMMANDS DOES NOT IMPAIR HAPTIC SENSITIVITY', EXPERIMENTAL BRAIN RESEARCH, VOL. 200, NO. 3, PP. 259–274. AVAILABLE FROM: <HTTP://DX.DOI.ORG/10.1007/S00221-009-1996-X> [29 NOVEMBER 2011].
- ARTICLE 2010** ORABONA F., CASTELLINI C., CAPUTO B., JIE L. & SANDINI G. 2010, 'ON-LINE SUPPORT VECTOR MACHINES', PATTERN RECOGNITION, VOL. 43, PP. 1402–1412.
- ARTICLE 2010** METTA G., NATALE L., NORI F., SANDINI G., VERNON D., FADIGA L., VON HOFSTEN ROSANDER K., SANTOS-VICTOR J., BERNARDINO A. & MONTESANO L. 2010, 'THE IIC: A HUMANOID ROBOT: AN OPEN-SYSTEMS PLATFORM FOR RESEARCH IN COGNITIVE DEVELOPMENT', NEURAL NETWORKS, SPECIAL ISSUE ON SOCIAL COGNITION: FROM BABIES TO ROBOTS, VOL. 23, 8-9, PP. 1125–1134.
- ARTICLE 2010** GORI M., SANDINI G., MARTINOLI C. & BURR D. 2010, 'POOR HAPTIC ORIENTATION DISCRIMINATION IN NON-SIGHTED CHILDREN MAY REFLECT', CURRENT BIOLOGY, VOL. 20, NO. 3, PP. 223–225.
- ARTICLE 2010** DAHIYA R.S., METTA G., VALLE M. & SANDINI G. 2010, 'TACTILE SENSING: FROM HUMANS TO HUMANOIDS', IEEE TRANSACTIONS ON ROBOTICS, VOL. 26, NO. 1, PP. 1–13.
- ARTICLE 2010** CANGELOSI A., METTA G., SAGERER G., NOLFI S., NEHANIV C., FISCHER K., TAN BELPAEME T., SANDINI G., NORI F., FADIGA L., WREDE B., ROHLFING K., TUCI DAUTENHAHN K., SAUNDERS J. & ZESCHEL A. 2010, 'INTEGRATION OF ACTION AND LANGUAGE KNOWLEDGE: A ROADMAP FOR DEVELOPMENTAL ROBOTICS', IEEE TRANSACTIONS ON AUTONOMOUS MENTAL DEVELOPMENT, VOL. 2, NO. 4, PP. 167–191.
- ARTICLE 2010** CAMPANELLA F., SANDINI G. & MORRONE M.C. 2010, 'VISUAL INFORMATION GLEANED BY OBSERVING GRASPING MOVEMENT IN ALLOCENTRIC AND EGOCENTRIC PERSPECTIVES', BIOLOGICAL SCIENCES / THE ROYAL SOCIETY, PP. 1–13.
- BOOK CHAPTER 2009** VERNON D., METTA G. & SANDINI G. 2009, 'EMBODIMENT IN COGNITIVE SYSTEMS: THE MUTUAL DEPENDENCE OF COGNITION & ROBOTICS', IN J. GRAY & S. NEFTI-MEZ (EDS.), EMBODIED COGNITIVE SYSTEMS, INSTITUTION OF ENGINEERING TECHNOLOGY (IET), UK
- BOOK CHAPTER 2009** MORASSO P., MOHAN V., METTA G. & SANDINI G. 2009, 'MOTION PLANNING AND BIMANUAL COORDINATION IN HUMANOID ROBOTS', IN A. SPERDUTI A.M. F. MASULLI (ED.), COMPUTATIONAL INTELLIGENCE AND BIOENGINEERING, IOS PRESS PP. 1-17,
- ARTICLE 2009** MOHAN V., MORASSO P., METTA G. & SANDINI G. 2009, 'A BIOMIMETIC, FORCE-BASED COMPUTATIONAL MODEL FOR MOTION PLANNING AND BIMANUAL COORDINATION IN HUMANOID ROBOTS', AUTONOMOUS ROBOTS, VOL. 27, PP. 291–307.
- ARTICLE 2009** MASIA L., CASADIO M., SANDINI G. & MORASSO P. 2009, 'EYE-HAND COORDINATION DURING DYNAMIC VISUOMOTOR ROTATIONS', PLOS ONE, VOL. 4, NO. 9, E7004

- ARTICLE 2009 MASIA L., CASADIO M., GIANNONI P., SANDINI G. & MORASSO P. 2009, 'PERFORMAI ADAPTIVE TRAINING CONTROL STRATEGY FOR RECOVERING WRIST MOVEMENTS STROKE PATIENTS: A PRELIMINARY, FEASIBILITY STUDY.', JOURNAL NEUROENGINEERING AND REHABILITATION., VOL. 6,NO. 44, PP. 1–11
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- ARTICLE 2009 CASTELLINI C., FIORILLA A.E. & SANDINI G. 2009, 'MULTI-SUBJECT / DAILY-LIFE ACTIVITY EMG-BASED CONTROL OF MECHANICAL HANDS', JOURNAL NEUROENGINEERING AND REHABILITATION, VOL. 6,NO. 41. AVAILABLE FROM <[HTTP://DX.DOI.ORG/10.1186/1743-0003-6-41](http://dx.doi.org/10.1186/1743-0003-6-41)> [29 NOVEMBER 2011].
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