Scuola Superiore Sant'Anna

Elementi di immagine coordinata

Ottobre 2008

Scuola Superiore
Sant'Anna
di Studi Universitari e di Perfezionamento

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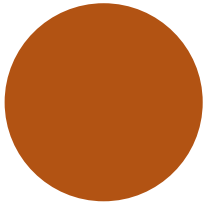
Logo completo (versione orizzontale)

Logo circolare

Riferimenti cromatici



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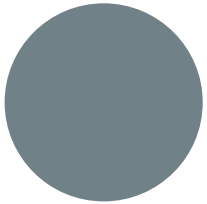

Grigio
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Quadricomia:
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Bauer Bodoni Roman

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Rotis Sans Serif Light

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L'eccellenza come disciplina.


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di Studi Universitari e di Perfezionamento
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P.zza Martiri della Libertà, 33 - 56127 PISA
Allievi ordinari: 050.883.271 - infostudenti@sssup.it
Allievi perfezionandi: 050.883.220 - infophd@sssup.it
www.sssup.it
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Future in progress

OVERVIEW ON AN ITALIAN CENTRE OF EXCELLENCE FOR UNIVERSITY EDUCATION AND RESEARCH.

YEAR BOOK 2007

santAnna
school of advanced studies

This will lead to an improved description of the neural coding for taction, such as texture recognition.

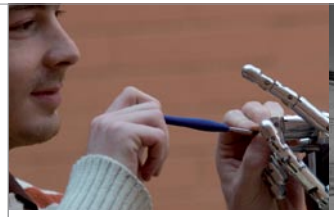
Relevant Publications

- *B.B. Edin, L. Ascari, L. Beccai, S. Roccella, J.-J. Cabibihan, and M.C. Carrozza, "Bio-inspired sensorization of a biomechatronic robot hand for the grasp-and-lift task", Brain Research Bulletin, in press.*
- *L. Beccai, S. Roccella, A. Arena, F. Valvo, P. Valdastri, A. Menciassi, M. C. Carrozza, P. Dario, "Design and fabrication of a hybrid silicon three-axial force sensor for biomechanical applications", Sensors and Actuators A, Vol. 120, No. 2, pp. 370-382, 2005*
- *B.B. Edin, L. Beccai, L. Ascari, S. Roccella, J. Cabibihan and M.C. Carrozza, "A bio-inspired approach for the design and characterization of a tactile sensory system for a cybernetic prosthetic hand," in Proc. of the 2006 IEEE Int. Conf. on Robotics and Automation, pp. 1354-1358, 2006.*
- *J.J. Cabibihan, S. Pattofatto, M. Jomaa, A. Benalla, M.C. Carrozza, P. Dario,"The conformance test for robotic/prosthetic fingertip skins", in Proc. of the 1st IEEE/RAS-EMBS Int. Conf. on Biomedical Robotics and Biomechatronics. 2006.*
- *L. Beccai, S. Roccella, L. Ascari, P. Valdastri, A. Sieber, M. C. Carrozza, and P. Dario, "Experimental analysis of a soft compliant tactile microsensor to be integrated in an anthropomorphic artificial hand," 8th Biennial ASME Conf. on Engineering Systems Design and Analysis, July 4-7, 2006, Turin, Italy.*

> Assistive Robotics

– Project Leader: Maria Chiara Carrozza

Two main projects are currently ongoing at ARTS Lab in the field of Assistive Robotics: the DEDALO project and the MOVEMENT project.
The objective of the DEDALO project is to build a feeding device for severe disabled people. The User Centred Design method and the HAAT (Human Activity Assistive Technology) model were selected to drive all the phases of the project. A first prototype of the feeding system was developed, manufactured and finally tested with disabled users. The results of the testing phase were used to modify the first design and to develop a second prototype. The second prototype is based on two different components: one that provides food and one that provides drinks. The goal of the MOVEMENT (Modular Versatile Mobility Enhancement Technology) project is the development of a modular versatile mobility enhancement system to support the daily living of disabled and elderly people. The core is formed by an intelligent mobile (robotic) platform, which can be docked to a user-definable selection of application modules (e.g. chair, table, manipulator, ICT Terminal). ARTS Lab is developing the Multi-Functional Chair (MFC) and Lift/Walker (LW) modules to assist the mobility of disabled and elderly people. The MFC is a special powered chair that is capable of changing its configuration, not only in order to improve comfort, but also to allow the user to reach various positions – vertical, horizontal, standing positions, etc. It can be docked to the robotic mobile base, thus becoming a wheelchair and supporting user mobility.



The docked MFC can exploit the autonomous navigation capability of the mobile base in order to move within the environment (e.g. to reach the user from a different position when he/she needs the MFC). The LW is a module capable of changing its configuration in order to act as either a lifter or a walker, depending on the user's needs.

Patents

- *M.C. Carrozza, G.A. Di Lauro, F. Chiarugi, G. Giachetti, A. Pisetta, L. Samà, "Self-feeding apparatus" - Community Design n° 602800, October 10, 2006.*
- *E. Guglielmelli, G.A. Di Lauro, F. Chiarugi, G. Giachetti, Y. Perrella, A. Pisetta, A. Scoglio, "Self-Feeding Apparatus" - PCT Patent n° PCT/IT2006/000397, May 26, 2006.*
- *E. Guglielmelli, G.A. Di Lauro, F. Chiarugi, G. Giachetti, Y. Perrella, A. Pisetta, A. Scoglio, "Apparecchiatura per la nutrizione di disabili motori e anziani" - Italian Patent n° FI2005A000117, May 27, 2005.*

> Design and Development of Robotic and Mechatronic Systems for Neurorehabilitation

– Project Leader: Maria Chiara Carrozza

A novel platform for mono-lateral isometric force/torque measurements on the foot of human subjects (named "Foot Device"), mainly aimed at functional assessment in rehabilitation, has been designed and developed at ARTS Lab. The platform has been integrated into a diagnostic device (ADD, Alladin Diagnostic Device), which allows the recording of whole-body isometric force/torque measurements. The Foot Device is currently tested in three different EU hospitals during an extensive clinical trial, with the aim of evaluating a large pool of stroke patients and validating the clinical assumptions on the significance of isometric F/T measurements in rehabilitation.
Robotic Neurorehabilitation. During the past years, dedicated efforts have been carried out at ARTS Lab to verify the possibility of improving the motor recovery of hemiparetic subjects by using mechatronic systems. To achieve this goal, our system (named MEMOS) has been designed with the aim of mainly using "off-the-shelf products". The MEMOS system has been used during clinical trials with subjects affected by chronic hemiparesis (>6 months from the cerebrovascular accident). The results obtained during these experiments seem to show that, in spite of the simple mechatronic structure that characterizes the MEMOS system, MEMOS is able to help chronic hemiparetic patients to reduce their level of impairment.
At the same time, dedicated experiments are currently carried out with the InMotion 2 robot, a commercial system derived from the MIT MANUS, with able-bodied elders and hemiparetic subjects. The main aim of this activity is twofold: (i) understanding the modifications of the motor control strategies induced by ageing and stroke; (ii) defining innovative rehabilitation strategies also based on the combined used of different robotic systems.

Relevant Publications

- *S. Mazzoleni, J. Van Vaerenbergh, A. Toth, M. Munih, E. Guglielmelli, P. Dario, "Alladin: a novel mechatronic platform for assessing post-stroke functional recovery," in Proc. 9th International Conference on Rehabilitation Robotics, Chicago, IL, USA, 2005, pp. 156-159.*
- *J. Van Vaerenbergh, S. Mazzoleni, A. Toth, E. Guglielmelli, M. Munih, E. Stokes, G. Fazekas, S.D. Ruijter, "Assessment of recovery at stroke patients by whole-body isometric force-torque measurement of functional tasks I: mechanical design of the device," in Proc. 3rd European Medical & Biological Engineering Conf., Prague, Czech Republic, 2005, IFMBE Proc. 2005 11(1), ISSN: 1727-1983, paper 1834.*
- *S. Mazzoleni, S. Micera, F. Romagnolo, P. Dario, E. Guglielmelli, "An Ergonomic Dynamometric Foot Platform for Functional Assessment in Rehabilitation," in Proc. 1st IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics, Pisa, Italy, 2006, pp. 619-624*
- *R. Colombo, F. Pisano, A. Mazzone, C. Delconte, S. Micera, M.C. Carrozza, P. Dario, G. Minuto, "Design Strategies to Improve Patient Motivation*

8. International relationships

A SCHOOL ABLE TO THINK IN ALL THE LANGUAGES OF THE WORLD.

INTERNATIONAL RELATIONS OFFICE (I.R.O)
One of the fundamental aims of the Sant'Anna School is the development of international education and research exchanges through cultural and scientific collaboration agreements with foreign universities.

International Relations Office is in charge of the university's collaboration that the Sant'Anna School has all over the world. It seconds the professors in their research and education exchanges, it promotes the exchanges from their first contact up to the signature of agreements.

OUR STAFF
Professor Pierdomenico Perata heads the office. The office employs three staff members who cover the different tasks of the office work. It ranges from the support to the students, professors and researchers to planning and developing the institutional relations.

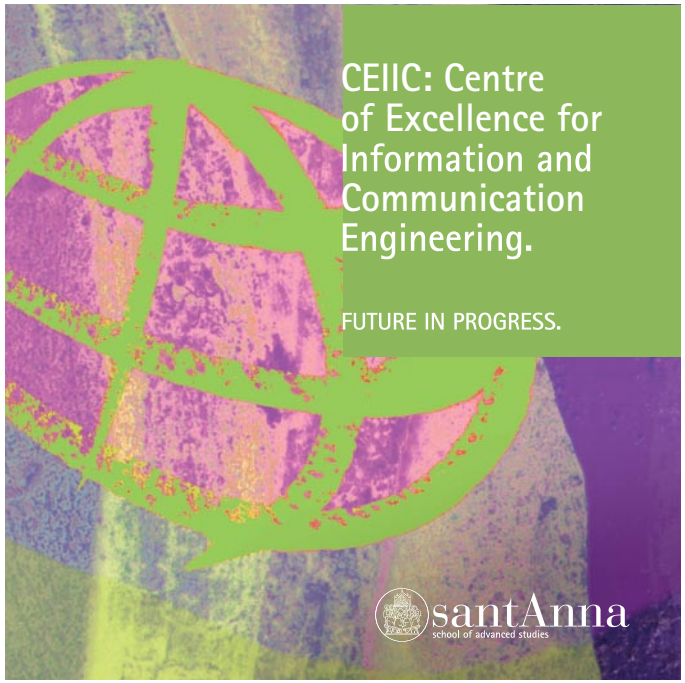
IRO'S MISSION
IRO ensures the support to professors and researchers for the set up, follow up and renewal of international conventions and agreements. It provides counseling and operational support to draft and elaborate the texts of agreements in line with the political strategies of the Sant'Anna School and the internal rules and regulations.

IRO is in charge of gathering information on all the opportunities regarding educational and research programmes and communicates them to the other entities of the School.

In line with the international mobility, IRO manages all the procedure to receive the students and guest researchers and professors. It tackles the administrative paperwork for foreigners to enter Italy establishing contacts with the Italian diplomatic representatives abroad and the local authorities for the bureaucracy.

It also provides all the necessary help for the accommodation and facilitates the access to all information regarding the services available in town. The office is in charge of the preparation of draft for projects financed by the Ministry of Foreign Affairs and the Ministry of the University, fostering the participation to European community and extra-community programmes in compliance with the school's guidelines for international development activities.

IRO in collaboration with the office of communication organizes and manages participation to international events to promote the school's activities.



Esempi di varianti di copertina


Master in Gestione e controllo dell'Ambiente: tecniche e tecnologie per il ciclo dei Rifiuti.
Master Universitario di II livello
Gestire i rifiuti per migliorare l'ambiente.
Un percorso formativo altamente qualificato. Per affrontare tutti gli aspetti della problematica legata al ciclo integrato dei rifiuti: dalla produzione ai metodi di raccolta e smistamento, dagli impianti di pretrattamento a quelli di destinazione finale, dalle bonifiche di scarichi incontrollati fino all'analisi di rischio e al monitoraggio a lungo termine.
Il Master è aperto a un massimo di 25 persone. Iscrizioni esclusivamente on line entro il 21 dicembre 2007.
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MAINS
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La Scuola Superiore Sant'Anna, in collaborazione con il "Center for Open Innovation" della Haas School of Business della University of California – Berkeley, organizza il Master in Management, Innovazione e Ingegneria dei Servizi (MAINS), un Master full time in General Management focalizzato sulla gestione dei processi innovativi nell'economia dei servizi.
Tra i punti di forza del Master:
• una faculty di docenti di riconosciuta qualità, delle migliori università italiane ed estere;
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• un nuovo progetto formativo, focalizzato sull'interazione tra servizi e innovazione nell'accrescimento della capacità competitiva delle imprese;
• un'aula di un massimo di 27 partecipanti, che favorisce una proficua interazione con i docenti e una coinvolgente esperienza formativa di gruppo;
• il riconoscimento fino ad un massimo di 80 crediti formativi universitari;
• problem solving su casi reali condotti in azienda anche nei 7 mesi di didattica full time in aula;
• attività di outdoor training;
• uno stage di 4 mesi in azienda, scelto all'interno di un'ampia rosa di opportunità;
• il 90% degli allievi, nelle precedenti edizioni del Master, ha trovato occupazione qualificata entro 3 mesi dalla conclusione del corso;
• ogni anno circa 35 aziende sono presenti ai nostri recruiting days alla ricerca di nuovi talenti.
Le domande dovranno pervenire entro le ore 18.00 di giovedì 25 ottobre 2007 secondo le modalità consultabili sul sito.
Gli incontri di selezione si svolgeranno i giorni 15 e 16 novembre 2007. Il corso inizierà il 9 gennaio 2008 e si concluderà il 19 dicembre 2008 con il completamento del periodo di stage. Sono garantite almeno undici borse di studio a copertura totale della quota di partecipazione e tre borse con copertura pari al 50%.
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