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Università degli Studi di Siena

PROPOSTA PER IL TRIENNIO 2011/2014 - A.A.2011-2012

Dottorato di Ricerca

"Ingegneria e Scienza dell'Informazione"

1 - Denominazione del Dottorato di Ricerca

Ingegneria e Scienza dell'Informazione (Engineering and Science of Information)

2.1 - Area Scientifica prevalente

Area delle Scienze Sperimentali

2.2 - Altre Aree Scientifiche

2.3 - Settori scientifico disciplinari

- 2.3.1 INF/01 Informatica
 - 2.3.2 ING-IND/31 Elettrotecnica
 - 2.3.3 ING-IND/35 Ingegneria economico-gestionale
 - 2.3.4 ING-INF/01 Elettronica
 - 2.3.5 ING-INF/02 Campi elettromagnetici
 - 2.3.6 ING-INF/03 Telecomunicazioni
 - 2.3.7 ING-INF/04 Automatica
 - 2.3.8 ING-INF/05 Sistemi di elaborazione delle informazioni
 - 2.3.9 ING-INF/07 Misure elettriche e elettroniche
 - 2.3.10 MAT/01 Logica matematica
 - 2.3.11 MAT/09 Ricerca operativa
-

3 - Direttore del Dottorato di Ricerca

STEFANO MACI - Professore Ordinario tempo pieno -
ING-INF/02 CAMPI ELETTROMAGNETICI

3.1 Dipartimento Ingegneria dell'informazione
Università degli Studi di Siena
stefano.maci@unisi.it



4.1 - Strutture proponenti

4.1.1 Dpt. Ingegneria dell'informazione Sede amministrativa

4.1.2 Dpt. Scienze matematiche ed informatiche 'Roberto Magari'

5 - Tematiche di Ricerca prevalenti

5.1 Antennas, Microwaves, Wave Propagation, Computational Electromagnetics, Metamaterials, RFID, Electromagnetic Compatibility

5.2 Communications networks; Satcomm systems; Personal comm syst. Digital signals/images process and compression; Information security; Wireless Syst.

5.3 Computat. systems biology, natural computation, formalisms for biology, stochastic methods, biological modelling and simulation, algor. for biol.

5.4 Computer architecture, Parallel programming and security; Language processing; Machine learning; Pattern recognition; Information Retrieval and Proc.

5.5 Electronics for cryptography, Integrated electronic circuit, Sensors , Stability of nonlinear circuits; Neural Networks

5.6 Linear , Intuitionistic and Fuzzy Logic; Recursion, Algorithms and Complexity Theory, Dataflow analys, Formal methods in Comp. Science, Web services.

5.7 Management, Production systems, Service systems, Performance evaluation, Marketing, Decision support systems

5.8 Modeling of biophysical phenomena, ecological system biforcations and chaotic behaviors; complex nonlinear systems;

5.9 Optimal control, Robust control, Dynamic vision, Process control, Robotics and biomechanics; Modeling and control of robotic teams

6 - Svolgimento delle attività in lingua straniera

6.1 sì

6.2 Lezioni e/o seminari tenuti da docenti stranieri - Corsi in lingua inglese o in altra lingua straniera

7 - Descrizione del Dottorato di Ricerca

The PhD school in "Engineering and Science of Information" arises from the fusion between the PhD School in Information Engineering and the PhD School in Mathematical Logic, Informatics and BioInformatics. The formative program is driven by the need to provide future researchers in both academic and industrial environments with the background and methodological skills in the framework of Information Engineering and Science. The school includes 9 Curricula with scientific-technical content associated to the CUN Area 01 (Scienze Matematiche e Informatiche) and 09 (Ingegneria Industriale e dell'Informazione). The school includes 9 Curricula mainly framed in the following SSD: INF/01, MAT01, MAT 09 of Area 01, and ING-INF/01, ING-INF/02, ING-INF/03, ING-INF/04, ING-INF/05, ING-INF/07, ING-IND/31, ING-IND/35 of Area 09. These Curricula are mainly oriented to research in Electronics, Telecommunications, Electromagnetic Engineering, Electrical Engineering, Automation and Control Engineering, Robotics, Measurements, Management Engineering, Informatics, Networks, Bio-informatics, Mathematical Logics and Computer Science, Information processing, Complex Systems. The Board (Collegio docenti) is composed by 15 Professors of the University of Siena, 10 of the "Dipartimento di Ingegneria dell'Informazione", 4 of the "Dipartimento di Scienze Matematiche e Informatiche", and one of the "Dipartimento di Biotecnologie". One Industrial representative and 3 external professors will be invited to the PhD board meeting, 2 of which from non-national Universities. Following the long tradition of the original PhD schools, the PhD students will benefit of a broad offer of PhD courses, excellent laboratories, large variety of international contacts, international stages in renowned University and research centers, support from the Department for participation to conferences. In the XXVII cycle, the school will have a multitude of external financial supports, especially from EU projects and from national Industries. This year the school will offer 8 positions fully financed from outside, with budget already available. On the basis of the past history, we expect 14-16 new PhD students per year, with 30% of participation from outside University of Siena and 20% from outside Italy.

8 - Attività multidisciplinari

9.1 - Percorso Formativo: Automatic Control and Robotics (Controlli Automatici e Robotica)

9.1.1 - Obiettivi formativi

This curriculum covers the research areas related to Systems and Control Theory, Robotics and Automation. The PhD student activity on Systems and Control Theory will typically concern theoretical and experimental research on identification of dynamic systems, estimation and filtering of uncertain systems, nonlinear systems, optimal control, robust control, hybrid systems and optimization, techniques for process control. A further line of research regards advanced techniques for learning through a web based remote telelaboratory, allowing for the execution of experiments for testing the performance of basic and advanced control laws for process control and mobile robotics systems. The activity concerning Robotics covers new paradigms such as collaborative agents, network of robots and advanced sensing systems, virtual reality, biomechanics and medical applications. The main research lines regard tactile and haptic rendering, grasping modeling and control for applications in robotics and biomechanics, medical applications with emphasis on surgical robotics, neuroscience and rehabilitation, simultaneous localization-mapping and visual servoing control for autonomous robots. Collaborations are active with many research centers such as MIT (USA), University of Pennsylvania (USA), Stanford University (USA), University of Berkeley (USA), Istituto Italiano di Tecnologia (Italy) and companies such as Force Dimension (Switzerland), ENEL (Italy), EDF (France), Iberdrola (Spain), Airbus(France).

9.1.2 - Descrizione attività didattico-formativa

1° anno

Altro - Every year the PhD School organizes a number of intensive (20-hour each) courses, some of them held by UNISI Professors and some others by prominent national and international experts. The expenses will be supported by the Department of Information Engineering. These courses are divided in 2 groups: Group 1 includes course of general interest, that will be of potential interest for all the PhD students of the SDR; e.g., of advanced Mathematics, Physics, Numerical Calculus, Operation Research, Mathematical Logics, Informatics, etc. Group 2 includes specialized courses of main interest of this Curriculum. The course of one Curriculum can be also followed by any PhD student of the SDR. All courses have a duration of 20-30 hours, and foreseen a written or oral assessment test for the accreditation. Some courses should be also kept by the Master. During the first year, the students will present a Study Plan comprising TWO courses in Group 1, TWO courses in Group 2, and ONE "fre

Numero crediti: 60

2° anno

Altro - During the second year students presents a Study Plan that includes ONE course among all courses offered by the SDR and TWO free courses. Thus, he has to gain 12 credits of courses and 48 credits of research. At the end of the second year, for admission f to the third year, the PhD students have to present a report of their research activity and the status of the courses followed during the second year. The report is presented to the board by the advisor of the student in the October meeting of the Board. If the opinion is negative, the PhD student is not admitted to the third year and he is excluded from the school. If the opinion is favorable, the final admission to the third year is decided by the PhD Board after the output of the "Poster Day". During the Poster Day, the students present their global activity of research of the first two years in front of the Board of the SDR with the help a Poster.

Numero crediti: 60

3° anno

Altro - During the third year the student must follow and gives the exams of TWO free courses. Therefore, he/she will have 8 credits for courses and 52 for research. The activity of the third year is dedicated predominantly to research, to write papers and to follow conferences, and to have stage abroad (the stage abroad is allowed also in the second year). At the end of the third year, the Board gives the opinion about the research activity of students of the third year. If the opinion is positive, the PhD student is admitted to the final exam. If it is negative, the PhD student have to repeat the year, without the obligation to follow the additional TWO courses.

Numero crediti: 60

9.2 - Percorso Formativo: Bioinformatics (Bioinformatica)

9.2.1 - Obiettivi formativi

The main topic of this curriculum consists in the applications of Computer Science to Biology. In more details, this research area focuses on Computational Biology and on Computational Systems Biology, a new discipline which puts together several disciplines: Computer Science, Mathematics and Biology. This curriculum benefits form a master of first level in Bioinformatics, which is hosted by the Department of Mathematics and Computer Science 'Roberto Magari', which has active collaborations with industries and has also been supported by the Fondazione Monte dei Paschi. The Section of Bioinformatics has developed collaborations with major centres of industrial research in biotechnologies, located in the area of Siena, e.g. Novartis V&D, Sienabiotech, Bayer, etc. A recent agreement between the University of Siena and Novartis V&D provides for PhD scholarships financed by Novartis V&D.

9.2.2 - Descrizione attività didattico-formativa

1° anno

Altro - The activity is structured as in the Curriculum 1, except for a larger concentration of credits for courses in the first year. The second and third year the activity is mainly concentrated in Research credits.

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.3 - Percorso Formativo: Complex Systems (Sistemi Complessi)

9.3.1 - Obiettivi formativi

Research activity in the field of Complex Systems falls within what has come to be called Complexity Science, an attempt to better understand systems in which global unexpected behaviours arise from the interactions of their components. This kind of interesting relationship between the individual components of a system and the system's global behaviour is characteristic of many important and intriguing domains: ecosystems, brains, cognitive sciences, biomedical systems, physics, markets. The growing significance of understanding and managing such systems means that Complexity Science is increasingly being recognised as a critical area of enquiry by the industry and science itself. The school in Complex Systems aims at generate a community of doctoral graduates equipped to act as research leaders in applying complex systems theory and simulation to the most prominent scientific and engineering challenges of the 21st century. To do this the the focus on the relationship between simulation, mathematical modelling, and experimentation is crucial, as well as efficient numerical methods for solving mathematical models through abstract experiments related to realistic predictive simulation models. Several international collaborations are active on this research area with researchers of Institutes like IMPA (Brasil), Max Planck Institute (Germany) and Santa Fe Institute (USA).

9.3.2 - Descrizione attività didattico-formativa

1° anno

Altro - See Curriculum n. 1

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.4 - Percorso Formativo: Computing Systems (Sistemi di Calcolo)

9.4.1 - Obiettivi formativi

The PhD program on on Computing Systems covers aspects concerning theoretical, design and implementation issues for both multi-purpose and dedicated processing systems from the hardware and/or software point of view. The learning and research activities, proposed to the PhD students, are aimed at the development of a focused preparation and research skills in one or more of the following topics: Computer architecture and performance evaluation of parallel and distributed systems; Advanced embedded architectures; Concurrent and parallel programming methodologies; Computer security; Language processing technologies; Machine learning; Pattern recognition; Web mining and Information Retrieval; Artificial intelligence and expert systems; Integration of symbolic and sub-symbolic models for information processing; Adaptive processing of structured data. Most of these subjects are covered by the Ph.D. Committee members' expertise. Teaching courses are planned in the form of seminars by professors from other universities and research institutions. Moreover, students are expected to attend the Ph.D. Summer School yearly organized by the Italian Group of Interest on Computer Engineering.

9.4.2 - Descrizione attività didattico-formativa

1° anno

Altro - See Curriculum n. 1

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.5 - Percorso Formativo: Decision support methods for management (Metodi decisionali per la gestione)

9.5.1 - Obiettivi formativi

This PhD program covers decision models and algorithms, with applications to resource management of complex systems. The program focuses on the design of analytical tools and optimization algorithms arising in various application areas (e.g. production, logistics, services). The scope of the candidate's activity will be either methodology-oriented or application-oriented. In the former case, it will address advanced techniques in combinatorial modeling, mathematical programming, graph theory, algorithms and complexity. In the latter case, it will typically, though not necessarily, concern decision modeling for specific areas, including: Management, Production systems, Service systems, Performance evaluation and benchmarking, Marketing, Decision support systems, Distributed and multi-agent decision making.

9.5.2 - Descrizione attività didattico-formativa

1° anno

Altro - See Curriculum n. 1

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.6 - Percorso Formativo: Electromagnetics Engineering (Ingegneria dell' Elettromagnetismo)

9.6.1 - Obiettivi formativi

The scope of the PhD typically fall within one or more of the following topics: Antennas, (Holographic antennas, Antenna measurements, Antenna Arrays, UWB antennas, Focusing antenna Systems), Microwaves (active and passive microwave devices), Wave Propagation (Scattering, Diffraction and High-Frequency techniques, Beam techniques), Theory of Electromagnetisms (Green's Functions, Integral equations Transformation Optics and Cloaking), Computational electromagnetics (Method of Moments, Differential methods, Multiscale problems), Metamaterials (Nanostructured materials, Electromagnetic Bandgap Materials, Metasurfaces), Electromagnetic compatibility, Radio Frequency Identifications (RFID). The PhD program is suitable to find collocation in Telecommunication, Electronic, Automotive, Aerospace industries and in academic research laboratories is framed in the SSD ING-INF/02. The PhD program foreseen participation to some courses (typical 3 or 4) of the European School of Antennas, (ESoA) a geographical distributed PhD school that presently comprises 30 courses on themes of the PhD program. ESoA counts about 150 teachers coming from 30 of the most accredited European research centres. The PhD students have free access to the instrumentations available for research in the Laboratories of Electromagnetic Applications (LEA, <http://www.dii.unisi.it/~lea/>), various network analyzers till 20GHz, Spectrum analyzers, Microwave calibrated antennas for band C, X, Ku, Mechanicals tools for printed antenna prototypes, and a 5X4X3 m-cube Lindgren anechoic chamber.

9.6.2 - Descrizione attività didattico-formativa

1° anno

Altro - See Curriculum n. 1

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.7 - Percorso Formativo: Electronics, Electrical Engineering and Electronic Measurements (Elettronica, elettrotecnica e misure Elettroniche)

9.7.1 - Obiettivi formativi

This Ph.D. program encompasses both theoretical and experimental aspects, including modelling, simulations, laboratory prototyping and testing. Some examples of the program topics in these areas are: design and development of sensor based systems, chemical and electrochemical sensors, nano-structured sensor, electronics for cryptography applications, integrated electronic circuit design, complex dynamics in non linear circuits and systems. The PhD activities on Electrical Engineering is mainly concerned with the analysis of the dynamical behavior of nonlinear circuits, with special emphasis on nonlinear circuit models of artificial neural networks. The main research topics are: Stability of nonlinear circuits with nonsmooth nonlinearities; Neural architectures for solving nonsmooth nonlinear programming problems; New methods for trajectory convergence of neural networks, and robustness of trajectory convergence of cellular neural networks; Bifurcations, sustained oscillations and complex dynamics in nonlinear circuits. Other research activities, such as development of robust estimation techniques in mobile robotics applications, are carried on in cooperation with the Control Systems research area.

9.7.2 - Descrizione attività didattico-formativa

1° anno

Altro - See Curriculum n. 1

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.8 - Percorso Formativo: Mathematical Logic and Informatics (Logica Matematica ed Informatica)

9.8.1 - Obiettivi formativi

During the last decades, there has been a fruitful interface between Mathematical Logic and Computer Science. The concepts that had been autonomously developed in the field of Logic have turned out to constitute the foundations of Informatics, and continue to form the theoretical platform on the basis of which new techniques have been, and are still being, developed. At the same time some applied problems which originated in Computer Science have stimulated new investigations in the field of Logic. For instance, since programming languages are based on logical paradigms, data processing requires Non Classical Logic (such as Linear Logic, Intuitionistic Logic, Fuzzy Logic). Furthermore, Algorithms and Complexity Theory represent the natural developments of Recursion Theory. The goal of this curriculum is to train researchers in Logic and in Computer Science, focussing on applications of these disciplines.

9.8.2 - Descrizione attività didattico-formativa

1° anno

Altro - The activity is structured as in the Curriculum 1, except for a larger concentration of credits for courses in the first year. The second and third year the activity is mainly concentrated in Research credits.

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

9.9 - Percorso Formativo: Telecommunications and Telematics technologies (Tecnologie per le Telecomunicazioni e la Telematica)

9.9.1 - Obiettivi formativi

This PhD program aims at providing a deep theoretical and practical learning in communication systems, digital signal and image processing, multimedia services for communication networks. To this aim, the curriculum envisages a first learning stage where the student increases his/her educational background by following courses, seminars, and other didactic experiences (such as practical experiences in research laboratories, visits to other research institutes, etc.) which will be planned together with the Ph.D. board. This learning stage will provide all Ph.D students with an homogeneous background in the field of communication systems and signal processing. In a second stage, each student will carry out a specific educational program in one of the following fields: Communications networks; Satellite communication systems; Personal communication systems; Signal and image processing; Information security and protection (in alternativa puoi usare: information forensics and security, oppure ancora information and network security); Advanced multimedia services in wireless and wired communications networks; Design and development of man-machine interfaces.

9.9.2 - Descrizione attività didattico-formativa

1° anno

Altro - See Curriculum n. 1

Numero crediti: 60

2° anno

Altro - See Curriculum n. 1

Numero crediti: 60

3° anno

Altro - See Curriculum n. 1

Numero crediti: 60

10 - Durata (anni): 3

11 - Periodo all'estero (mesi): 6

12 - Collegio dei Docenti

- Direttore -

STEFANO MACI - Professore Ordinario tempo pieno -
ING-INF/02 CAMPI ELETTROMAGNETICI

12.1 Dipartimento Ingegneria dell'informazione
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Altri componenti del Collegio dei Docenti

MAURO BARNI - Professore Associato confermato tempo pieno -
ING-INF/03 - TELECOMUNICAZIONI

12.2 Dipartimento Ingegneria dell'informazione
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LUCA CHIANTINI - Professore Ordinario tempo pieno -
MAT/03 - GEOMETRIA

12.3 Dipartimento Scienze matematiche ed informatiche 'Roberto Magari'
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MORENO FALASCHI - Professore Ordinario tempo pieno -
INF/01 - INFORMATICA

12.4 Dipartimento Scienze matematiche ed informatiche 'Roberto Magari'
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ADA FORT - Professore Associato confermato tempo pieno -
ING-INF/07 - MISURE ELETTRICHE E ELETTRONICHE

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MAURO FORTI - Professore Ordinario tempo pieno -
ING-IND/31 - ELETTROTECNICA

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- 12.7 ALESSANDRO AGNETIS - Professore Ordinario tempo pieno -
MAT/09 - RICERCA OPERATIVA
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- 12.8 ANDREA GARULLI - Professore Ordinario tempo pieno -
ING-INF/04 - AUTOMATICA
Dipartimento Ingegneria dell'informazione
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- 12.9 MARCO MAGGINI - Professore Associato confermato tempo pieno -
ING-INF/05 - SISTEMI DI ELABORAZIONE DELLE INFORMAZIONI
Dipartimento Ingegneria dell'informazione
Università degli Studi di Siena
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- 12.10 FRANCO MONTAGNA - Professore Ordinario tempo pieno -
MAT/01 - LOGICA MATEMATICA
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- 12.11 PAOLO NISTRI - Professore Ordinario tempo pieno -
MAT/05 - ANALISI MATEMATICA
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- 12.12 DOMENICO PRATTICHIZZO - Professore Associato confermato tempo pieno -
ING-INF/04 - AUTOMATICA
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- 12.13 SIMONE RINALDI - Professore Associato confermato tempo pieno -
INF/01 - INFORMATICA
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- 12.14 OTTAVIA SPIGA - Ricercatore confermato tempo pieno -
BIO/10 - BIOCHIMICA
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- 12.15 ANTONIO VICINO - Professore Ordinario tempo pieno -
ING-INF/04 - AUTOMATICA
Dipartimento Ingegneria dell'informazione
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- 12.16 LUCIANO ALPARONE - Professore Associato confermato -
ING-INF/03 Telecomunicazioni
ELETTRONICA E TELECOMUNICAZIONI
Università degli Studi di FIRENZE
- 12.17 ELENA BARCUCCI - Professore Ordinario -
INF/01 Informatica
SISTEMI E INFORMATICA
Università degli Studi di FIRENZE
- 12.18 LORENZO CAPINERI - Professore Associato confermato -
ING-INF/01 Elettronica
Elettronica e telecomunicazioni
Università degli Studi di FIRENZE
- 12.19 ANGELO FRENI - Professore Associato confermato -
ING-INF/02 Campi elettromagnetici
ELETTRONICA E TELECOMUNICAZIONI
Università degli Studi di FIRENZE
- 12.20 PER-SIMON KILDAL - Professore Ordinario -
Campi elettromagnetici
Department of Signals and Systems
Chalmers University of Technology
- 12.21 LENNART LJUNG - Professore Ordinario -
Automatica
Department of Electrical Engineering
Linköping University



13 - Collaborazioni e convenzioni con Università Italiane

13.1 Università degli Studi di PISA

Dipartimento/i:

13.2 Altra Struttura / Other University

Dipartimento/i:

13.3 Università degli Studi di FIRENZE

Dipartimento/i:

14 - Internazionalizzazione

14.1 - Convenzioni internazionali attivate

14.1.1 Network for: European School of Antennas - Ecole Polytechnique Federale de Lausanne SWITZERLAND - The Czech Technical University CZECH REPUBLIC - Universität Karlsruhe GERMANY - Informationstechnik Mobilfunktechnik Satellitenfunktechnik GERMANY - Christian-Albrechts Universität zu Kiel GERMANY - Danmarks Tekniske Universitet DENMARK - Universidad Politecnica de Valencia SPAIN - Universidad Politecnica de Madrid SPAIN - Universitat Politecnica de Catalunya SPAIN - Centre Tecnologic de Telecomunicacions de Catalunya SPAIN - Helsinki University of Technology FINLAND - Institut National des Sciences Appliquées de Rennes FRANCE - Université de Marne la Vallée FRANCE - Université de Nice Sophia Antipolis FRANCE - The University of Birmingham UNITED KINGDOM - Queen Mary University of London UNITED KINGDOM - The University of Zagreb CROATIA (LOCAL NAME: HRVATSKA) - Università degli Studi di Firenze ITALY - Università degli Studi di Napoli "Federico II" ITALY - Politecnico di Torino ITALY - Università degli Studi di Roma "La Sapienza" ITALY - Ingegneria dei Sistemi ITALY - Netherlands Organisation for Applied Scientific Research NETHERLANDS - Kungliga Tekniska Högskolan SWEDEN - Chalmers University of Technology SWEDEN

Promotore: MACI Stefano

Tipologia di internazionalizzazione: Non indicato

Mutuo riconoscimento dei titoli: Non indicato

Attività svolte e in corso:

Sede di attività didattica: No

Data scadenza: 12/15/2010

14.1.2 Network for: Doctoral School in Computer Science - ISTI-CNR Pisa ITALY - Universidad Politecnica de Valencia SPAIN - Université de Nice Sophia Antipolis FRANCE - INRIA, Sophia Antipolis FRANCE - Birla Science Center, Hyderabad INDIA - Università degli Studi di Udine ITALY - Institute of Mathematical Sciences, Chennai INDIA - Birla Institute of Technology, Mesra INDIA - C-DAC, Hyderabad INDIA

Promotore: FALASCHI Moreno

Tipologia di internazionalizzazione: Non indicato

Mutuo riconoscimento dei titoli: Non indicato

Attività svolte e in corso:

Sede di attività didattica: No

Data scadenza:

15 - Collaborazioni con altri soggetti pubblici e privati

15.1 The Ohio State, USA

15.2 Université Catholique de Louvain

15.3 Massachusetts Institute of Technology, USA

15.4 University of Illinois at Chicago, USA

15.5 Purdue University, USA

- 15.6 Hungarian Academy of Sciences, Hungaria
- 15.7 New York University, USA
- 15.8 University of Pennsylvania, USA
- 15.9 Karlsruhe Institute of Technology, Germany
- 15.10 Arizona State University
- 15.11 Western Washington University, USA
- 15.12 Middle East Technical University
- 15.13 Universidade de Santiago de Compostela
- 15.14 Stanford University, USA
- 15.15 The Pennsylvania State University, USA
- 15.16 Université de Montréal, Canada
- 15.17 Delft University of Technology, The Netherlands
- 15.18 Binghamton University, UK
- 15.19 Katholieke Universiteit Leuven, Belgium
- 15.20 Universitat de València, Spain
- 15.21 Ecole Polytechnique Federale de Lausanne, Switzerland
- 15.22 University of Berkeley, USA
- 15.23 Voronezh State University, Russia
- 15.24 Chalmers University of Technology, Sweden
- 15.25 Nicolaus Copernicus University, Poland

15.26 Linköping Institute of Technology, Sweden

15.27 Hong Kong Baptist University

15.28 Thessaloniki University, Greece

15.29 University College of London, UK

15.30 University "Sv. Kiril i Metodij", Macedonia

15.31 Université de Brest, France

16.1 - Sito Web di approfondimento

<http://phd.dii.unisi.it>

16.2 - Versione inglese

<http://phd.dii.unisi.it>

17 - Master Scientifico-Culturale

Master Scientifico-Culturale non attivato
