

**Ph. D. School in Computer Science**  
**Department of Computer Science, University of Pisa, Pisa, Italy**

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### **History**

The University of Pisa was among the first in Italy to establish a Ph.D. programme in Computer Science in 1984.

Out of more than 100 students who have obtained the Ph.D. qualification, 62 are working in Italian Universities (14 are full professors, 24 are associate professors, 25 are assistant professors), 5 are professors in foreign universities, 7 are researchers in Italian or foreign research institutions, 9 hold postdoc fellowships, the others are employed in software firms or run their own software firms or teach in high schools.

### **Admission**

The Ph.D. School in Computer Science offers a grant every year to about 5 students. The monthly amount of the grant, after taxes, is 850 euros. More fellowships are often offered by public or private research institutions (e.g. Italian National Research Council, Microsoft Research).

As many students attend the School without a fellowship. However these are often supported through research projects.

In the year 2002 one foreign student and two Italians obtained “Galileo Galilei” fellowships. For the year 2003 two foreign students have already been selected on the basis of their curriculum, while one more “Galileo Galilei” fellowship is expected to be assigned after the regular competition held in November 7-8.

The admission examination consists in a written and an oral part.

The written part should test the candidate on his abilities in analysing and formalizing problems, as well as his knowledge on the basics of Computer Science. To this purpose the candidate is asked to solve at least three in a list of exercises

proposed, covering the scientific areas of the School. Also the candidate has to write a short dissertation on a research subject at his choice.

The oral part of the examination aims at evaluating the candidate's attitude to do research.

### **Current situation**

22 students should discuss their thesis by the first half of 2003

7 will discuss the advancement of their work

13 will present their thesis proposal

### **Activities of students**

Students devote the first year to attending advanced courses and taking their exams, and in participating in at least one series of research seminars each semester. At the end of the first year students are required to write their research proposal on a topic chosen among those in which the Department of Computer Science is active. The students have two years to complete their thesis.

Students are encouraged to spend at least a semester abroad while working on their thesis. In the last two years 10 of them have spent a period abroad. During this period the fellowship is increased of 50%.

Students may do a limited didactic activity in the framework of BS and MS courses.

Students participate in the research projects in which the Department is engaged. They are distributed in the research areas as follows:

Models, Languages and Verification Methods for Global Computing 5

Systematic Development of Semantics, Static Analysis and Verification Techniques by Abstract Interpretation 1

Rigorous Methods for Requirement Capture and Software Architecture 3

Semistructured Data Management Systems	3
Web Computing, Adaptive Agents and Data/Knowledge Engineering	8
Design and Management of Parallel, Distributed and Mobile Systems	11
Algorithms on Very Large Data Structures and Computational Models	2
Analysis and Synthesis of Numerical Algorithms	2
Advanced Methodologies Based on Soft Computing to Develop Intelligent Systems	3
Computer Graphics	3

The Ph. D. thesis is a monograph containing original results.

These results may have been already presented by the student at conferences or journals.

Theses are written in English and are reviewed by two international referees. Students discuss their thesis with a Committee of three members external to the School. This Committee is appointed by the Rector of the University and grants the Ph. D. title.

After the final approval the theses are published in a special series of reports of the Department of Computer Science.

### **The Board of the School**

The School has a Board of professors of the Department of Computer Science plus two representatives of Ph. D. students.

The Board is in charge of proposing courses and seminars, assigning advisors to students, approving their plans of courses and seminars, their stays abroad, their thesis proposals and their theses before the presentation to the Committee that grants the Ph. D. title.

## **Collaborations**

The Ph.D. School participates in the Italian Partnership (IP) of Ph.D. Schools in Computer Science, affiliated to the European Educational Forum (EEF) supported by the EC to organize advanced schools. With the sponsorship of the EEF, IP organizes a spring school for Ph.D students every year at Bertinoro, near Bologna, which also attracts students from abroad.

The School collaborates with CNR (Italian National Research Council), in particular with ISTI (Institute for Science and Information Technology) and with IIT (Institute for Informatics and Telematics). These institutes support with fellowships students interested in subjects as Computer Graphics, Networks, Numerical Mathematics.

## **Funding**

The University of Pisa assigns to the School yearly funds for an amount proportional to the number of students currently enrolled (about 1000 euro per student).

The School uses these funds mainly to support professors who give courses or seminars and to support students' attendance at schools useful for their general preparation. Participation to conferences and other research expenses are covered by grants of projects students are involved in.

## **Web pages**

A presentation of the Ph.D. programme in Computer Science with information on courses and seminars, schools, Ph.D. theses, may be found at the webpage

<http://www.di.unipi.it/phd>.

More information on the research activity may be found at the webpage of the Department of Computer Science

<http://www.di.unipi.it/>.

