PhD Program in Computer Science and Engineering

http://www.cse.unibo.it/en/phd-program

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Coordinator

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A brief history

• Started in 2013 (XXVIII cycle, next one will start in Nov 2018)
• A merge of 2 former Ph.D. programs:
  • Computer Engineering (since 1983, part of the EIT program)
  • Computer Science, started in 1995
• Admission by examination:
  • CV, publications, project proposal, oral discussion
• 3-years program
  • 1\textsuperscript{st}-2\textsuperscript{nd} year: courses and research
  • 3\textsuperscript{rd} year: thesis-oriented work
Some numbers

- Faculty: about 20 professors, covering all DISI research areas
- Students: about 6 scholarships/year + some further positions (funded by ad-hoc research grants)
- About 40-50 candidates/year (but ~150 in 2017!)

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<th>XXXI</th>
<th>XXXII</th>
<th>XXXIII</th>
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<tbody>
<tr>
<td>Ministerial scholarships</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>6</td>
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<tr>
<td>Funded by companies</td>
<td></td>
<td>3</td>
<td>1</td>
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<tr>
<td>No scholarship</td>
<td></td>
<td>2</td>
<td>3</td>
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<td>(among which) Foreign students</td>
<td></td>
<td>1</td>
<td>3</td>
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<tr>
<td>Total</td>
<td>6</td>
<td>11</td>
<td>13</td>
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PhD students’ roadmap

- 12th month: 1st year report
- 15th month: thesis proposal
- 24th month: 2nd year report
- 36th month: 3rd year report
- To be approved by an ad-hoc commission (3 members, including the supervisor), then by the PhD board

- Thesis reviewed by two (usually foreign) experts
- Final thesis defense in front of an external commission
Last 2 years PhD theses

- Power-Aware Job Dispatching in High Performance Computing Systems
- HPC Scheduling Problem: Scalability and Optimization
- Semantic SLAM: A new paradigm for object recognition and scene reconstruction
- Machine learning techniques applied to stereo vision
- Static analysis of concurrent programs based on behavioral type systems
- Behavioral equivalences for higher-order languages with probabilities
- Business Intelligence on Non-Conventional Data
- Enabling Ubiquitous OLAP Analyses
- GEIR: a full-fledged Geographically Enhanced Information Retrieval solution
- Temporal dimension of text: Quantification, metrics and features
- A new Nested Graph Model for Data Integration
- Next-generation public safety systems based on autonomous vehicles and opportunistic communications
- Micro-intelligence for the IoT: Logic-based models and technologies
- Middleware Solutions for Effective Cloud-CPS Integration in Pervasive Environment
Courses

• Offered by Faculty members and collaborators. Current year:
  • Introduction to Deep Learning
  • Introduction to complex systems science
  • Blockchain technologies and cryptocurrencies
  • Connected Vehicles a System perspective
  • AI Techniques for BusinessProcess Management

• Students are also recommended to attend BISS, the Bertinoro International Spring School. In 2018:
  • Provable security for low level execution platforms
    Prof. Mads Dam - KTH (Sweden)
  • Distributed models, MapReduce and large scale algorithms
    Dr. Silvio Lattanzi - Google Inc (Zurich, Switzerland)
  • Elements of Quantum Computation
    Dr. Herbert Wiklicky, Imperial College London (U.K.)
International Dimension

- 3-6 months abroad
- Several “cotutela” (double degree) agreements established along the years. Currently:
  - INRIA-Futurs, France
  - Université Paris Diderot (Paris 7)
  - Pontificia Universidad Católica de Valparaíso, Chile
  - University College Cork, Ireland
- Affiliate partner of EIT Digital, part of the European Institute of Innovation & Technology
  - Currently 2 students
  - Head of Doctoral School is Prof. Maurizio Gabbrielli (DISI)
- Mobility agreement with CONFAP (Brasil) for exchange of PhD students (under negotiation)