



## DOCTORAL PROGRAMME IN SMART COMPUTING

Director prof. Paolo Frasconi

### Industrial Doctoral Programme

XXXVI cycle – academic year 2020/2021



GIOVANI SI



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE



Regione Toscana



Pegaso Scholarships are funded with resources of the POR FSE TOSCANA 2014/2020 in the frame of Giovani Si ([www.giovanisi.it](http://www.giovanisi.it)), the project organized by Regione Toscana to help young people become independent.

<b>TECHNOLOGICAL AREA</b>	
<b>ADMINISTRATIVE OFFICE</b>	Department of Information Engineering
<b>REGIONE TOSCANA PEGASO PROJECT 2020</b>	University of Florence University of Pisa University of Siena
<p><b>POSITIONS AVAILABLE: 13 + 1 industrial doctoral position</b></p> <p>Positions with scholarship: 12 Positions without Scholarship: 1* * standard ranking only</p>	
<b>RANKING LIST FOR STANDARD POSITIONS SCHOLARSHIPS AVAILABLE: 8</b>	<p>5 - University Florence</p> <p>3 - Regione Toscana Pegaso Scholarships 2020</p>
<b>RANKING LISTS FOR POSITIONS WITH SPECIFIC RESEARCH TOPICS SCHOLARSHIPS AVAILABLE: 4</b>	<p>3 - Regione Toscana Pegaso Scholarships 2020**</p> <ol style="list-style-type: none"> <li>1. "Intelligent Multi-modal Systems on the Edge"</li> <li>2. "Integrative AI and Machine Learning"</li> <li>3. "BPF-based extensible paravirtualization system"</li> </ol> <p>1 - National Institute of Nuclear Physics (INFN) "Smart Computing Techniques applied to Medical Physics, Nuclear Physics and Particle Physics"</p> <p>** A period of <b>training/research</b> in an enterprise, a public research institution or other public institution (not a university) of at least <b>3 months</b> is <b>mandatorily</b> required.</p>
<b>RESERVED POSITION INDUSTRIAL DOCTORAL PROGRAMME: 1</b>	Reserved position for KKT s.r.l. employees
<b>STUDY/RESEARCH PERIOD ABROAD</b>	Mandatory only for recipients of standard positions "Regione Toscana Pegaso Scholarships 2020"
<b>MANDATORY PERIOD REQUIRED</b>	6 months for Scholarships 2020 - standard positions (4 months in the first two years)

<p><b>DOCUMENTS REQUIRED FOR THE ADMISSION</b> (under penalty of exclusion)</p>	<ul style="list-style-type: none"> <li>• Copy of the Identification Document</li> <li>• <u>Replacement Declaration Form</u> self-declaration for: <ul style="list-style-type: none"> <li>- Italian Degree required for the access</li> <li>- transcript of records with marks (<i>for those candidates whose degrees will be awarded within the 31<sup>st</sup> October 2020</i>)</li> <li>- acknowledgment of compliance for any other qualification documents enclosed with the application</li> </ul> </li> <li>• Foreign Degree required for the access (<i>those candidates whose degrees will be awarded within the 31<sup>st</sup> October 2020 shall enclose the list of the examinations completed with marks</i>)</li> </ul>
<p><b>DOCUMENTS REQUIRED FOR THE EVALUATION</b></p>	<p><b>MANDATORY</b></p> <ul style="list-style-type: none"> <li>• Curriculum vitae</li> <li>• Transcript of records of M.Sc. degree (or equivalent)</li> <li>• Title of the M.Sc. thesis</li> <li>• Abstract of the M.Sc. thesis</li> <li>• Research project</li> </ul> <p><b>OPTIONAL</b></p> <ul style="list-style-type: none"> <li>• List of publications and any other qualification document</li> <li>• PDF copy or a chapter of the M.Sc. thesis (if available)</li> </ul>
<p><b>REFERENCE LETTERS</b></p>	<p>A section is provided in the online application to specify the e-mail addresses of two professors/researchers willing to provide information about candidates training path and activities performed within a scientific field related to the Ph.D. course.</p>
<p><b>RESEARCH PROJECT</b></p>	<p>The research proposal should be written in English and should be submitted as a PDF file. The length may not exceed 12,000 characters. The research proposal should describe a three years project having a high potential for a novel scientific contribution in any area related to smart computing. In the proposal, briefly summarize the state-of-the-art, identify one or more open problems, explain why solving these open problems is significant, and describe a research plan, possibly addressing the associated risk factors and strategies for dealing with them.</p> <p>The research proposal needs not to be directly related to one of the reserved research topics (see below) for which you may want to apply. In fact, this proposal will not be even used to bound you to do research in any particular area, it just serves the purpose of assessing your technical writing skills, your ability to envision sensible long-term research goals, and your ability to plan and evaluate research activities.</p>
<p><b>EVALUATION PROCEDURE</b></p>	<ul style="list-style-type: none"> <li>• <b>Shortlist based on the evaluation of curriculum vitae, research project, publications and any further qualifications</b></li> <li>• <b>Interview</b></li> </ul> <p>As detailed in the section below <b>“Evaluation Marks”</b>.</p>
<p><b>INTERVIEW LANGUAGE</b></p>	<p>English</p>
<p><b>INTERVIEW by remote mode</b></p>	<p><b>Google Meet or Skype</b></p>

<p><b>FURTHER INFORMATION</b></p>	<p>Note on applications for the “specific research topic scholarships”:</p> <p>A subset of the available positions will be reserved to the specific research topics listed below. To be considered for one of these positions, please select one or more of them during the application process. Since we strive to fill as many of these positions as possible, by applying for one or more reserved positions you may significantly increase your chances of being accepted in the program. You may apply for as many reserved positions as you wish. During the interview, there will be one additional test for each reserved position you have applied for. Passing the test is a necessary (but not sufficient) condition for accessing the corresponding reserved position. Failing one or more of these tests will not reduce your chances of being accepted for the remaining (non-reserved) positions.</p> <p>There are additional thematic positions (not reserved) that do not require a specific test and they are listed at:  <a href="http://smartcomputing.unifi.it/procedures.html#positions">smartcomputing.unifi.it/procedures.html#positions</a></p>																		
<p><b>EVALUATION MARKS</b></p>	<table border="1"> <thead> <tr> <th>parameter</th> <th>minimum score</th> <th>maximum score</th> </tr> </thead> <tbody> <tr> <td>Curriculum vitae, publications, qualification documents</td> <td>27/120</td> <td>40/120</td> </tr> <tr> <td>Research proposal</td> <td>27/120</td> <td>40/120</td> </tr> <tr> <td colspan="3"><b>Applicants who obtain a mark of at least 54/120 according to the minimum score for each parameter will be admitted to the interview</b></td> </tr> <tr> <td>Interview (including a discussion of the research proposal) in English language</td> <td>26/120</td> <td>40/120</td> </tr> <tr> <td colspan="3"><b>Candidates with an overall score below 80/120 cannot be admitted to the program</b></td> </tr> </tbody> </table>	parameter	minimum score	maximum score	Curriculum vitae, publications, qualification documents	27/120	40/120	Research proposal	27/120	40/120	<b>Applicants who obtain a mark of at least 54/120 according to the minimum score for each parameter will be admitted to the interview</b>			Interview (including a discussion of the research proposal) in English language	26/120	40/120	<b>Candidates with an overall score below 80/120 cannot be admitted to the program</b>		
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<p><b>TOPICS FOR THE RESEARCH PROJECT AND THE INTERVIEW</b></p>	<ul style="list-style-type: none"> <li>• Artificial Intelligence</li> <li>• Computer Networking</li> <li>• Computer Vision</li> <li>• Computer Architectures</li> <li>• Conversational Agents</li> <li>• Data Analysis and Social Network Data Analysis</li> <li>• Fog/Edge computing in IoT</li> <li>• Embedded and Cyber-physical Systems</li> <li>• Machine Learning</li> <li>• Neuroinformatics</li> <li>• Pervasive Sensing &amp; Computing</li> <li>• Quantitative evaluation and verification of concurrent systems</li> <li>• Security and Privacy in Smart Systems</li> <li>• Software architectures and engineering methods</li> </ul>																		
<p>Further information available at the following web page:  <a href="http://smartcomputing.unifi.it/">http://smartcomputing.unifi.it/</a></p>																			

## EXAMINATIONS SCHEDULE

	DATE	TIME
<b>INTERVIEW</b>	September 4 <sup>th</sup> 2020	10:00 a.m.

The list of the candidates admitted to the interview and the final ranking will be published at the following web page: <https://www.unifi.it/p11741.html>