

**PhD Programme Table - 39th cycle**  
**Call for Applications for further PhD positions**  
**funded by Next Generation EU - NRRP ex M.D. 117/2023 and 118/2023**  
**and from other sources - PhD Programmes (39th cycle)**  
**A.Y. 2023/2024**



Section "Available Positions and Scholarships" integrated on 02/08/2023

Section "Available Positions and Scholarships" modified on 05/09/2023

PROGRAMME'S NAME	<b>COMPUTER SCIENCE AND ENGINEERING</b>
DURATION	3 years
PROGRAMME START DATE	01/11/2023 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof. Iliaria Bartolini ( <a href="mailto:ilaria.bartolini@unibo.it">ilaria.bartolini@unibo.it</a> )
PHD POSITIONS	17
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

### Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to a specific research topic
1	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by DecisionBrain S.a.s.	Close the Gap between Planning and Execution: Optimization-based Digital Twin
2	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by L&G Solution Srl	KnowledgeEnhanced Natural Language Processing with Applications to Italian Procurement Code
3	<b>PhD Scholarship</b>	Funded by the Department of Computer Science and Engineering with funds made available by the project PRIN 2020 - COMMON-WEARS – Prof. Viroli Mirko, Cup J53C20001420001	Engineering collective adaptive systems in the cloud-edge continuum
4	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Dilaxia SpA	Innovative technology solutions for conversational interfaces based on artificial intelligence
5	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Coop Alleanza 3.0	Technology solutions for the development of innovative tools to support enterprise digital transition
6	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2,	High-quality text generation for the Italian language

		Investment 3.3 (M.D. 117/2023) and by Zanichelli editore SpA	
7	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by DecisionBrain S.a.s.	Generative AI for Software Services and Components
8	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by AIT- Austrian Institute of Technology GmbH	High performance vision systems
9	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by SCM Group SpA	Modeling techniques of physical phenomena for machine learning applications
10	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Automobili Lamborghini S.p.A.	Data protection & cyber security, as part of the activities of proper information management as well as cyber risk in related management systems (ISMS - information security management system and PIMS - personal information management system, as established by ISO/IEC 27001 and 27701) adopted by the company
11	<b>PhD Scholarship</b>	Funded by the Department of Computer Science and Engineering	Towards symbiotic creativity: methodological approaches to create, evaluate and integrate human and AI artistic creations
12	<b>Research Grant</b>	Provided by the Department of Computer Science and Engineering, with funds made available by the project HEU_2022_TRISTAN Cup J53C22004780005 – Ref. dott. Giuseppe Tagliavini. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,367 per year	Multi-modal Language Model and Reasoning with Applications to Natural Language Processing and Computer Vision
13	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Arca Technologie Srl	Project of Support Platforms for the Development of Secure and Reliable Software in the Embedded/Automotive Field
14	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Arca Technologie Srl	Project of Support Platforms for visualization with Guaranteed Functional Safety in the Automotive/Industrial field
15 14	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by XTEL Srl	Methods to support the integration of human and artificial intelligence in the field of data-driven decision making
16 15	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2,	Building a Knowledge Base: Integrate, extract and organize key

		Investment 3.3 (M.D. 117/2023) and by Sacmi Imola	information for advanced machine learning
<del>17</del> 16	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Pollution Srl	Informed Machine Learning for Odours Perception-Oriented Analysis of Gas
<del>18</del> 17	<b>PhD Scholarship PNRR ex M.D. 117/2023</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Imola Informatica Spa	System Monitoring and Observability: architectures, standards, and practices to empower novel Enterprise applications and Industry 5.0 services

The number of positions and scholarships may be incremented in case additional funding becomes available, notwithstanding the terms of the application process as detailed in Art. 3 of the Call for Applications. Any amendment, update or integration of the Programme Table will be published, even after the Call for Applications has expired. Any further PhD positions shall be integrated in the PhD Programme Table within ten days before the oral examination.

All PhD positions winners shall fulfill the learning and research obligations decided by the Academic Board and the obligations foreseen in the relevant regulations, funding schemes and eventual agreements, and in the Call for Applications. Moreover, applicants awarded with PhD scholarships funded by Next Generation EU shall fulfill specific obligations foreseen in the relevant funding scheme, in the relevant regulations and in the Call for Applications.

## Admission Exams

	DATE AND TIME	RESULTS
<b>Qualifications evaluation</b>	Applicants' participation is not required	Available from <b>04/09/2023**</b>
<b>Oral examination</b>	<b>Date:</b> starting from <b>08/09/2023 – 9.30 a.m. CEST*</b> <b>Place:</b> In presence, Aula Busi, Department of Computer Science and Engineering, Mura Anteo Zamboni 7, Bologna. Remotely, using Microsoft Teams	Available from <b>11/09/2023**</b>

\* In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral examination detailed schedule shall be made available on the webpage [Studenti Online](#) together with the results of the qualifications evaluation. **During the oral examination, applicants may express their interest in one or more positions linked to specific research topics.**

\*\* The **results of the admission exams** will be available on the webpage [Studenti Online](#) (select “summary of the requests in progress” > “see detail” and open the .pdf file at the bottom of the page). **No personal written communication will be sent to applicants concerning the examinations results.**

## Required and Supporting Documents to be attached to the application

All the documents listed below **shall be drawn up in English or in Italian**. In case of documents originally issued in any other language (e.g. identity document, qualifications), an official translation is required.

Only qualifications obtained **during the last 5 calendar years** shall be taken into consideration, except for the University Degree. The Admission Board will assess the relevance of the supporting documents to the PhD Programme.

REQUIRED DOCUMENTS	
<b>Identity document</b>	Valid identity document with photo (i.e. identity card, passport)
<b>Curriculum Vitae</b>	No specific CV format is required
<b>Degrees</b>	Documents attesting the awarding of the first and second cycle degrees, the exams taken and the marks obtained (see Art. 3 of the Call for Applications)

SUPPORTING DOCUMENTS	
<b>Research proposal</b>	Multi-annual research proposal ( <b>drawn up in Italian or in English</b> ), with special emphasis on the activities to be completed during the first-year course. The proposal must meet the following requirements: <ul style="list-style-type: none"> <li>- <b>it cannot exceed 20,000 characters</b>, including spaces and formula possibly used. This figure does not include: the title of proposal, the outline, references and images (such as graphs, diagrams, tables, etc. - if present);</li> <li>- <b>it must include</b>: the state of the art; description of the proposal; expected results; articulation of the proposal and implementation times; references.</li> </ul> The research proposals that successful applicants shall carry out during their PhD career may possibly differ from the one proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.
<b>Thesis abstract</b>	Abstract of the <b>second cycle degree thesis (drawn up in Italian or in English)</b> . Graduands applicants may submit the draft of the thesis. Abstracts cannot exceed 5,000 characters, including spaces and formula possibly used. The above figure does not include: the title of the thesis, the outline, references, and images such as graphs, diagrams, tables etc.
<b>Reference letter/s</b>	<b>No more than 3 reference letters</b> signed by Italian and international academics and professionals in the research field, which do not form part of the Admission Board, attesting the suitability of the applicant and his/her interest in the scientific research. Letters shall be uploaded following the procedure on <a href="#">Studenti Online</a> , detailed in the Call for Applications (Art. 3.2).
<b>Publications</b>	Lists of publications (i.e. monographs, articles on scientific journals) and minor publications (conference papers, etc.), <b>in Italian or in English</b>
<b>Other documents</b>	<ul style="list-style-type: none"> <li>- Postgraduate vocational programmes and/or specialisation programmes relevant to the PhD Programme</li> <li>- Teaching activity carried out at university level</li> <li>- Research activity of any kind - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research projects</li> <li>- Documents attesting the knowledge of foreign languages</li> <li>- Study periods completed by applicants outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes)</li> <li>- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc.)</li> </ul>

## Evaluation criteria\*

Scores will be expressed in points out of 100, as follows.

### 1. Qualifications and research proposal evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

Second cycle degree (Master's) final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	10 points max
Consistency of the Second cycle degree final thesis with the main topics of the PhD programme	10 points max
Publications	5 points max
Curriculum Vitae, reference letters, other qualifications	10 points max
Research proposal (scientific value, structure and feasibility of the proposal)	15 points max

### 2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

English language proficiency	10 points max
Research proposal presentation and general knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions	40 points max

Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions. **During the oral examination, the applicant's English proficiency shall be assessed.**

The oral examination is carried out in Italian or English.

\* Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information".