

ELECTRONICS, TELECOMMUNICATIONS AND INFORMATION TECHNOLOGIES ENGINEERING

Section "Positions and scholarships" integrated on 30/04/2020

Section "Positions and scholarships" integrated on 14/05/2020

Section "Positions and scholarships" integrated on 25/05/2020

Coordinator	Prof. Alessandra Costanzo Department of Electrical, Electronic, and Information Engineering «Guglielmo Marconi» - DEI Via dell'Università 50 - Cesena alessandra.costanzo@unibo.it
Starting date of the PhD Programme	01/11/2020
Duration	3 calendar years
Language of the PhD Programme	English
Mandatory stay abroad	No
Associated partners pursuant to art. 2, para 2, lett. a) of the M.D. n. 45/2013	Fondazione Bruno Kessler (FBK)

Research topics

- Analog and digital circuits and electronic systems
- Analysis and simulation of semiconductor devices
- Applications of Information technologies: smart cities, smart grid, etc.
- Cyber physical systems
- Communication theory and its applications
- Communications architectures, systems, and networks: wireless, cellular, fixed / mobile terrestrial / satellite, wired and optical
- Electromagnetic theory, antennas, and propagation
- Electronic devices
- High frequency Electronics
- Embedded systems
- Energy harvesting
- Information theory and its applications
- Intelligent sensors
- Micro and nano-technologies
- Microwave Photonics
- Microwave and millimetre wave circuits and systems
- Navigation and positioning systems and applications
- Network control and management: software defined networks
- Performance evaluation of communication networks
- Statistical signal processing and its applications
- Ultrasonics
- Wireless power transfer
- Science of Creative Thinking with Applications in the ICT Domain
- Precision agriculture and IoT circuits, systems for pervasive monitoring

PhD positions and scholarships

Position n.	Financial support	Description	Positions linked to research subjects
1	PhD Scholarship	Totally funded by the University of Bologna general budget	
2	PhD Scholarship	Totally funded by the University of Bologna general budget	
3	PhD Scholarship	Totally funded by the University of Bologna general budget under the "Departments of Excellence" initiative	
4	PhD Scholarship	Funded by the University of Bologna general budget and co-funded by the Department of Electrical, Electronic, and Information Engineering «Guglielmo Marconi»	

5	PhD Scholarship	Funded by the Department of Electrical, Electronic, and Information Engineering «Guglielmo Marconi»	
6	PhD Scholarship	Funded by the Department of Electrical, Electronic, and Information Engineering «Guglielmo Marconi»	
7	PhD Scholarship	Funded by MIUR under the "Departments of Excellence" initiative	
8	PhD Scholarship	Funded by Fondazione Bruno Kessler - FBK. The doctoral activities will mainly take place: Trento	AI-powered Infrastructure Security in Fog Computing Environments
9	PhD Scholarship	Funded by Fondazione Bruno Kessler - FBK. The doctoral activities will mainly take place: Trento	Decentralized technologies for orchestrated fog computing intelligence
10	PhD Scholarship	Funded by Fondazione Bruno Kessler - FBK. The doctoral activities will mainly take place: Trento	AI on the edge: end to end neural networks for audio processing on IoT devices
11	Research Grant	Provided by Centro di Ricerca sui Sistemi Elettronici per l'Ingegneria dell'Informazione e delle Telecomunicazioni "Erocle de Castro" - ARCES with funds made available by the project PON INSIST ARS01_00913 (Prof. Andrea Acquaviva). The research grant will have a duration of 2 months, renewable for up to 36 months, and a gross percipient amount of 19.367 €.	Techniques for energy-efficient analysis of sensors data streams on edge-computing platforms
12	Research Grant	Provided by Centro di Ricerca sui Sistemi Elettronici per l'Ingegneria dell'Informazione e delle Telecomunicazioni "Erocle de Castro" - ARCES with funds made available by the project H2020 EnABLES - GA 730957 (Prof. Aldo Romani). The research grant will have a duration of 2 months, renewable for up to 36 months, and a gross percipient amount of 19.367 € (the research activities will be carried out in Cesena)	Energy harvesting and micro-power management for the Internet-of-Things
13	Research Grant	Provided by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi". The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of 19.367 €.	Interference Management Techniques for Smart Non-Terrestrial Networks in Beyond 5G systems
14	Research Grant	Provided by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by the EU Project - WiPlash (Prof. Davide Rossi). The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of 19.367 €.	Massively Parallel Heterogeneous Computing Platforms for AI acceleration
15	Research Grant	Provided by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by the project EPI - European Processor Initiative - GA 826647 (ref: Prof. Luca Benini). The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of 19.367 €.	Hardware-software codesign for parallel architectures targeting machine learning applications

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16	PhD Scholarship	Funded by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi"	Cyber-physical systems and their application to production chains
17	Research Grant	Provided by "Ercolo De Castro" Advanced Research Center on Electronic Systems - ARCES with funds made available by the Project H2020-ECSEL iRel 4.0 "Intelligent Reliability 4.0" - GA n. 876659 (ref. Prof. Claudio Fiegna). The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of 19.367 €.	Power transistors and circuits based on wide-bandgap semiconductors

Positions linked to specific research subjects: during the oral examination, applicants may express their interest in one or more positions linked to specific research subjects. Considering the expressions of interest above, the Admission Board shall express its view on the suitability of the interested applicants, taking into account their specific skills, experience and aptitude. Even if a candidate doesn't explicitly express her/his interest in one position, the Admission Board has the possibility to grant her/him the suitability to that position too.

Admission requirements

Please, see art. 2 of the Call for applications

Mandatory documents to be attached to the application

Please, see art. 3 of the Call for applications

Further qualifications that may be attached to the application, if in possession of the applicant (only qualifications attested by documents drawn up in Italian, English, French, German and Spanish shall be considered as valid and assessed by the Admission Board)

- No more than 2 reference letters 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 for the scientific research.
Please, note that the above letters cannot be uploaded by applicants. When filling the online application form on <http://studenti.unibo.it>, applicants will be only allowed to provide the email accounts of the requested academic/professional. The latter shall receive an email from the University of Bologna providing for the instructions for uploading. Only letters in pdf format submitted before the expiry date and time of the Call shall be accepted.
- Multi-annual research project, with special emphasis on the activities to be completed during the first-year course. The proposal must meet the following requirements:
 - o It must indicate in the cover page the research topic of the PhD Programme covered by the research project proposal and for which the applicant is applying
 - o It cannot exceed 20.000 characters, including spaces and formula possibly used. This figure does not include: the title of project, the outline, references and images (such as graphs, diagrams, tables etc - where present);
 - o It must include: the state of the art; description of the project; expected results; lead-time for implementation; (proposed) criteria to be used to assess the findings obtained; references.

The research projects that successful applicants shall carry out during their doctoral career may possibly differ from the project proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.
- Motivational letter. This must include the reasons prompting the applicant to attend the PhD Programme and those relevant experiences and research interests, that make the applicant suitable for the specific PhD Programme (3000 characters maximum, including spaces).
- List of the publications (monographs, articles published on scientific journals, volume's chapters).
- List of the minor publications (conference papers, etc.).
- List of the abstracts and posters presented during national and international conferences, etc.
- Professional Master courses completed in Italy (1st or 2nd level) relevant to the PhD Programme.
- Postgraduate vocational training programmes/specialisation programmes relevant to the PhD Programme.
- 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.
- Work activity
- Vocational internships
- Curricular and non-curricular training and guidance internships
- Documents attesting the knowledge of foreign languages
- Study periods completed by students outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes)
- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc)

Admission exams (art. 4 of the Call for applications)		
Examination type	Schedule (please, note that applicants shall not receive any communication concerning the exams schedule)	Examination results publication (please, note that applicants shall not receive any communication concerning the publication of results)
Qualifications and research project evaluation	Non-presential.	The results of the qualifications and research project evaluation shall be available online starting from the 11/06/2020 at the page http://studenti.unibo.it (please, select “summary of the requests in progress” - “see detail” and open the pdf file “risultati valutazione titoli e progetto”)
Oral examination	Date	15/06/2020 In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral exam schedule shall be made available at the webpage http://studenti.unibo.it together with the results of the qualifications and research project evaluation
	Time	09 a.m. (local time)
	Applicants can ask to take the exam remotely. For further details please refer to the relevant provision laid down in art. 4 of the Call for applications.	
Oral examination		
The results of the oral examination shall be available on the webpage http://studenti.unibo.it starting from 24/06/2020 (please, select “summary of the requests in progress” - “see detail” and open the pdf file “risultati prova orale”)		

Evaluation criteria		
Points will be allocated to applications out of a total of 100 on the basis of the following weighting:		
1. Qualifications and research project		
<ul style="list-style-type: none"> - Minimum for admission to the oral exam: 30 points - Maximum: 50 points <p>Only qualifications relating to the last 5 calendar years prior to the calendar year of publication of the Call for applications shall be taken into consideration, with the exception of the University Degree (Diploma di laurea). Please, note that qualifications must be consistent with the PhD Programme.</p> <p>Points relating to qualifications shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> - Graduation final mark. Undergraduates shall be evaluated on the basis of the Weighted Average Mark (WAM): max 15 points - Publications: max 4 points - Other qualifications: max 10 points <p>Points relating to the research project shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> - Scientific value and ground-breaking nature of the proposal: max 7 points - description and structure of the proposal: max 7 points - proposal feasibility: max 7 points 		
2. Oral examination		
<ul style="list-style-type: none"> - Minimum for inclusion in the final ranking list :30 points - Maximum: 50 points <p>Oral examination includes the presentation of the research project and is intended to assess the suitability of the applicant to pursue scientific research as well as the general knowledge of issues connected to the PhD Programme. The oral examination is carried out in English.</p> <p>Points relating to the oral examination shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> - knowledge of the English languages: max 5 points - research project presentation: max 35 points - general knowledge of issues connected to the PhD Programme: max 10 points <p>Possible evaluation sub-criteria will be available on the Unibo website, selecting the relevant PhD Programme → “PhD programme information” at the bottom of the page in the section “Notices”.</p>		

Final ranking list and enrolment (arts.6 and 7 of the Call for applications)

After the publication of the results of the oral exam, the final ranking list will be available on the [Unibo website](#), selecting the relevant PhD Programme → “PhD programme information” at the bottom of the page in the section “Notices”.

Following the publication of the final ranking list, successful applicants must enroll on <http://studenti.unibo.it> by the deadline indicated on the [Unibo website](#), selecting the relevant PhD Programme → “PhD programme information”.