CALL FOR PHD POSITIONS - 34 cycle
PHD PROGRAMME IN COMPUTER SCIENCE

<table>
<thead>
<tr>
<th>PhD Programme Coordinator</th>
<th>Prof. Marco Grangetto</th>
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<tbody>
<tr>
<td>Department</td>
<td>Computer Science</td>
</tr>
<tr>
<td>PhD Programme Length</td>
<td>3 years</td>
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<tr>
<td>PhD web site</td>
<td><a href="http://dott-informatica.campusnet.unito.it/do/home.pl">http://dott-informatica.campusnet.unito.it/do/home.pl</a></td>
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<tr>
<td>Course start date</td>
<td>1 October 2018</td>
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<tr>
<td>Departments involved in PhD programme</td>
<td>Computer Science</td>
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Positions offered
n. 2 positions with apprenticeship contract (Art. 45 D.lgs. n. 81/2015)
n. 1 position with scholarship funded by DMA Srl
n. 1 position with scholarship reserved to candidates with international qualifications
n. 1 position without financial support

Titles of Research Projects / Research Fields
The list of research projects/research fields is available at the end of this Information Sheet. This list may be updated until the deadline of Call for Admission to PhD positions.

Entrance examinations
Schedule with information on dates and venues of entrance examinations will be published on the websites: http://www.unito.it/ricerca/fare-ricerca-unito/dottorati-di-ricerca and http://en.unito.it/research/phd/phd-programmes, starting from 6th September 2018.

Application fee
Application fee is €50.00 for each application submitted.
Candidates with international qualifications are exempted from paying the application fee.

Application fee deadline: 5th September 2018 (mandatory deadline).
Candidates who do not pay the application fee within the deadline will be excluded from the competition.

1 All additional scholarships and apprenticeship contracts (Legislative Decree no. 81/2015 art.45), which may become available after the publication of this Call, will be announced on the University websites http://www.unito.it/ricerca/fare-ricerca-unito/dottorati-di-ricerca and http://en.unito.it/research/phd/phd-programmes until Call’s deadline.
## Admission procedure

Assessment of qualifications and interview

### Qualifications to be uploaded on the on-line application

- Application form (duly signed and including identification document/passport)
- Candidates applying with international qualifications: submit on-line documentation as specified in art. 4 of this Call;
- Candidates applying under condition: Self-declaration (available on the websites of the University or alternatively as per Annex 2 of the call for applications) with degrees from the Bachelor's and Master's Degree with relative marks, CFU and weighted average. For candidates applying under condition of obtaining a second level degree within 31st October 2018, issued by a non-Italian university, please check also art. 5 of the Call for admission to PhD positions.
- Publications (max. 2)
- Letters of reference signed by professors or qualified researchers (max. 2)
- Research project (max 2000 words, bibliography excluded) written in English by the candidate choosing a subject concerning one of the projects offered by the PhD Programme

### Assessment criteria

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<tr>
<th>Assessment of qualifications:</th>
<th>maximum score 100 points</th>
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<tr>
<td>Final grade of Italian Laurea Magistrale/ second cycle degree</td>
<td>maximum score 30 points</td>
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<tr>
<td>110-110L: 10 points</td>
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<tr>
<td>107-109: 9 points</td>
<td></td>
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<tr>
<td>104-106: 8 points</td>
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<tr>
<td>100-103: 6 points</td>
<td></td>
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<tr>
<td>&lt;=99: 3 points</td>
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</table>

or, for candidates applying under condition, weighted average of examinations taken during the Italian Laurea Magistrale/second cycle degree:

| greater or equal to 29.0/30: 8 points | maximum score 10 points |
| from 27.0/30 to 29/30 (excluded): 6 points | |
| from 25.0/30 to 27.0/30 (excluded): 3 points | |
| less than 25/30: 0 points | |

The weighted average will be considered in the assessment only if the total number of credits not yet awarded is less than 50% of the total number of credits required for graduation.
Publications  
Max 2 points for each publication (max 2 publications with evidence of acceptance will be assessed)  
maximum score 4 points

Other qualifications  
Each additional qualification pertinent with the field of computer science with a recognized scientific value can be awarded maximum 1 point, up to a maximum of 2 points.  
maximum score 2 points

Reference letters from professors or qualified researchers (max 2 letters)  
maximum score 4 points

Research project  
maximum score 10 points

Minimum threshold for admission to the interview  
15 points

Oral interview  
Maximum score: 70 points

Minimum threshold for passing the interview  
30 points

Further information on examinations:

The research project (max 2000 words, bibliography excluded) elaborated in English by the candidate choosing a title within those mentioned in the PhD Programme. It must focus on the following: a) state of the art of the chosen subject; b) goals of the project; c) innovation with respect to the state of the art. The examining board will evaluate the scientific relevance of the project, the expected goals and the scientific impact of the results.

The interview, on request of the candidate and duly authorized by the examining board, may be taken via Skype (art. 8 of the Call).

**Titoli progetti di ricerca/ Titles of research projects**

1) Deep Learning end-to-end systems applied to Natural Language Processing *(Titolo abbinato al posto in apprendistato presso Loquendo S.p.a / research project linked position with apprenticeship contract at Loquendo S.p.a)* (Supervisor: Prof. Rossella Cancelliere)

2) Progettazione e sviluppo di chatbot. *(Titolo abbinato al posto in apprendistato presso CELI s.r.l. / research project linked to position with apprenticeship contract at CELI s.r.l.)* (Supervisor: Luigi Di Caro)

**Titolo progetto di ricerca finanziato da / Titles of research projects funded by DMA**
Titoli progetti di ricerca il posto con borsa riservato ai candidati laureati all’estero e per il posto senza borsa / Titles of research projects for position with scholarship reserved to candidates with international qualifications and position without financial support

1) Processi dinamici e analisi strutturali in reti complesse. / Dynamical processes and structural analyses in complex networks. Prof. Giancarlo Ruffo

2) Crowdmapping / Crowdmapping. prof. Guido Boella

3) Applicazioni di blockchain e smart contract/Blockchain applications and smart contracts prof. Claudio Schifanella

4) Modelli di computazione in memoria e loro applicazioni al Deep Learning e al Big Data Analytics/Near Data Processing and its applications to Deep Learning and Big Data Analytics prof. Marco Aldinucci

5) Supporti a tempo di esecuzione per applicazioni su stream nel paradigma di computazione edge/Run-time supports for stream processing on edge computing. prof. Marco Aldinucci

6) Calcolo ad altre prestazioni per la fisica delle alte energie/High-Performance Computing for High Energy Physics prof. Marco Aldinucci, prof. Massimo Masera

7) HRI - Human Robot Interaction for social, assistive, and educational purposes prof. Cristina Gena

8) BCI - Brain Computer Interaction in the context of smart and IoT environments prof. Cristina Gena

9) Logics and Models of Innovative Computing Models, prof. Luca Paolini

10) Designing intelligent behavior and interaction for smart objects , prof.Luca Console

11) Mining, retrieval e analisi di processi di business /Mining, retrieval and analysis of business process models, prof. Stefania Montani

12) Tecniche di case-based retrieval flessibile/Flexible case-based retrieval techniques Prof. Stefania Montani

13) Tecniche di intelligenza artificiale per l’informatica medica/Intelligent techniques in medical informatics Paolo Terenziani and Stefania Montani
14) Computer vision and deep learning for multi-dimensional imaging and modeling/ Visione artificiale e deep learning per immagini multi-dimensional, prof. Marco Grangetto, Maurizio Lucenteforte
15) Apprendimento nelle metaeuristiche di ottimizzazione / Learning in Metaheuristic Optimization, Prof. Andrea Grosso, Roberto Aringhieri
16) Analisi e sviluppo di politiche per la gestione di una rete di servizi sanitari basate su Big Data /Big Data supporting health care network policies, Roberto Aringhieri, Andrea Grosso
17) Apprendimento di reti neurali profonde per il trattamento di immagini e di sequenze spazio-temporali/Deep learning for image and spatio-temporal sequences processing prof. Rossella Cancelleri
18) Sistemi avanzati di Open Information Extraction basati su tecniche di Natural Language Processing, Machine Learning ed integrazione di risorse semantiche / Advanced Open Information Extraction systems based on Natural Language Processing, Machine Learning and integration of semantic resources, prof. Luigi Di Caro
19) Interfacce utente intelligenti per disabilità cognitive/Intelligent user interfaces for cognitive disabilities Federica Cena
20) Sensors and web mining for Personalized persuasive technologies, Federica Cena
21) Reti neurali psicologicamente plausibili per l’apprendimento linguistico/Psychologically plausible neural networks for early word learning Valentina Gliozzi
22) Mixing Deep Learning and symbolic reasoning for Natural language generation (NLG), Alessandro Mazzei
23) Modeling and analysis of fake/polluted information generation and diffusion over social media, Rossano Gaeta - Michele Garetto
24) Machine unlearning: protecting user privacy by making intelligent systems forget, Ruggero G. Pensa
25) Differentially private mechanisms for co-clustering algorithms, Ruggero G. Pensa
26) Model checking quantitativo/Quantitative Model Checking Jeremy Sproston
27) Ingegnerizzazione Rigorosa del Software per l’Internet degli Oggetti /Rigorous Software Engineering for the Internet of Things prof. Ferruccio Damiani
28) Metodi Formali per le Linee di Prodotti Software/Formal Methods for Software Product Lines prof. Ferruccio Damiani
29) Recupero di informazioni geografiche personalizzato / Personalized Geographic Information Retrieval Prof.ssa Liliana Ardissono
30) Explainable dynamic constraint reasoning Luca Anselma - Alessandro Mazzei
31) Theory and practice of concurrent programming languages Luca Padovani
32) Advanced Methodologies for Temporal Relational Databases Paolo Terenziani
33) Ragionamento su azioni e ontologie/Reasoning about actions and ontologies Laura Giordano, Daniele Theseider Dupré
34) Accountability computazionale/Computational accountability Matteo Baldoni, Cristina Baroglio, Roberto Micalizio
35) Interazione e coordinazione di sistemi multiagente basata su relazioni sociali /Interaction and coordination based on social relationships for Multiagent Systems Matteo Baldoni, Prof. Cristina Baroglio
36) Tecnologie semantiche e sentiment analysis per la valorizzazione dei beni culturali / Semantic Technologies and sentiment analysis to enhance the value of cultural heritage Rossana Damiano, Viviana Patti, Anna Goy
37) Smart engaging interactions with chat-bot Rossana Damiano, Alessandro Mazzei
38) Tecnologie di Trattamento Automatico del Linguaggio Naturale per Sentiment Analysis ed Opinion Mining / Natural Natural Language Processing for Sentiment Analysis and Opinion Mining Cristina Bosco
39) Logiche descrittive preferenziali per la revisione di ontologie /Preferential Description Logics for Ontology Revision Roberto Micalizio e Gian Luca Pozzato
40) Logiche descrittive probabilistiche per la combinazione di concetti/Probabilistic Description Logics for concept combination Antonio Lieto e Gian Luca Pozzato
41) Modelli Computazionali di Cognitive Decision Making e loro applicazioni per lo sviluppo di Tecnologie Persuasive sul Web / Computational Cognitive Models of Decision Making and applications to Persuasive Technologies in the Web, Antonio Lieto
42) Cognitive Knowledge Representation Systems and Formalism for Common-Sense Reasoning, Antonio Lieto e Daniele P. Radicioni
43) Lexical resources for semantic analysis, Daniele P. Radicioni
44) The New Science of Cities, Rossano Schifanella
45) Big Data applied to societal challenges, Rossano Schifanella
46) Combined effect of content quality and social ties on user engagement Rossano Schifanella
47) Trattamento delle eccezioni nelle Logiche Descrittive: un approccio multi-preferenze/Multipreferences for dealing with exceptions in Description Logics Laura Giordano, Valentina Gliozzi
48) Emotions and Moral Values in Expressions of Hatred in Social Media  Rossana Damiano, Viviana Patti

49) Cooperazione nel fog computing: progettazione, modellazione ed analisi/Cooperation in fog computing: design, modeling, and analysis  prof. Rossano Gaeta, Marco Grangetto

50) Propagazione dell’informazione su reti complesse/Information propagation on complex networks  Prof. Giancarlo Ruffo, Francesco Bonchi

51) Agente intelligente per la comprensione automatica di domini scientifici ed il dialogo personalizzato via chatbot/ User-Adapted Domain Knowledge Processing for supporting scientific text comprehension via chatbot, Luigi Di Caro

52) Mining for the social good: analysing data for the benefit of people  Rosa Meo

53) Industry 4.0: analysing data in the companies sensors  Rosa Meo

54) Data-driven decision making in complex systems  Maria Luisa Sapino

55) Elaborazione di immagini biomediche per il supporto alla diagnosi/ Biomedical image processing for automatic diagnosis aid  Davide Cavagnino, Maurizio Lucenteforte, Marco Grangetto

56) Watermarking di oggetti digitali multimediali/ Watermarking of digital multimedia objects. Prof. Marco Botta, Davide Cavagnino

57) Realtà virtuale, realtà aumentata e la loro convergenza nella mixed reality / Virtual reality, augmented reality and their convergence to mixed reality, Prof. Maurizio Lucenteforte, Marco Grangetto, Davide Cavagnino

58) Biologia dei sistemi: Costruzione ed analisi di modelli / Systems Biology: Model Construction and Analysis, prof.Francesca Cordero e Marco Beccuti