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

PhD Programme Coordinator
Prof. Marco Grangetto

Department
Computer Science

PhD Programme Length
3 years

PhD web site
http://dott-informatica.campusnet.unito.it/do/home.pl

Course start date
1 October 2018

Departments involved in PhD programme
Computer Science Department

Positions offered by the PhD Programme

<table>
<thead>
<tr>
<th>Positions offered by the PhD Programme</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>n. 7 positions with scholarship, of which n. 2 reserved to candidates with international qualifications</td>
<td>of which:</td>
</tr>
<tr>
<td>n. 2 positions without financial support</td>
<td>- 6 scholarships funded by university</td>
</tr>
<tr>
<td></td>
<td>- 1 scholarship funded by Compagnia di San Paolo</td>
</tr>
</tbody>
</table>

Titles of Research Projects / Research Fields
The list of research projects is available at the end of this PhD Programme's annex. This list may be updated until Call's deadline.

Calendar of entrance examinations
The calendar with information on dates and venues of entrance examinations shall 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 21st March 2018.

Useful information for applicants
Application fee: €50.00 for each application submitted. Candidates with international qualifications are exempted from paying the application fee.

Application fee deadline: 6th April 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.), 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.
## CALL FOR POSITIONS

### Admission procedure for all positions

Assessment of qualifications, research project and interview

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

- Application form (duly signed and including identification document/passport).
- For International qualifications: submit on-line documentation as specified in Art. 4 of this Call
- For applicants under condition: certificate or self-certification with a complete list of academic transcripts concerning the Laurea Triennale /1st cycle degree and Laurea Magistrale /2nd cycle degree with marks, weighted average and credits. For applicants applying under condition, please also check Art. 5 of the Call.
- Letters of reference signed by professors or qualified researchers (max 2) (see art. 5 of the Call).
- 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

<table>
<thead>
<tr>
<th>Assessment of qualifications:</th>
<th>maximum score 100 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final grade of Italian Laurea Magistrale/second cycle degree</td>
<td>maximum score 30 points</td>
</tr>
</tbody>
</table>

- 110-110L: 10 points
- 107-109: 9 points
- 104-106: 8 points
- 100-103: 6 points
- <=99: 3 points

- 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
  - 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.

<table>
<thead>
<tr>
<th>Publications</th>
<th>maximum score 4 points</th>
</tr>
</thead>
</table>

Max 2 points for each publication (max 2)
publications with evidence of acceptance will be assessed)

<table>
<thead>
<tr>
<th>Other qualifications</th>
<th>maximum score 2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each additional qualification pertinent with the field of computer science with a recognised scientific value can be awarded maximum 1 point, up to a maximum of 2 points.</td>
<td></td>
</tr>
<tr>
<td>Reference letters from professors or qualified researchers (max 2 letters)</td>
<td>maximum score 4 points</td>
</tr>
<tr>
<td>Research project</td>
<td>maximum score 10 points</td>
</tr>
<tr>
<td>Minimum threshold for admission to the interview</td>
<td>15 points</td>
</tr>
<tr>
<td>Oral interview</td>
<td>Maximum score: 70 points</td>
</tr>
<tr>
<td>Minimum threshold for passing the interview</td>
<td>30 points</td>
</tr>
</tbody>
</table>

**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 authorised by the examining board, may be taken via Skype (art. 8 of the Call).
Titoli progetti di ricerca
Dottorato di Ricerca in Informatica

Titles of research projects
PhD Programme in Computer Science

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, assitive, 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, Stefania Montani)
14) Computer vision and deep learning for multi-dimensional imaging and modeling/ Visione artificiale e deep learning per immagini multi-dimensionali. (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 Cancelliere)

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, Gian Luca Pozzato)
40) Logiche descrittive probabilistiche per la combinazione di concetti. / Probabilistic Description Logics for concept combination. (Antonio Lieto, 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, 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)
Multipreferences for dealing with exceptions in Description Logics. (Laura Giordano, Valentina Gliozzi)