PhD in Computer Science, Mathematics and Physics

University of Udine - Italy
The course in few figures

- Instituted in 2014 as successor to previous PhD programmes in CS and M&P
- Partnership with Fondazione Bruno Kessler – Trento since Spring 2017 (active with PhD Cycle XXXIII)
- Three year duration
- Call: June-July
- Admission: September
- PhD cycle XXXIV, starting November 2018
- PhD thesis to be submitted by the end of 3rd year
- Graduation in spring of the following year
Research Areas - **Computer Science**

- Algorithms
- Automata
- Logics
- Artificial Vision
- Real-Time Systems
- Bioinformatics
- Medical Informatics
- Data Science
- Information Retrieval
- Machine Learning
- Human-Computer Interaction
- Knowledge Representation
- Automated Reasoning
- Artificial Vision
- Real-Time Systems
- Bioinformatics
- Medical Informatics
- Human-Computer Interaction
- Knowledge Representation
- Automated Reasoning

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Research Areas - Mathematics

- Algebra
- Topology
- Dynamical Systems
- Mathematical Logic
- Algebraic Geometry
- Number Theory
- Mathematical Analysis
- Numerical Analysis
- Mathematical Epidemiology

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Research Areas - **Physics**

- Astrophysics
- Particle Physics
- Semiconductor and Scintillator-based Radiation Detectors
- Fundamental Interactions
- Physics Education
- Simulation of Bio- and Nano-Systems

**PhD in Computer Science, Mathematics and Physics**
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Supervisors: Computer Science

Stefano Burigat - Mobile HCI, Information Visualization, Interface Design, Virtual Reality, ...
Luca Chittaro - Virtual Reality, Serious Games, Health and Safety, Persuasive Technology, ...
Antonina Dattolo - Inclusive Web design, Semantic and Social Web, ICT for Cultural Heritage
Agostino Dovier - Logic Programming, Knowledge Representation, GPGPU parallelism, ...
Federico Fontana - Music Interfaces, Interactive Sound Processing, Sonic Interaction Design, ...
Gian Luca Foresti - Computer Vision, Neural Networks, Data and Information Fusion, ...
Massimo Franceschet - Network science, Bibliometrics, Logic, Temporal Knowledge, ...
Oswald Lanz - Computer Vision, Camera Networks, Object Tracking, Audio Visual Tracking, ...
Stefano Mizzaro - Web Information Retrieval, Crowdsourcing, Data Science, Social Computing, ...
Angelo Montanari - Temporal logics for computer science, Spatio-temporal databases, Big data, ...
Carla Piazza - Formal Verification, Hybrid Systems, Model Checking Algorithms, Systems Biology, ...
Alberto Policriti - Computable Set Theory, Algorithms, Bioinformatics, Computational Biology, ...
Giuseppe Serra - Machine Learning, Neural Networks, Pattern Recognition, ...

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Supervisors: Mathematics

Dimitri Breda - Numerical Methods; Dynamical Systems; Eigenvalues Approximation, Delay, ...
Pietro Corvaja - Diophantine Geometry, Number Theory
Dikran Dikranjan - Topological groups, Duality, Entropy, Categorical Topology and Algebra, ...
Anna Giordano Bruno - Topological Groups, Algebraic Entropy, Pontryagin Duality, ...
Alberto Marcone - Reverse Mathematics, Weihrauch Degrees, WQOs and BQOs, ...
Stefano Merler - Mathematical Epidemiology, Computational Epidemiology, Dynamical Systems
Rossana Vermiglio - Numerical Methods, Delay Equations, Numerical Stability and Bifurcation
Fabio Zanolin – Dynamical Systems, Chaos Theory, Nonlinear Analysis, Fixed Points
Francesco Zucconi – Algebraic Geometry, ...

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Supervisors: Physics

Barbara De Lotto - Astroparticle Physics, Very High Energy Gamma Astrophysics, ...
Federico Fogolari - Molecular Modeling, Structural Biology, Biomolecular Simulations, ...
Paolo Giannozzi - Methods and Software for Electronic-structure Calculations, ...
Lorenzo Gianni Santi - Particle Physics, Detector R&D; Physics Education (with M. Michelini), ...
Andrea Vacchi - X-ray and High-Energy Astrophysics, Semiconductor based Detectors Development, ...

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Funding

- Standard scholarship: € 15.343,28 per year
- Supplements per month abroad: € 639 (max 6 months)
- About € 500 for schools... (1st year)
- About € 3000 for traveling, schools... (2nd & 3rd year)
- Specific scholarships (Bruno Kessler, industries)
- Other research funds provided by the Supervisor and his/her Lab/Institute
<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Supervisors in the Lab</th>
<th>Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial Vision &amp; Real-Time Systems</td>
<td>Gian Luca Foresti (Head)</td>
<td>avires.dimi.uniud.it</td>
</tr>
<tr>
<td>Bioinformatics, Verification &amp; Parallel Computing</td>
<td>Alberto Policriti (Head) Carlo Piazza</td>
<td>bioinf.dimi.uniud.it</td>
</tr>
<tr>
<td>Computational Dynamics Laboratory</td>
<td>Dimitri Breda (Head)</td>
<td>cdlab.uniud.it</td>
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<tr>
<td>Constraint Logic Programming</td>
<td>Agostino Dovier (Head)</td>
<td>clp.dimi.uniud.it</td>
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<tr>
<td>Context-Aware and Mobile Systems Laboratory</td>
<td>Stefano Mizzaro (Head)</td>
<td>smdc.uniud.it</td>
</tr>
<tr>
<td>Data Science</td>
<td>Angelo Montanari (Head) Massimo Franceschet</td>
<td>datasciencelab.dimi.uniud.it/en</td>
</tr>
<tr>
<td>Dynamical Processes in Complex Societies</td>
<td>Stefano Merler (Head)</td>
<td>dpcs.fbk.eu</td>
</tr>
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<td>Human-Computer Interaction</td>
<td>Luca Chittaro (Head) Stefano Burigat Federico Fontana</td>
<td>hcilab.uniud.it</td>
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<tr>
<td>Semantic, Adaptive and Social Web</td>
<td>Antonina Dattolo (Head)</td>
<td>sasweb.uniud.it</td>
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<tr>
<td>Silicon Detectors</td>
<td>Andrea Vacchi (Head)</td>
<td>atlasud.uniud.it/lab/</td>
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<tr>
<td>Technologies of Vision</td>
<td>Oswald Lanz</td>
<td>tev.fbk.eu</td>
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Scholarships

<table>
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<tr>
<th>Year</th>
<th>University</th>
<th>Industry</th>
<th>EU / Other</th>
<th>Applications</th>
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<tr>
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<td>1</td>
<td>4</td>
<td>Call open</td>
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Few additional positions available without scholarship

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Workplan

1st year
• Attend courses/schools (at least one outside the research discipline), also organized by the University
• Begin research activity
• End-of-the-year evaluation (learning activity & research plan)

2nd year
• Conclude the learning activity (three PhD credits must be taken)
• Research activity full immersion
• End-of-the-year evaluation (learning activity & research activity)

3rd year
• Conclude research and write PhD thesis
• Exhibition at the University (PhD Expo)
• Admission to the final exam (external review of the PhD thesis)

Beginning of the new year: discussion of the thesis, graduation
Additional info

General information, call for PhD:
• www.uniud.it/en/research/research-doctorate/phdstudies
• phd.dimi.uniud.it

Information about Fondazione Bruno Kessler:
• www.fbk.eu/en/

Contacting a supervisor from the PhD Board:
• www.dimi.uniud.it/la-ricerca/dottorato/informatica-e-scienze-matematiche-e-fisiche/collegio-dei-docenti/