



# PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 38th cycle

Research Area n. 1 - Computer Science and Engineering

**PARTENARIATO PNRR Research Field: IOT SYSTEMS AND DATA STREAMING FOR  
ENERGY MANAGEMENT**

**Monthly net income of PhDscholarship (max 36 months)**

**€ 1400.0**

In case of a change of the welfare rates during the three-year period, the amount could be modified.

## Context of the research activity

<p><b>Motivation and objectives of the research in this field</b></p>	<p>This research project is in the framework of NEST PARTENARIATO ESTESO NETWORK 4 ENERGY SUSTAINABLE TRANSITION CUP D43C22003090001 Decreto di Concessione D.D. 1561 del 11/10/2022</p> <p>The goal of the PhD work is to create new abstractions, system designs, and concrete implementations of IoT systems and data streaming platforms capable of gathering and processing data about energy management, energy consumption, energy generation, energy distribution, and uses. The data is instrumental to develop energy-saving and cost-reduction principles, including environmental protection, sustainability, resilience, and climate neutrality.</p>
<p><b>Methods and techniques that will be developed and used to carry out the research</b></p>	<p>The PhD student will use a mixture of analytical reasoning, conceptual design, and concrete system development. Testing and evaluation of the solutions will occur through simulation, emulation, and real-world trials and deployments.</p>
<p><b>Educational objectives</b></p>	<p>The PhD student is expected to become familiar with the state of the art in the subject areas, gain the ability to</p>



	analyze energy-related problems, develop expertise and skills in system design and implementation, as well as acquire the skills necessary for communicating and presenting research results both orally and in writing.
<b>Job opportunities</b>	IoT system architects and data streaming experts are actively sought by both IT companies and by major players in the energy area, which currently represents a crucial sector.
<b>Composition of the research group</b>	2 Full Professors 1 Associated Professors 0 Assistant Professors 1 PhD Students
<b>Name of the research directors</b>	Gianpaolo Cugola and Luca Mottola

#### Contacts

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#### Additional support - Financial aid per PhD student per year (gross amount)

<b>Housing - Foreign Students</b>	--
<b>Housing - Out-of-town residents (more than 80Km out of Milano)</b>	--

#### Scholarship Increase for a period abroad

<b>Amount monthly</b>	700.0 €
<b>By number of months</b>	6

#### **Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information**

Research is funded by the Italian Government with Next Generation EU funds and it will happen within the scope of the "NEST - Network 4 Energy Sustainable Transition" Extended Partnership. The partnership will involve more than 25 partners, including top Italian universities and the main Italian companies involved in the area of energy management. In particular, the research is part of Spoke 8: "Final use optimization, sustainability & resilience in energy supply chain", whose activities will be focused on ensuring sustainable and resilient energy management, consumptions, generation, distribution and uses.

EDUCATIONAL ACTIVITIES (purchase of study books and material, including computers, funding for participation in courses, summer schools, workshops and conferences): financial aid



per PhD student

5.707,13 Euro

TEACHING ASSISTANTSHIP: (availability of funding in recognition of supporting teaching activities by the PhD student)

There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

COMPUTER AVAILABILITY: individual use

DESK AVAILABILITY: individual use

D.D. 341 del 15/03/2022 Avviso pubblico per la presentazione di Proposte di intervento per la creazione di "Partenariati estesi alle università, ai centri di ricerca, alle aziende per il finanziamento di progetti di ricerca di base" - nell'ambito del Piano Nazionale di Ripresa e Resilienza, Missione 4 "Istruzione e ricerca" - Componente 2 "Dalla ricerca all'impresa" - Investimento 1.3, finanziato dall'Unione europea - NextGenerationEU