



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

Research Area n. 4 - Telecommunications

THEMATIC Research Field: OPTIMAL DATA FUSION FOR AERIAL NAVIGATION

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

**€ 1325.0**

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>The research regards the flight region at low altitudes (below 150 m) above urban areas, in which it is expected the highest impact and risk of UAVs use. In this context, the evolution of Unmanned Aircraft System Traffic Management (UTM) systems represents a fundamental step towards the safe and reliable application of this technology. Accurate localization of UAVs is obviously one of the fundamental functions for safe and efficient navigation in assisted or autonomous UAVs and UTM systems. The main objective is the optimization of all the resources, including 5G networks, for achieving a satisfactory positioning estimate with the minimum latency.</p>
<p><b>Methods and techniques that will be developed and used to carry out the research</b></p>	<p>The research and development activity are expected to focus on the following methodology, organized in 3 areas:</p> <ul style="list-style-type: none"> <li>- <b>Theoretical framework:</b> problem formulation and optimization.</li> <li>- <b>Software platform:</b> implementation of practical algorithms.</li> <li>- <b>Hardware platform:</b> realization of a demo.</li> </ul>
<p><b>Educational objectives</b></p>	<p>The educational objectives for the PhD student are:</p> <ul style="list-style-type: none"> <li>- Enrich the interdisciplinary background.</li> <li>- Stimulate an agile and flexible design approach, from the theory to the analysis, simulations and practical</li> </ul>



	<p>implementation.</p> <ul style="list-style-type: none"> <li>- Live an experience close to the state-of-the-art in the field.</li> <li>- Cooperate with an academic and industrial team.</li> </ul>
<b>Job opportunities</b>	<p>Professional opportunities:</p> <ul style="list-style-type: none"> <li>- Cooperation with Leonardo Company, which supports financially this industrial PhD.</li> <li>- Other companies and spin-offs operating in the UAV field, expected to increase further in terms of interest and investments.</li> </ul>
<b>Composition of the research group</b>	<p>0 Full Professors 1 Associated Professors 1 Assistant Professors 1 PhD Students</p>
<b>Name of the research directors</b>	Luca Reggiani

#### Contacts

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Research group webpage  
<https://www.deib.polimi.it/eng/research-lines/details/138>

#### 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>	662.5 €
<b>By number of months</b>	6

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

LIST OF UNIVERSITIES, COMPANIES, AGENCIES AND/OR NATIONAL OR INTERNATIONAL INSTITUTIONS THAT ARE COOPERATING IN THE RESEARCH: 1. Politecnico di Milano; 2. Leonardo S.p.A.; 3. At least another International University to be selected with the PhD student.



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

5.401,42 Euro per student

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