POLITECNICO DI MILANO

# PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 39th cycle

**Research Area n. 3 - Systems and Control**

**PNRR 118 PNRR Research Field: MODELLING INTERACTION BETWEEN HUMAN BEING AND AUTONOMOUS VEHICLES**

| Monthly net income of PhDscholarship (max 36 months) |
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| **€ 1400.0**<br>In case of a change of the welfare rates during the three-year period, the amount could be modified. |

| Context of the research activity | |
|---|---|
| **Motivation and objectives of the research in this field** | Autonomous and automated road vehicles coexist in urban traffic with multiple other forms of transportation, including bicycles, pedestrians, and other vulnerable road users. For a peaceful coexistence, autonomous and automated vehicles need to correctly interpret and predict the behavior of their human neighbors. The PhD candidate will explore different forms of modeling the interaction of human beings and autonomous or automated vehicles, targeting both cognitive and behavioral aspects of the interaction. |
| **Methods and techniques that will be developed and used to carry out the research** | The researcher will use methodologies of systems theory, mathematical modeling, physics and data-based modeling, computational cognitive sciences, and biomechanics. |
| **Educational objectives** | The researcher will learn to write and use mathematical models of a complex process such as the human being. He/she will acquire skills in control theory, systems theory, mathematical modeling and analysis, and will learn to plan and carry out the experiments or data analysis necessary to identify, validate or falsify the models. |
| **Job opportunities** | Academia, international institutions, automotive and aviation industry. |

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| **Composition of the research group** | 1 Full Professors<br>2 Associated Professors<br>3 Assistant Professors<br>2 PhD Students |
| **Name of the research directors** | Alessandro Colombo |

| **Contacts** |
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| E-mail: alessandro.colombo@polimi.it |

| **Additional support - Financial aid per PhD student per year (gross amount)** | |
|---|---|
| **Housing - Foreign Students** | -- |
| **Housing - Out-of-town residents (more than 80Km out of Milano)** | -- |

| **Scholarship Increase for a period abroad** | |
|---|---|
| **Amount monthly** | 700.0 € |
| **By number of months** | 6 |

| **National Operational Program for Research and Innovation** | |
|---|---|
| **Company where the candidate will attend the stage (name and brief description)** | Zenseact |
| **By number of months at the company** | 6 |
| **Institution or company where the candidate will spend the period abroad (name and brief description)** | Zenseact |
| **By number of months abroad** | 6 |

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

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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
5.707,20 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.