



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

Research Area n. 3 - Systems and Control

**PNRR 117 Research Field: DEVELOPMENT OF ENABLING SYSTEMS FOR INDUSTRY 5.0,
AUTONOMOUS MANUFACTURING AND COLLABORATIVE ROBOTICS**

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

Motivation and objectives of the research in this field

The activities covered by this PhD scholarship will focus on the evolution of manufacturing systems towards the concept of Industry 5.0 and autonomous manufacturing, keeping the focus on the role of human operators with a view to enhancing and raising the quality of human work. The research aims to create a model characterized by virtuous and non-competitive man-machine cooperation.

Methods and techniques that will be developed and used to carry out the research

The goal of the research is to enhance manufacturing by arriving at products that comply with specifications and requirements, respecting the needs of workers, consumers and the environment. ICT, AI and Robotic technologies allow the creation of Cyber Physical Systems (CPS) which will be at the center of this study, guaranteeing and enhancing the centrality of human work. The research will then follow three main guidelines: the development of prototype solutions for collaborative robotics and automation, the study of algorithms and hardware dedicated to the implementation of autonomous quality control processes, and the application of scheduling algorithms to production activities.

Educational objectives

The candidate will master AI and robotics techniques for



	the design and the development of autonomous manufacturing solutions, which are expected to be the natural evolution towards the concept of the factory of the future.
Job opportunities	The job market for experts in the field of robotics, and specifically of collaborative robotics, is already large today and is expected to become even more interesting in the coming years. Opportunities to work in the research institutes will also be available.
Composition of the research group	1 Full Professors 1 Associated Professors 3 Assistant Professors 9 PhD Students
Name of the research directors	Paolo Rocco e Andrea Maria Zanchettin

Contacts	
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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)	Camozzi Group S.p.a.
By number of months at the company	6
Institution or company where the candidate will spend the period abroad	Camozzi Automation GmbH



candidate will spend the period abroad (name and brief description)	
By number of months abroad	6

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

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

COMPUTER AVAILABILITY: individual use

DESK AVAILABILITY: individual use