



National Ph.D. Program in Autonomous Systems

<http://dausy.poliba.it>

Prof. Engr. Mariagrazia DOTOLI (mariagrazia.dotoli@poliba.it)

Full Professor in Automation

Department of Electrical and Information Engineering – Politecnico di Bari

Coordinator of the National Ph.D. Program in Autonomous Systems



DAUSY Ph.D. Virtual Open Day

Discover the Italian National Ph.D.
program in Autonomous Systems

dausy.poliba.it



June 26th, 2024 – Chair: Prof. M. Dotoli (CEST)

11:30 – 11:50 - Introduction to the National Ph.D. program in Autonomous System (DAUSY)

Prof. M. Dotoli (*Coordinator*)

11:50 – 11:55 - PhD testimonial

Pierluigi Francesco De Paola (*Consiglio Nazionale delle Ricerche*)

11:55 – 12:00 - PhD testimonial

Elisa Gaetan (*Università di Modena e Reggio Emilia*)

12:00 – 12:05 - PhD testimonial

Paul Christian Tesso Woafo (*Università della Calabria*)

12:05 – 12:10 - PhD testimonial

Amarnath Venkatachalam (*Università degli Studi di Catania*)

Q&A Session

How to ask question during the event:

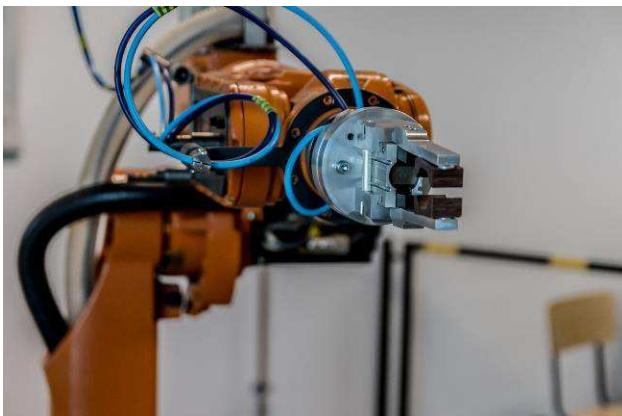
- *Using the chat available in the “Question&Answer” section. You need to log in with your Microsoft Teams account as logging in anonymously will not allow you to use chat.*
- *By sending an email to gaetano.pavone@poliba.it*

Introduction to the National Ph.D. program in Autonomous System

More information: <http://dausy.poliba.it/>

Autonomous Systems

- Ongoing developments in Automation, Control Systems, Data Science, and Artificial Intelligence are expected to heavily influence the role of engineering in our society.
- One of the enabling technologies of the digital transition is **Autonomous Systems (AS)**, **which are systems capable of automatically achieving a given goal without the intervention of a human operator.**
- AS are capable of learning and independently performing decision-making tasks.
- AS are becoming the leading drive of technologies such as industry 4.0, autonomous vehicles, drones, smart grids, precision agriculture.



The DAUSY National Ph.D. Program

- The **Doctoral program (Ph.D.) in AUtonomous SYstems (DAUSY)** <http://dausy.poliba.it/> is a newly funded national program aiming at providing high-profile skills, as well as rigorous research training, to prepare PhD students and become versatile professionals and knowledgeable researchers while cooperating in a nation-wide network with international visibility.
- The major focus will be on Automation Engineering, together with its connections to Theoretical and Applied Mechanics, Optimization, Communication Systems, Information Theory, Machine Learning, Computing, Mathematics, and Signal Processing.
- DAUSY will establish a **doctoral school with critical mass and quality** to systematize the expertise on Autonomous Systems (AS) distributed in the country and involve **students from Italy and worldwide**



General information on DAUSY

The National Ph.D. Program in Autonomous Systems DAUSY

- Politecnico di Bari (Poliba) - administrative headquarters
- 30 participating institutions (29 universities and a national research center)
- 18 partner universities
- 54 Italian and 24 foreign professors and researchers

Program overview – XL cycle (2024/27)

Degree awarded:

Ph.D. in Autonomous Systems

Language:

English

Program length:

Three years **full-time (in presence)**

Location:

29 universities, 1 research center

Starting date:

November 1, 2024

Funding:

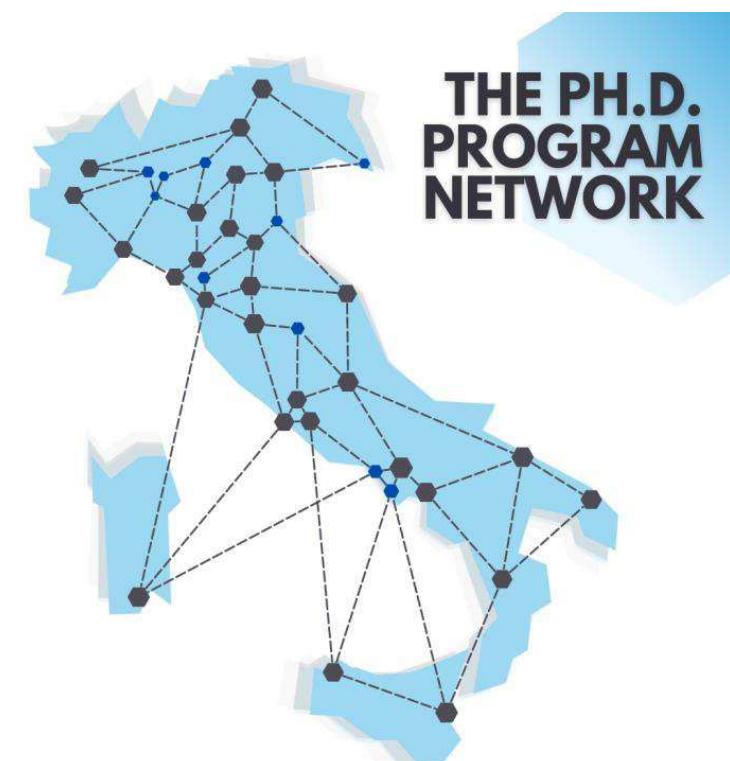
33 fully paid scholarships

PARTICIPANT UNIVERSITIES AND RESEARCH CENTER

Politecnico di Bari (XXXVIII-XXXIX)
Consiglio Nazionale delle Ricerche (XXXVIII)
Libera Università di Bolzano (XXXIX)
Politecnico di Torino (XXXVIII-XXXIX)
Scuola IMT Alti Studi - Lucca (XXXIX)
Università degli Studi del Sannio (XXXVIII-XXXIX)
Università degli Studi della Campania "L. Vanvitelli" (XXXVIII-XXXIX)
Università degli Studi dell'Aquila (XXXVIII-XXXIX)
Università degli Studi di Bologna (XXXIX)
Università degli Studi di Brescia (XXXIX)
Università degli Studi di Cagliari (XXXVIII-XXXIX)
Università degli Studi di Catania (XXXIX)
Università degli Studi di Firenze (XXXIX)
Università degli Studi di Genova (XXXVII-XXXIX)
Università degli Studi di Modena e Reggio Emilia (XXXVIII-XXXIX)
Università degli Studi di Padova (XXXVIII-XXXIX)
Università degli Studi di Palermo (XXXVIII-XXXIX)
Università degli Studi di Parma (XXXVIII-XXXIX)
Università degli Studi di Roma "La Sapienza" (XXXIX)
Università degli Studi di Roma "Tor Vergata" (XXXVIII-XXXIX)
Università degli Studi di Salerno (XXXIX)
Università degli Studi di Siena (XXXVIII-XXXIX)
Università degli Studi di Trento (XXXVIII-XXXIX)
Università degli Studi di Verona (XXXVIII-XXXIX)
Università degli Studi Roma Tre (XXXVIII-XXXIX)
Università del Salento (XXXVIII-XXXIX)
Università della Calabria (XXXVIII-XXXIX)
Università di Pisa (XXXVIII-XXXIX)
Università Politecnica delle Marche (XXXVIII-XXXIX)

PARTNER UNIVERSITIES

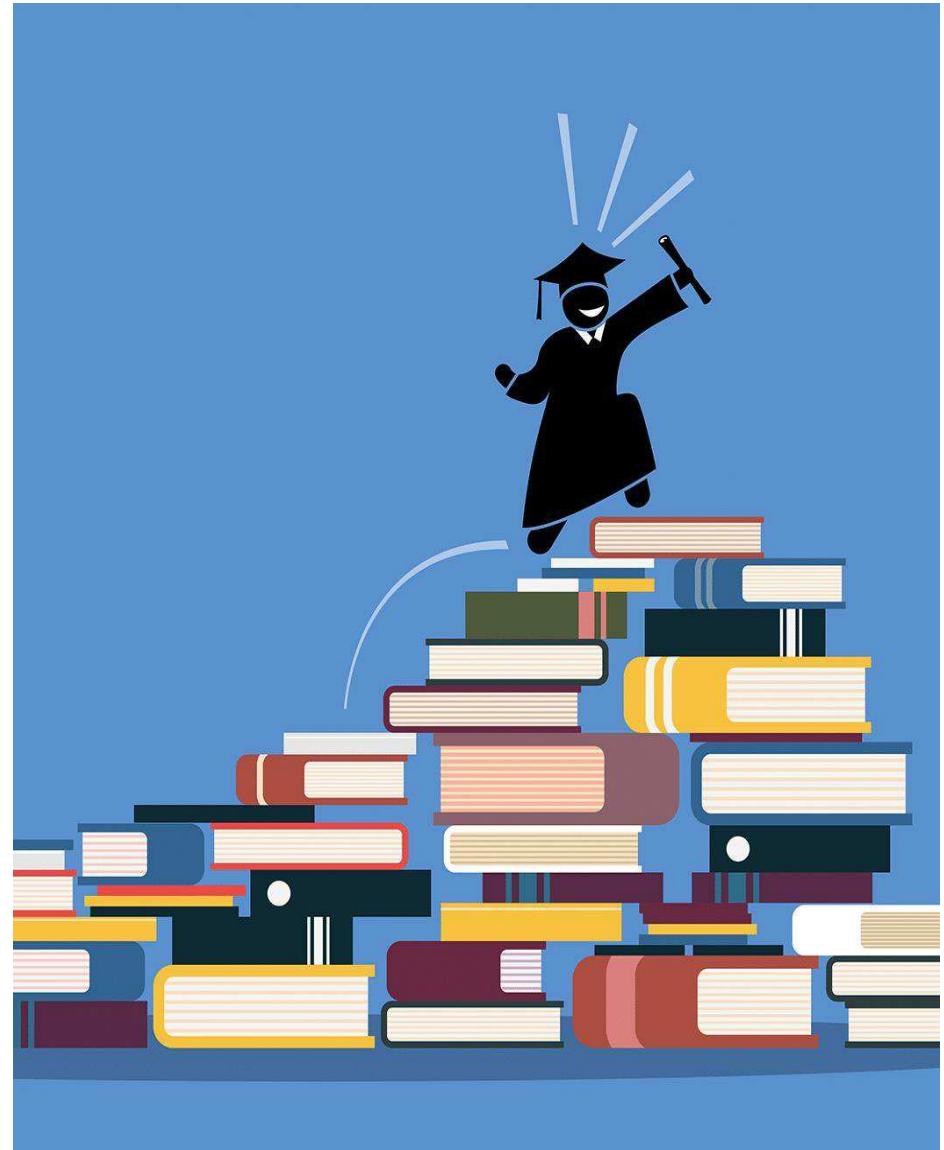
Politecnico di Milano (XXXVIII-XXXIX)
Scuola Superiore Sant'Anna (XXXVIII-XXXIX)
Università degli Studi di Ferrara (XXXVIII-XXXIX)
Università degli Studi di Milano-Bicocca (XXXVIII-XXXIX)
Università degli Studi di Napoli "Federico II" (XXXVIII-XXXIX)
Università degli Studi di Napoli "Parthenope" (XXXVIII-XXXIX)
Università degli Studi di Pavia (XXXVIII-XXXIX)
Università degli Studi di Perugia (XXXVIII-XXXIX)
Università degli Studi di Trieste (XXXVIII-XXXIX)



picture updated to the XXXIX cycle (2023/26)

Benefits

- A meaningful job in a dynamic and ambitious Ph.D. program with the possibility to present your work at international conferences.
- Enrolment at one of the prestigious 29 universities and 1 research centre in Italy, with the possibility to spend several months at national industrial companies and/or international research centres or universities.
- Full-time employment for 3 years.
- A gross monthly salary and benefits (such as pension contributions, maternity leave, and unemployment benefits).



Scholarship amounts for 2024/27

Scholarships for the 2024/27 triennium are determined as follows:

- **Net scholarship for research periods in Italy**
about 1200 €/month
- **Net scholarship for research periods abroad**
about 1800 €/month
- **Research budget 20% (total in the 3 years)***
about 12000€
- **Almost tax-free****
120-160 €/year

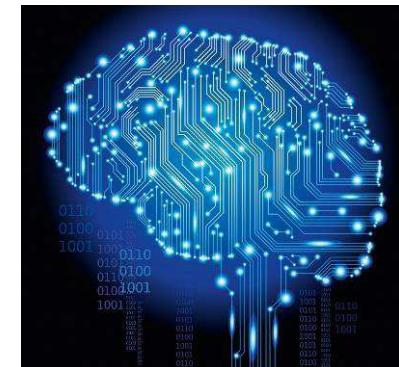
* The research budget can be used for registrations for on-site and online conferences; photocopies; posters; textbooks; computers and related equipment; expenses for publishing publications and language courses.

** Taxes are calculated based on the Italian ISEE (Equivalent Financial Situation Index).



Main research directions of DAUSY

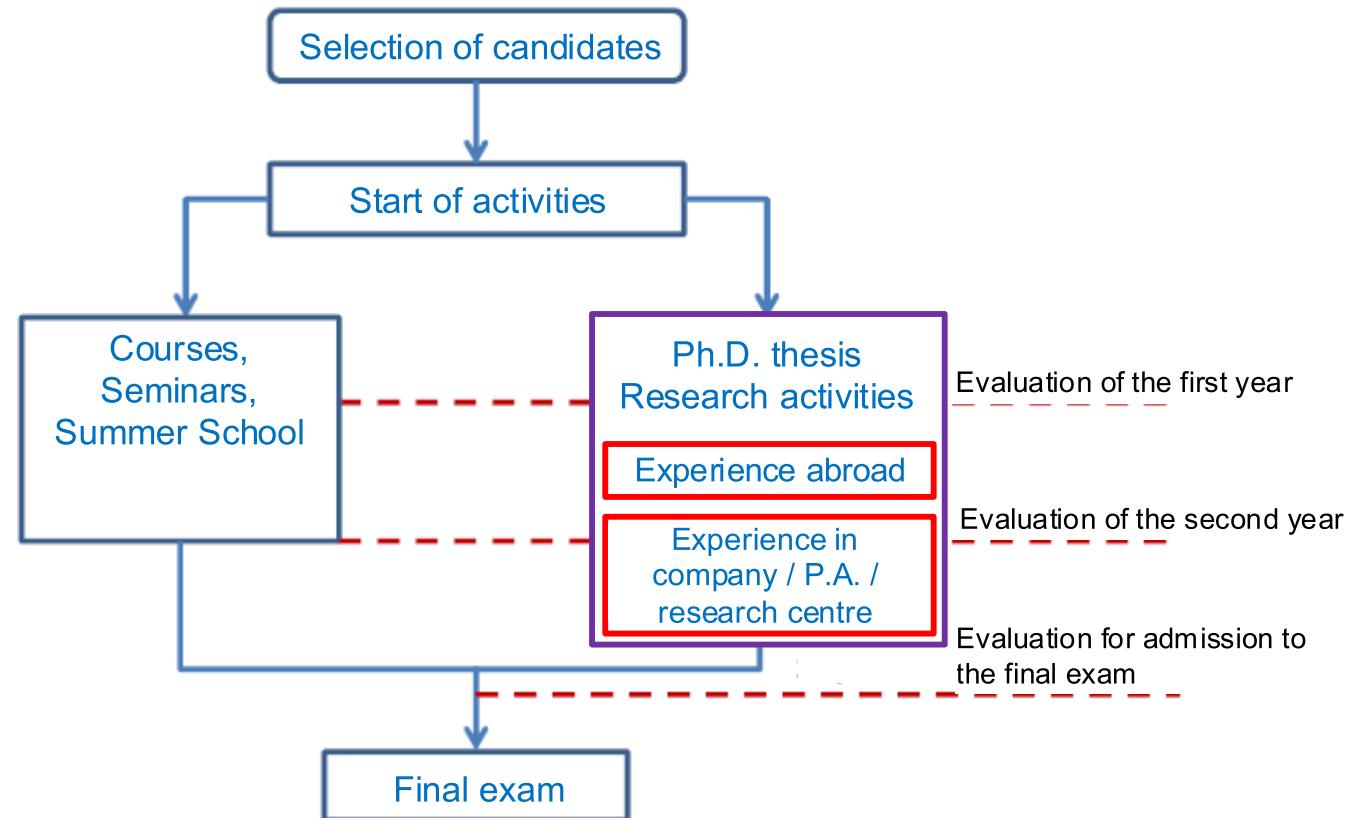
- **Design and develop AS**, with applications to smart manufacturing, autonomous vehicles, smart grids, robotics, and many more engineering fields.
- **Develop smart control algorithms** (e.g., AI-enabled control, data-driven control, vision-based control) for smart AS environments such as smart cities, autonomous vehicles and mobile robots, smart grids, sustainable mobility systems, smart buildings, and smart homes.
- **Develop testing platforms** for emerging techniques to advance engineering AS applications (e.g., cyber-physical systems, digital twin techniques).
- **Design automated and high-performance industrial systems**, studying issues related to distributed control and supervision for systems composed of networks of sensors, actuators, and collaborative robots.
- Design and operation of **AS to guarantee their reliability and security**, ensuring their proper functioning even under uncertainty (robustness), monitoring and predicting failures, ensuring that confidentiality and privacy requirements are not violated, countering both physical and cyberattacks, and designing secure processes in environments where automated and human systems interact.



Course schedule

The course lasts 3 years-180 ECTS, including any period of study and research abroad and internships in public/ private institutions

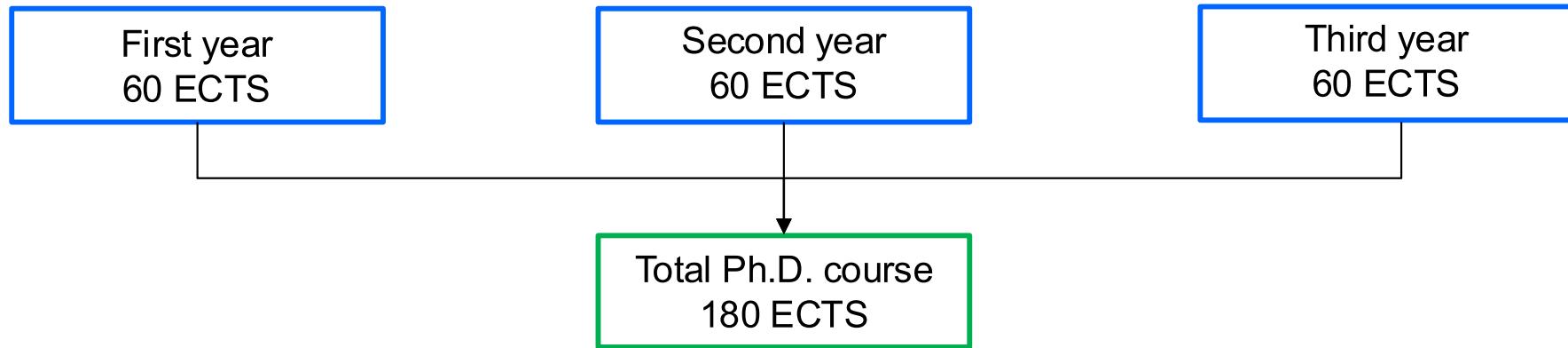
General planning of activities:



MINIMUM REQUIREMENT FOR ADMISSION TO FINAL EXAM:

The Ph.D. student is co-author of 1 (3) scientific articles in an international journal (in proceedings of international conferences) indexed in Scopus or ISI/Web of Science databases.

Activities carried out by the Ph.D. student



- The Ph.D. student is required to carry out activities for an amount of 60 ECTS per year, for a total of 180 ECTS throughout the academic course.
- The Ph.D. student and the tutor set the training activities and submit it to the prior approval of the Academic Board.
- At the beginning of the **first year**, the Academic Board requires a detailed plan of activities (**provisional plan**) that the Ph.D. student intends to carry out in the three years.

Activities carried out by the Ph.D. student

- Didactic activities: min 36 – max 60 ECTS (of the total 180 ECTS)
 - **Courses**
 - Attendance of institutional university courses in order to integrate basic knowledge;
 - Attendance of third level courses to acquire specific knowledge;
 - Ph.D. school courses;
 - Improvement of the knowledge of foreign languages;
 - Soft skills.
 - **Participation at conferences, seminars, etc.**
 - Participation at seminars, national and international conferences on topics of interest;
 - Contribution (poster, proceedings ...) to international congresses/workshops.
- Research activity: min 120 – max 144 ECTS (of the 180 total ECTS)
 - **Activities with the supervision of the tutor**
 - Training activities with the tutor.
 - **Laboratory activities**
 - Laboratory activities to acquire operative skills.
 - **Research and individual study activities**
 - Research and individual study activities on topics of interest.
 - **Research activities abroad**
 - Any possible internships abroad, as internships at companies, universities and institutions, to acquire specific technical skills.

➤ OUTCOME OF THE PHD PROGRAM

The Ph.D. student is expected, at the end of the triennium, to be a co-author of 1 (3) scientific articles in an international journal (in proceedings of international conferences) indexed in Scopus or ISI/Web of Science databases.

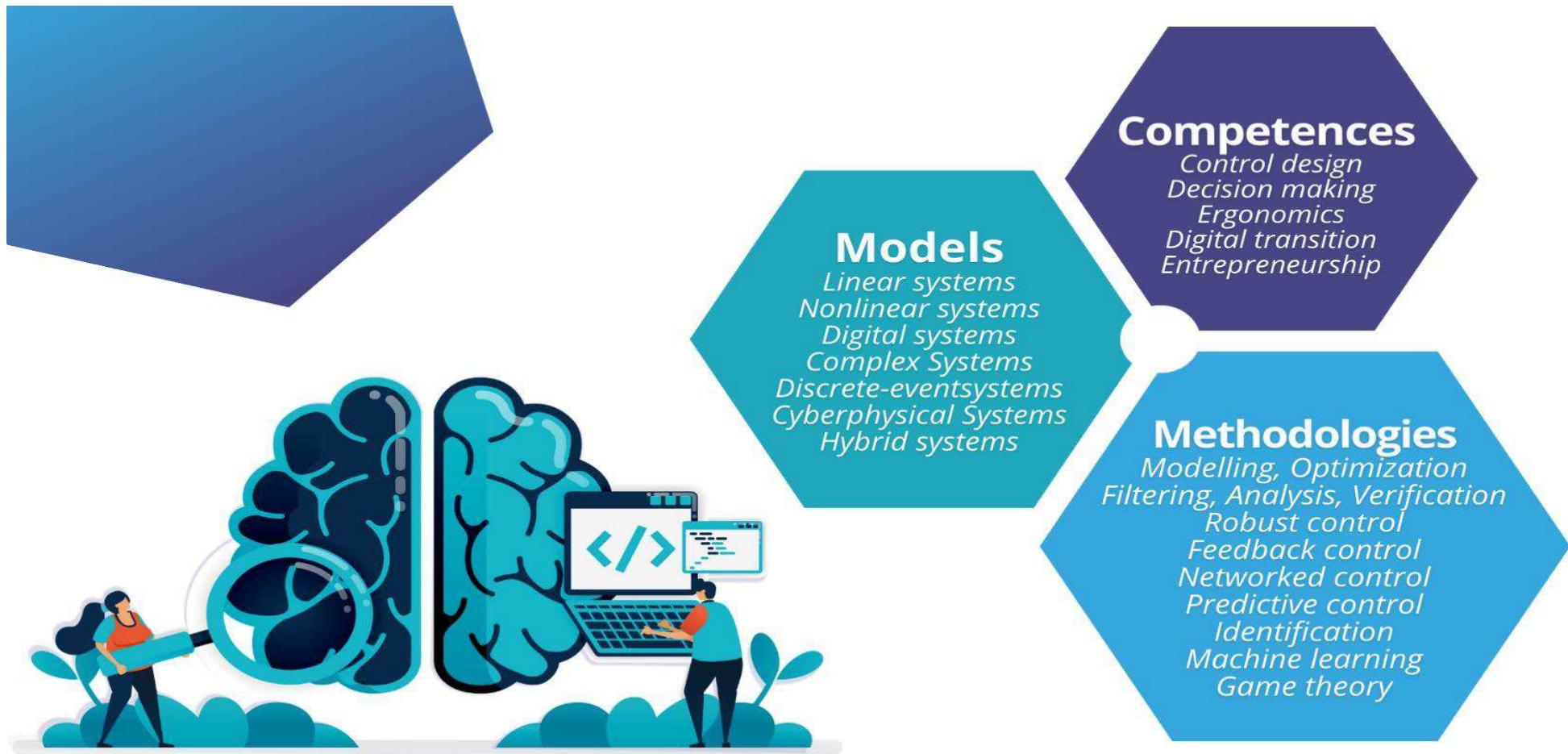


Curricula

The Ph.D. is structured in 3 curricula that specifically address different topics and application areas and differ and complement each other in technological and methodological terms.



The 3 curricula have as a common research base the cross-cutting methodologies and approaches that are foundational to systems engineering, such as modelling and control methodologies.



Coordinator

Prof. Mariagrazia Dotoli, Politecnico di Bari

mariagrazia.dotoli@poliba.it

- Full Professor in Automatic Control at Politecnico di Bari
- Senior Editor of the IEEE TRANS. ON AUTOMATION SCIENCE AND ENGINEERING
- IEEE Fellow, class of 2024
- Associate Editor of the IEEE TRANS. ON SYSTEMS, MAN, AND CYBERNETICS.
- General chair of the 2024 IEEE Conference on Automation Science and Engineering (CASE)
- General chair of 2021 29th Mediterranean Conference on Control and Automation
- Member of the International Program Committee of 80+ international conferences.
- Author of 270+ publications, h-index 40 in Scopus
- Expert evaluator of the European Commission since the 6th Framework Programme



C1 – AS for Automation

Curriculum Representative:

Prof. CAVALLO Alberto, Università degli Studi della Campania Luigi Vanvitelli
alberto.cavallo@unicampania.it



C1 - AS for Automation

*Industry 4.0
Collaborative robotics
Automation in manufacturing
Sensor-actuator networks
Simulation and optimization
Supervisory control
Sustainability and green automation*

Name	Affiliation
ABENI Luca	Scuola Superiore Sant'Anna
ARIOLA Marco	Università degli Studi di Napoli Parthenope
BASILE Francesco	Università degli Studi di Salerno
CARLI Raffaele	Politecnico di Bari
COLANERI Patrizio	Politecnico di Milano
CONSOLINI Luca	Università degli Studi di Parma
DABBENE Fabrizio	Consiglio Nazionale delle Ricerche
DELLI PRISCOLI Francesco	Università degli Studi di Roma "La Sapienza"
D'IPPOLITO Filippo	Università degli Studi di Palermo
GALEANI Sergio	Università degli Studi di Roma "Tor Vergata"
GIUA Alessandro	Università degli Studi di Cagliari
LONGHI Sauro	Università Politecnica delle Marche
MANCINI Adriano	Università Politecnica delle Marche
MASCOLO Saverio	Politecnico di Bari
MOCENNI Chiara	Università degli Studi di Siena
MURADORE Riccardo	Università degli Studi di Verona
NOTARSTEFANO Giuseppe	Alma Mater Studiorum - Università di Bologna
PINAMONTI Andrea	Università degli Studi di Trento
VISIOLI Antonio	Università degli Studi di Brescia
ZACCARIAN Luca	Università degli Studi di Trento

C2 – AS for Smart Environments

Curriculum Representative:

Prof. GIARRÈ Laura, Università di Modena e Reggio Emilia

laura.giarre@unimore.it



C2 - AS for Smart Environments

*Autonomous vehicles
Cyberphysical system
Consensus*

*Distributed optimization
Formation control
Mobile robotics
Networked control
Smart cities
Smart grids*

Name	Affiliation
AMIRANTE Riccardo	Politecnico di Bari
BEMPORAD Alberto	Scuola IMT Alti Studi Lucca
CACUCCIOLO Vito	Politecnico di Bari
CALAFIORE Giuseppe Carlo	Politecnico di Torino
CASAVOLA Alessandro	Università della Calabria
CORDESCHI Nicola	Politecnico di Bari
DE LELLIS Pietro	Università degli Studi di Napoli Federico II
DI GIORGIO Alessandro	Università degli Studi di Roma "La Sapienza"
DOTOLI Mariagrazia	Politecnico di Bari
FALCONE Paolo	Università di Modena e Reggio Emilia
FERRARA Antonella	Università degli Studi di Pavia
FRANCESCHELLI Mauro	Università degli Studi di Cagliari
FRASCA Mattia	Università degli Studi di Catania
PAPANGELO Antonio	Politecnico di Bari
PARLANGELI Gianfranco	Università del Salento
SACONE Simona	Università degli Studi di Genova
SAVAGLIO Claudio	Università della Calabria
SCHENATO Luca	Università degli Studi di Padova
VALIGI Paolo	Università degli Studi di Perugia
VASCA Francesco	Università degli Studi del Sannio

C3 – AS for Monitoring and Security

Curriculum Representative:

Prof. PASCUCCI Federica, Università degli Studi Roma Tre

federica.pascucci@uniroma3.it



C3 - AS for Monitoring and Security

*Cyberattacks
Fault diagnosis
Fault prognosis
Brain-computer interaction
Human-robot interaction
Safety of processes
Opacity*

Name	Affiliation
BEVILACQUA Vitoantonio	Politecnico di Bari
CHISCI Luigi	Università degli Studi di Firenze
DELL'OLIO Francesco	Politecnico di Bari
DE SANTIS Elena	Università degli Studi dell'Aquila
DI BENEDETTO Maria Domenica	Università degli Studi dell'Aquila
FIORINI Paolo	Università degli studi di Verona
FREDDI Alessandro	Università Politecnica delle Marche
PALUMBO Pasquale	Università degli Studi di Milano Bicocca
PARISINI Thomas	Università degli Studi di Trieste
PIRO Giuseppe	Politecnico di Bari
POLLINI Lorenzo	Università di Pisa
SACILE Roberto	Università degli Studi di Genova
SIMANI Silvio	Università Degli Studi Di Ferrara
USAI Elio	Università degli Studi di Cagliari
VON ELLENRIEDER Karl Dietrich	Libera Università di Bolzano

The Ph.D. has an international scope, cooperating with numerous European and non-European universities - Foreign members of the board:

Name	Affiliation	Curricula
ASTOLFI Daniele	UNIVERSITÉ CLAUDE BERNARD LYON 1	C3. AS FOR MONITORING AND SECURITY
BAMIEH Bassam	UNIVERSITY OF CALIFORNIA SANTA BARBARA	C2. AS FOR SMART ENVIRONMENTS
BAUSO Dario	UNIVERSITY OF GRONINGEN	C1. AS FOR AUTOMATION
BULLO Francesco	UNIVERSITY OF CALIFORNIA SANTA BARBARA	C2. AS FOR SMART ENVIRONMENTS
DAHLEH Munther	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	C1. AS FOR AUTOMATION
DALL'ANESE Emiliano	UNIVERSITY OF COLORADO BOULDER	C2. AS FOR SMART ENVIRONMENTS
DESCUTTER Bart	DELFT UNIVERSITY OF TECHNOLOGY	C2. AS FOR SMART ENVIRONMENTS
DELLE MONACHE Maria Laura	UNIVERSITY OF CALIFORNIA BERKELEY	C2. AS FOR SMART ENVIRONMENTS
DEY Subhrakanti	UPPSALA UNIVERSITY	C2. AS FOR SMART ENVIRONMENTS
FRANCHI Antonio	UNIVERSITY OF TWENTE	C2. AS FOR SMART ENVIRONMENTS
GRAMMATICO Sergio	DELFT UNIVERSITY OF TECHNOLOGY	C2. AS FOR SMART ENVIRONMENTS
JOHANSSON Karl H.	ROYAL INSTITUTE OF TECHNOLOGY	C2. AS FOR SMART ENVIRONMENTS
LOIANNO Giuseppe	NYU TANDON SCHOOL OF ENGINEERING	C2. AS FOR SMART ENVIRONMENTS
MCLOONE Sean	QUEEN'S UNIVERSITY BELFAST	C1. AS FOR AUTOMATION
MORBIDI Fabio	UNIVERSITY OF PICARDIE JULES VERNE	C2. AS FOR SMART ENVIRONMENTS
PAPPAS George J.	UNIVERSITY OF PENNSYLVANIA	C2. AS FOR SMART ENVIRONMENTS
PORFIRI Maurizio	NYU TANDON SCHOOL OF ENGINEERING	C2. AS FOR SMART ENVIRONMENTS
QUEINNEC Isabelle	UNIVERSITÉ FÉDÉRALE TOULOUSE MIDI-PYRÉNÉES,	C1. AS FOR AUTOMATION
SASTRY Shankar	UNIVERSITY OF CALIFORNIA BERKELEY	C3. AS FOR MONITORING AND SECURITY
SERRANI Andrea	OHIO STATE UNIVERSITY	C3. AS FOR MONITORING AND SECURITY
SHORTEN Robert N.	IMPERIAL COLLEGE LONDON	C2. AS FOR SMART ENVIRONMENTS
STEFANOPOULOU Anna G.	UNIVERSITY OF MICHIGAN, ANN ARBOR	C1. AS FOR AUTOMATION
TARBOURIECH Sophie	UNIVERSITÉ FÉDÉRALE TOULOUSE MIDI-PYRÉNÉES	C1. AS FOR AUTOMATION
VALAVANIS Kimon P.	UNIVERSITY OF DENVER	C1. AS FOR AUTOMATION

Network of collaborations

XXXVIII cycle

XXXIX cycle

XL cycle

Public administrations

- ARST - Trasporti Regionali della Sardegna S.p.A.
- Consiglio Nazionale delle Ricerche (Istituto di Ingegneria del Mare)
- INFN (Istituto Nazionale Fisica Nucleare)



Consiglio Nazionale
delle Ricerche

Companies

- GlaxoSmithKline SpA
- Blu Hub s.r.l.
- Thales Alenia Space Italia s.p.a.
- COMAU SPA
- RE:LAB S.r.l.
- Polytec Intralogistic s.r.l.
- Telespazio S.p.A.
- Northrop Grumman Italia S.p.A.
- E80 Group SpA
- STAM
- Nextome
- ITEM OXYGEN S.r.l.
- Masmec S.p.A.
- COMAU SPA
- E80 Group SpA
- G-nous Tech S.r.l.
- SCHNELL S.p.A.
- Inxpect
- TESMEC Rail S.r.l.
- Telespazio S.p.A.
- BLM S.p.A.
- DEDEM S.p.A.
- Prometeo S.r.l.
- Kineton S.r.l.
- No self S.r.l.
- ABB AB, Corporate Research



Teaching course Catalogue

The course catalogue of the DAUSY Ph.D. program includes courses offered in international, national, and local doctoral schools, offering a unique educational network.
<http://dausy.poliba.it/phd/teaching-course-catalogue/>

Ph.D. students must carry out didact activities of 36-60 ECTS credit points (out of the total 180 ECTS necessary to complete the PhD) among:

- International Graduate School in Control
- SIDRA Doctoral School
- Local Courses
- Seminars
- Workshops
- Ph.D. Research Seminars

Courses will be organized centrally and in presence (International Graduate School in Control, SIDRA Doctoral School, local courses) or in a hybrid mode (Seminars Workshops, Research Seminars) in order to

- allow students to choose freely the best learning mode
- let students to belong to a nation-wide and international network of contacts in AS



Available scholarships

More information: <http://dausy.poliba.it/phd/application/>

Scholarships with activities at Universities

Funding from Italian University and Research Minister

ID	Research theme (EN)	Hosting institution	Contact Professors	Contact email	Curriculum
A01_PNRR629_PT	Optimal design and operation of robotized and automated warehouses.	Politecnico di Bari	Dotoli / Carli	mariagrazia.dotoli@poliba.it ; raffaele.carli@poliba.it	C1
A02_PNRR629_PT	Interconnected Digital Twins.	Politecnico di Bari	Piro	giuseppe.piro@poliba.it	C3
A03_PNRR629_PT	Intelligent autonomous systems for real-time guidance and support to robotic surgeons.	Politecnico di Bari	Bevilacqua	vitoantonio.bevilacqua@poliba.it	C3
A04_PNRR629_PT	Autonomous systems for real-time monitoring of fragile subjects.	Politecnico di Bari	Dell'Olio	francesco.dellolio@poliba.it	C3
A05_PNRR629_PT	Optimization of networked smart energy systems.	Politecnico di Bari	Amirante / Dotoli	riccardo.amirante@poliba.it ; mariagrazia.dotoli@poliba.it	C2
A06_PNRR629_PT	Robots-as-a-service in the digital industry.	Politecnico di Bari	Cacucciolo / Dotoli	vito.cacucciolo@poliba.it ; mariagrazia.dotoli@poliba.it	C2
A07_PNRR629_PT	Safe and Ergonomic Human-Drone Interaction in Logistics.	Politecnico di Bari	De Cicco / Carli	luca.decicco@poliba.it ; raffaele.carli@poliba.it	C1
A08_PNRR629_PT	Intelligent and Efficient Human-Robot Collaboration.	Politecnico di Bari	Papangelo / Dotoli	antonio.papangelo@poliba.it ; mariagrazia.dotoli@poliba.it	C2
A09_PNRR629_PT	Robust robotic manipulation and planning under uncertainties	Università degli Studi di Trento	Iacca / Roveri / Zaccarian	giovanni.iacca@unitn.it ; marco.roveri@unitn.it	C1

Prospective candidates please contact the referent Professors at the above email for any clarification about the scholarship or suggestions about the application



Scholarships with activities at Universities&Company 1/3

Funding from Italian University and Research Minister and Private companies

ID	Research theme (EN)	Hosting institution	Contact Professors	Contact email	Curriculum	Company
B01_PNRR630	Methodologies and protocols for innovation and interoperability between Internet of Things standards in home automation. COMPANY: Nextome	Politecnico di Bari	Cordeschi	nicola.cordeschi@poliba.it	C2	Nextome
B02_PNRR630	Intelligent image processing and decision support systems for skin lesion management in proximity healthcare. COMPANY: ITEM OXYGEN S.R.L.	Politecnico di Bari	Bevilacqua	vitoantonio.bevilacqua@poliba.it	C3	ITEM OXYGEN
B03_PNRR630	Vision guided robotic assembly for automotive components in manufacturing and remanufacturing industry. COMPANY: Masmec	Politecnico di Bari	Bevilacqua / Dotoli	vitoantonio.bevilacqua@poliba.it ; mariagrazia.dotoli@poliba.it	C3	Masmec
B04_PNRR630	Human Interaction with Digital Twins of Intelligent Industrial Systems. COMPANY: Masmec	Politecnico di Bari	Dotoli / Carli	mariagrazia.dotoli@poliba.it ; raffaele.carli@poliba.it	C1	Masmec
B05_PNRR630	Intelligent systems for industrial robotics. COMPANY: Comau	Politecnico di Bari	Dotoli / Carli	mariagrazia.dotoli@poliba.it ; raffaele.carli@poliba.it	C1	Comau
B06_PNRR630	Algorithms for management and control of mobile agent fleets. COMPANY: E80Group	Politecnico di Bari	Dotoli / Carli	mariagrazia.dotoli@poliba.it ; raffaele.carli@poliba.it	C1	E80Group
B07_PNRR630	Decision and control techniques for autonomous mobile robots in unstructured environments. COMPANY: G-nousTech	Politecnico di Bari	Dotoli / Cacucciolo	mariagrazia.dotoli@poliba.it ; vito.cacucciolo@poliba.it	C1	G-nousTech

Prospective candidates please contact the referent Professors at the above email for any clarification about the scholarship or suggestions about the application



Scholarships with activities at Universities&Company 2/3

Funding from Italian University and Research Minister and Private companies

ID	Research theme (EN)	Hosting institution	Contact Professors	Contact email	Curriculum	Company
B08_PNRR630	Optimization and control strategies for power management of hybrid propulsion systems. COMPANY: ISOTTA FRASCHINI MOTORI	Politecnico di Bari	Dotoli / Amirante	mariagrazia.dotoli@poliba.it; riccardo.amirante@poliba.it	C2	ISOTTA FRASCHINI MOTORI
B09_PNRR630	Photonic inertial sensors for next-generation autonomous systems. COMPANY: Northrop Grumman Italia S.p.A.	Politecnico di Bari Dell'Olio		francesco.dellolio@poliba.it	C3	Northrop Grumman Italia
B10_PNRR630	Robotics, AI and predictive diagnostics solutions in rebar processing plants to increase the autonomy of processing machinery	Università Politecnica delle Marche	Longhi	s.longhi@staff.univpm.it; a.freddi@staff.univpm.it; a.monteriu@staff.univpm.it; a.bonci@staff.univpm.it	C1	Schnell SpA
B11_PNRR630	Embedding proactive safety in perception and control algorithms for collaborative automation	Università degli Studi di Brescia	Visioli / Beschi	antonio.visioli@unibs.it; manuel.beschi@unibs.it	C1	Inxpect
B12_PNRR630	Learning and Multi-agent planning, scheduling and vehicle routing for workforce management	Università degli Studi di Cagliari	Franceschelli	mauro.franceschelli@unica.it	C2	DEDEM
B13_PNRR630	Intelligent Control Techniques for Rail Construction and Maintenance Vehicle	Università degli Studi dell'Aquila	De Santis	elena.desantis@univaq.it	C3	TESMEC Rail Srl
B14_PNRR630	Development of seamless and safe transition algorithms from high automation level ADAS to driver and viceversa	Università di Modena e Reggio Emilia	Giarrè / Falcone	laura.giarre@unimore.it; paolo.falcone@unimore.it	C2	Kineton srl

Prospective candidates please contact the referent Professors at the above email for any clarification about the scholarship or suggestions about the application

Scholarships with activities at Universities&Company 3/3

Funding from Italian University and Research Minister and Private companies

ID	Research theme (EN)	Hosting institution	Contact Professors	Contact email	Curriculum	Company
B15_PNRR630	Production of microorganisms in bioreactors: from modelling to control systems	Università degli Studi di Napoli Federico II	De Lellis	pietro.delellis@unina.it	C2	No self srl
B16_PNRR630	Supervised autonomy: learning effectively and safely from human	Università degli Studi di Padova	Falco / Schenato	pietro.falco@unipd.it;	C2	ABB
B17_PNRR630	AI-based VSLAM and tracking control for agricultural robots	Università degli Studi di Roma "Tor Vergata"	Carnevale / Galeani	daniele.carnevale@uniroma2.it; sergio.galeani@uniroma2.it	C1	Consiglio per la Ricerca in agricoltura e l'analisi dell'Economia Agraria (CREA)
B18_PNRR630	AI/Machine Learning techniques for satellite/space applications	Università degli Studi di Roma "La Sapienza"	Delli Priscoli / Di Giorgio / Pietrabissa	dellipriscoli@diag.uniroma1.it; digiorgio@diag.uniroma1.it; pietrabissa@diag.uniroma1.it	C1	Telespazio
B19_PNRR630	Mathematical models, machine learning, and agent-based models of individual and collective human systems that exhibit nonlinear and complex dynamics	Università degli Studi di Siena	Mocenni	chiara.mocenni@unisi.it	C1	Prometeo Srl
B20_PNRR630	Advanced guidance, navigation, and control algorithms for space vehicles during atmospheric entry, descent, and landing maneuvers	Politecnico di Torino	Calafiore	giuseppe.calafiore@polito.it	C2	Thales Alenia Space S.p.A.
B21_PNRR630	Planning of trajectories in a robotic cell with multiple manipulators	Università degli studi di Verona	Muradore	riccardo.muradore@univr.it	C1	BLM SpA

Prospective candidates please contact the referent Professors at the above email for any clarification about the scholarship or suggestions about the application



Scholarships – University Projects

Funding from Italian Universities

ID	Research theme (EN)	Hosting institution	Contact Professors	Contact email	Curriculum
C01_ACONV	Model-based techniques for increasing reliability and safety of autonomous systems	Università Politecnica delle Marche	Longhi	s.longhi@staff.univpm.it ; a.freddi@staff.univpm.it ; a.monteriu@staff.univpm.it ; a.bonci@staff.univpm.it	C1
C02_ACONV	Control and trajectory planning for firefighting drones	Libera Università di Bolzano	von Ellenrieder	kvonellenrieder@unibz.it	C3
C03_ACONV	Smart control and optimisation of electrical smart grids	Università degli Studi della Campania Vanvitelli	Cavallo	alberto.cavallo@unicampania.it	C1
C04_ACONV	Optimization and control of multiscale processes	Università degli Studi di Genova	Sacone	simona.sacone@unige.it	C2
C05_ACONV	Optimization and control techniques for energy management systems	Università degli Studi di Palermo	D'Ippolito	filippo.dippolito@unipa.it	C1
C06_ACONV	Human centered control for Cyber-Physical-Human Systems	Università degli Studi Roma Tre	Panzieri / Pascucci	stefano.panzieri@uniroma3.it ; federica.pascucci@uniroma3.it	C3

Prospective candidates please contact the referent Professors at the above email for any clarification about the scholarship or suggestions about the application



Scholarships – ERC Projects

Funding from European Community

ID	Research theme (EN)	Hosting institution	Contact Professors	Contact email	Curriculum
D01_ERC	Soft and Wearable robotics powered by electro-active fluids. ERC – Robofluid (V. Cacucciolo)	Politecnico di Bari	Cacucciolo	vito.cacucciolo@poliba.it	C2
D02_ERC	Soft and Wearable robotics powered by electro-active fluids. ERC – Robofluid (V. Cacucciolo)	Politecnico di Bari	Cacucciolo	vito.cacucciolo@poliba.it	C2
D03_ERC	Mechanical design of dynamically-excited soft interfaces for smart tuning of contact forces SURFACE, ERC-2021-STG (A. Papangelo)	Politecnico di Bari	Papangelo	antonio.papangelo@poliba.it	C2

Prospective candidates please contact the referent Professors at the above email for any clarification about the scholarship or suggestions about the application



Admission procedure and requirements

More information: <http://dausy.poliba.it/phd/application/>

Requirements

- **Language requirements**

- If English is not your native language, you need to demonstrate a degree of proficiency corresponding, at least, to the B2 level of the Common European Framework of Reference for Languages (CEFR).
- Knowledge of Italian is preferred but not required.

- **Specific requirements**

- Candidates must hold an M.Sc. Degree (degree completed before October 31st), preferably in Systems and Control, Electrical Engineering, Artificial intelligence (AI), Mechanical Engineering, or related subjects. **Moreover, candidates should fit the following profile:**
- Being a talented and enthusiastic young researcher;
- **Strong background in control and automation;**
- Strong academic background and rich experience in engineering systems, embedded systems, and system design;
- Good programming skills in MATLAB/Simulink and/or Python;
- Being a team player with excellent communication and cooperation skills, in a dynamic and multi-disciplinary project-driven environment;
- Creativity and ambition, hard-working and persistent mindset;
- Ability to independently organize your work;
- Good scientific writing skills.



Application procedure

All the information regarding the application are available at:

<http://dausy.poliba.it/phd/application>

Application opened on June 12nd, 2024

Application will be closed on
July 17th, 2024, 12PM (noon) CEST

Evaluation of qualifications held and research
proposal

Interviews will be between in late July 2024
(presumably July 23–25)

Official Ph.D. program start: November 1st,
2024

The English version of the call is available here:

https://www.poliba.it/sites/default/files/40_phd_call_rif_rd_697.pdf

Application procedure 1/5

The application has to be sent exclusively through the PICa platform

- visit the webpage <https://pica.cineca.it/poliba/dottorato40/>
- User guide at [https://pica.cineca.it/file/LineeGuidaCompilazioneDomandaPICA.pdf/](https://pica.cineca.it/file/LineeGuidaCompilazioneDomandaPICA.pdf)

The screenshot shows the PICa platform homepage for the Politecnico di Bari. At the top, there is a blue header bar with the Politecnico di Bari logo and a 'Login' button. Below the header, the Politecnico di Bari logo and name are displayed. A navigation bar includes a 'Home' link. The main content area features a banner for the 'BANDO DI CONCORSO PER L'AMMISSIONE AI CORSI DI DOTTORATO DI RICERCA DEL XL CICLO DEL POLITECNICO DI BARI' (AVVISO DI SELEZIONE AD EVIDENZA PUBBLICA / PUBLIC SELECTION ANNOUNCEMENT). Below the banner, a box contains the code 'dottorato40', the title of the band, a link to the bando and modulistica (<https://www.poliba.it/it/dottorato-di-ricerca-pagina/bando-dottorati-di-ricerca-xl-ciclo-aa-20242025>), and the application deadlines '12-06-2024 12:00' and '17-07-2024 12:00'. A 'GESTISCI LE DOMANDE / MANAGE YOUR APPLICATIONS' button is also present. At the bottom of the page, there is a footer with links for technical support ('supporto'), privacy policy, and cookie information.

Application procedure 2/5

Steps of the application procedure

1. visit the webpage <https://pica.cineca.it/poliba/dottorato40/>;
2. Register (or Login with SPID for Italians only);
3. Choose the Institution (Politecnico di Bari);
4. Follow the procedure and insert all the required personal data;
5. Verify the accuracy of your information and then click on **Save and Proceed** at the end of each page;
6. At the end of the procedure click on **Save and back to dashboard**;
7. attach all documents and self-certification using the official model;
8. pay an administration fee of € 30 (deadline July 17th 12:00 PM - noon), using only the PagoPA method
9. user guide <https://pica.cineca.it/file/LineeGuidaDomandaPagoPA.pdf/>
10. Your application is in the ***draft state***; click on **Sign and Submit** and then on **Sign** (manual or digital);
11. Download PDF of your application and then click on **Send the application**;
12. No changes are available, it is exclusively possible withdraw the application.

Application procedure 3/5

Required attachments to application (1/2):

- A detailed **curriculum vitae** including research experience, project experiences, and/or any previous publications;
- A valid **identification document**;
- **Degree qualification certification for first second** (Bachelor) degrees and (specialization/Master's) degrees;
- An **abstract of the thesis of the specialist/Master's degree** (or five-year Single Cycle degree);
- The **candidate's Master's degree thesis** (or five-year Single Cycle degree);

only OFFICIAL templates MUST be used

BANDO DOTTORATI DI RICERCA - XL CICLO (A.A. 2024/2025)

Finanziato dall'Unione europea NextGenerationEU MUR Italidomani Politecnico di Bari

BANDO DOTTORATI DI RICERCA - XL CICLO (A.A. 2024/2025)
Ph.D. PROGRAMMES - XL CYCLE (A.Y. 2024/2025)
Sede amministrativa (Administrative Centre): Politecnico di Bari

CONCORSO AMMISSIONE AI DOTTORATI DI RICERCA - XL CICLO (Ph.D. CALL - XL CYCLE):
D.R. 697/2024 - Bando di Concorso - *PhD Call (English)*
D.R. 718/2024 - Integrazione bando - *Integration of PhD Call (English)*

Download Allegati - format (Attachments download - formats):

- Curriculum Vitae et Studiorum - *(English version - CV format)*
- Titoli di Laurea con voti ed esami - *(English version - Degrees qualifications)*
- Allegato_Format (generico) - *(English version - Allegato_Format generico)*
- Allegato_Format_DAUSY (*CORSO di Dottorato di interesse nazionale in Autonomous Systems*)
- Dichiarazione altri titoli - *(English version - Other degrees declarations)*
- Declaration of failed administration fee payment

<https://www.poliba.it/it/dottorato-di-ricerca-pagina/bando-dottorati-di-ricerca-xl-ciclo-aa-20242025>

Application procedure 4/5

Required attachments to application (2/2):

- A Ph.D. research proposal according to one of the available scholarships

 Bando di concorso per l'ammissione ai corsi di dottorato del XL ciclo del Politecnico di Bari	
DOTTORATO DI RICERCA DI INTERESSE NAZIONALE IN AUTONOMOUS SYSTEMS	
[Please write in English OR Italian language only. The complete document, including pictures, if any, must be contained in a single pdf file].	
Candidate Family Name	[Insert family name here]
Candidate Name	[Insert name here]
Preferred Research Themes [The candidate HAS to indicate 5 preferred themes from the list available in the call, in order of importance from most to least preferred]	
Preferred Theme 1	[Insert complete title here as appearing in the call]
Preferred Theme 2	[Insert complete title here as appearing in the call]
Preferred Theme 3	[Insert complete title here as appearing in the call]
Preferred Theme 4	[Insert complete title here as appearing in the call]
Preferred Theme 5	[Insert complete title here as appearing in the call]
RESEARCH PROJECT DESCRIPTION [The candidate has to illustrate the development of ONE possible PhD research project and his/her motivation to pursue the PhD. Please note that the research project described here will be used by the Examination Board to assess the candidate's attitude and ability to approach scientific research in the field of autonomous systems and is not necessarily the project that will be carried out during the PhD program. If the candidate is admitted, the actual research project that will be carried out will be subsequently defined and approved by the PhD Faculty Board after the start of the PhD program.]	
Project title	[Insert project title here]
Project summary (maximum 500 characters)	[Insert a brief summary of the research project here, highlighting problem statement, expected results, and innovation]
Project description (minimum 4.000, maximum 8.000 characters)	[Insert a detailed description of the research project here, emphasizing the innovative aspects and scientific relevance with respect to the state of the art]
Project reference list	[Insert the list of bibliographic references to the project here]
Motivation (maximum 500 characters)	[Insert here the key reasons why you wish to enroll in the PhD program and why you are an excellent PhD candidate]

only OFFICIAL templates MUST be used



Application procedure 5/5

Optional application attachments (Note that only the official templates for the required attachments must be used):

- A **self-certification for any other qualification** deemed suitable for evaluation (official template: Dichiarazione altri titoli);
- Two **letters of presentation** from professors or researchers in Italy or abroad;
- **Language certification;**
- **Any publications.**

Italian candidates may be required to provide additional self-declarations. Please refer to the official call for application for additional details.

Testimonials of the National Ph.D. program in Autonomous System

More information: <http://dausy.poliba.it/phd/ph-d-candidates/>

2024 DAUSY OPEN DAY TESTIMONIALS



I. Pierluigi Francesco De Paola (*XXXVIII cycle*),
Consiglio Nazionale delle Ricerche



II. Elisa Gaetan (*XXXVIII cycle*),
Università di Modena e Reggio Emilia



III. Paul Christian Tesso Woafo (*XXXVIII cycle*),
Università della Calabria



IV. Amarnath Venkatachalam (*XXXIX cycle*),
Università degli Studi di Catania



National Ph.D. Program in Autonomous Systems

<http://dausy.poliba.it>

Prof. Engr. Mariagrazia DOTOLI (mariagrazia.dotoli@poliba.it)

Full Professor in Automation

Department of Electrical and Information Engineering – Politecnico di Bari

Coordinator of the National Ph.D. Program in Autonomous Systems