Project	Supervisor/s	Required competences/Software to use
Development of Sensors by rapid prototyping techniques	B. Andò	MATLAB
Development of Smart-Sensing solutions for Assistive Technology	B. Andò	MATLAB, basics on micro-controllers programming
Control techniques for a system of micro robots Elisa-3	L.V.Gambuzza/Guastella	MATLAB, C language (basics)
Using higher-order interactions for controlling complex systems	M. Frasca/L.V. Gambuzza	MATLAB
Analysis and control of systems modeling pest populations	M. Frasca/L.V. Gambuzza	MATLAB
Spice simulations of complex systems with higher-order interactions	M. Frasca/L.V. Gambuzza	MATLAB/Spice
Development of a digital twin for the Chua's circuit	M. Frasca/A. Buscarino	MATLAB/Microcontrollers
Power Converters and Electronic WBG Devices	G. Scarcella	MATLAB/Simulink
Energy conversion for management of Renewable Sources	G. Scarcella	MATLAB/Simulink
Automotive and Traction Applications	G. Scarcella	MATLAB/Simulink
Electrical Machines and Drives Applications	G. Scarcella	MATLAB/Simulink
Micro-particles control in a micro-device based on advanced Image and Signals Methodologies	M. Bucolo	Software: Matlab, AutoCAD, Ray-Tracing, COMSOL. Technology: 3D-Printing, Soft-Lithography
Design and Realization of micro-Opto-fluidic Systems	M. Bucolo	Software: Matlab, AutoCAD, Ray-Tracing, COMSOL. Technology: 3D-Printing, Soft-Lithography
Surrogate AI-based models for multibody system dynamics	P. Maddio/R. Sinatra/A. Cammarata/A. Costa	MATLAB/Simulink

Development of a dynamic model and control algorithm for a mobile robot with obstacle avoidance based on trajectory planning	P. Maddio/R. Sinatra/A. Cammarata	MATLAB/Simulink
AI-based robot navigation	G. Muscato/D. Guastella/G. Sutera	Python, Linux, ROS
Development of assistive robotic walkers	G. Muscato/D. Guastella/G. Sutera	Python, Linux, ROS, Rapid Prototyping, CAD
Modellistica di dispositivi in fibra ottica per il monitoraggio e il controllo	A. Buscarino	Matlab
Reti neurali quaternioniche per il controllo di dispositivi vibranti	A. Buscarino	Matlab
Image processing in sistemi per la fusione nucleare	A. Buscarino	Matlab
Modellistica e controllo della posizione del plasma in dispositivi per la fusione nuclare	A. Buscarino	Matlab
Modellistica e controllo non lineare di un pendolo semplice non-ideale	A. Buscarino/L. V. Gambuzza	Matlab
Controllo adattativo in reti di neuroni analogici/digitali	A. Buscarino	Matlab
Large Language Models for Synthetic Biology Applications	G. Nicosia	Python, MatLab
Foundation Models and Circuit Design for Mammalian Cells	G. Nicosia	Python, MatLab
Large Language Models for Biomedical Applications	G. Nicosia	Python, MatLab
Bioplastic production in engineered Saccharomyces cerevisiae using automated design framework	G. Nicosia	Python, MatLab
Biofuel production in engineered E. coli using nonlinear optimization and complex network theory	G. Nicosia	Python, MatLab
Studying Deep Neural Networks via Complex Networks and Pareto Optimality	G. Nicosia	Python, MatLab
Optimization of the Genetic Code as a Programmable System: Automation-Based Methods for Codon Redundancy Reduction	Research Institute (EBRI) Rome/Scuola Normale	Python, MatLab

Mixture of Experts for BioMedicine Applications" in collaboration with .	G. Nicosia/Almawave Rome and University of Cambridge	Python, MatLab
Agentic AI for Biotecnology Applications	G. Nicosia/MIT	Python, MatLab
Adaptive Locomotion Systems for Quadruped Robots Assisting Visually Impaired Individuals	P. Arena/A Li Noce	object oriented programming /dynamic simulators
Insect-inspired Spiking Neural Networks for visual navigation	P. Arena/A Li Noce	object oriented programming /dynamic simulators
Dynamic Vision Sensor for obstacle avoidance	P. Arena/E Cannizzo	Python
Spiking Neural Networks for 3D body size in quadruped robot	P. Arena/A Li Noce	object oriented programming /dynamic simulators