Annex 2 - Scholarships fact sheets

BIOMEDICAL AREA

SCIENTIFIC AREA

SOCIAL SCIENCES AREA

TECHNOLOGICAL AREA

HUMANITIES AREA

DRUG RESEARCH AND INNOVATIVE TREATMENTS

Director prof. Lorenzo Di Cesare Mannelli

CUP	M.D. 630/2024	B12B24000350007

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**DEVELOPMENT OF NEW MELANOGENESIS MODULATING PEPTIDES FOR DERMOCOSMETIC APPLICATIONS**
PRINCIPAL INVESTIGATOR	Paolo ROVERO
RESEARCH TOPIC	Regulation of the process of melanogenesis is a key objective in cosmetology and dermatology, aiming both at the aesthetic harmony of skin tone and the therapeutic treatment of various alterations of skin pigmentation. Since numerous amino acids and peptides participate directly and indirectly in the process of melanin biosynthesis, it has been demonstrated that structurally related compounds can influence this process. Despite existing treatments for hypopigmentation, efficacy and safety remain inadequate, necessitating the development of new agents. This project is aimed at the development, synthesis and biological evaluation of new bioactive peptides capable of modulating melanogenesis, responding to the urgent need for innovative solutions in this field
COMPANY	Istituto Ganassini S.p.A. di Ricerche Biochimiche
MANDATORY EXPERIENCES	**INTERVIEW**

COMPANY (months)	ABROAD (months)	LANGUAGE	DATE	TIME	MODE	PLACE
6	6	Italian/English	July 25th 2024	10:00 a.m.	In-person*	Sezione Scienze Farmaceutiche Dipartimento NeuroFarBa Via Ugo Schiff, 6 50019 Sesto Fiorentino (FI)

* In the application form candidates may ask to conduct the interview remotely

TUSCAN PH.D IN NEUROSCIENCES

Director prof. Maria Pia Amato

CUP	M.D. 629/2024	B12B24000560007
	M.D. 630/2024	B12B24000370007

M.D. 629/2024	Digital and green transitions
TITLE OF THE SCHOLARSHIP	**INTEGRATION OF ARTIFICIAL INTELLIGENCE IN THE CLINICAL MANAGEMENT OF PATIENTS SUFFERING FROM RETINAL DISEASES**
PRINCIPAL INVESTIGATOR	Fabrizio GIANSANTI - Gianni VIRGILI - Daniela BACHERINI
RESEARCH TOPIC	The project aims to promote the management of patients suffering from retinal pathologies through Artificial Intelligence (AI) platforms that allow a systematic analysis of large volumes of clinical data (visual acuity, qualitative and quantitative data obtained through non-invasive retinal imaging techniques) in order to systematize the interpretation of clinical results and optimize the choice of treatment, identifying potential biomarkers of prognosis, disease progression and response to treatments. The fundamental aim is to promote the digital transition through reliable and repeatable analyzes of large quantities of clinical and instrumental data in order to systematise and optimize the diagnostic and therapeutic path through the digital transformation of the treatment paths of patients suffering from retinal pathologies responsible for high volumes healthcare, creating highly qualified figures in the systematic management of clinical data. The integration of AI will allow us to increase productivity and facilitate patient follow-up. The project aims to promote interdisciplinarity and international networks through collaboration with research centers abroad, where the PhD student will carry out a training period. The valorisation of the research results will be based on the publication of scientific articles and clinical implementation of the developed software, promoting digital innovation.
MANDATORY EXPERIENCES	**INTERVIEW**

COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian	July 25th 2024	10:00 a..m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies				
TITLE OF THE SCHOLARSHIP	**DEVELOPMENT OF DNA/RNA-BASED VIRAL VECTORS FOR TARGETED TREATMENT OF INFLAMMATORY AND NEUROPATHIC PAIN**				
PRINCIPAL INVESTIGATOR	Francesco DE LOGU				
RESEARCH TOPIC	The project aims to study DNA/RNA-based viral vectors designed to express/silence therapeutic targets in the central and peripheral nervous systems for treating inflammatory and/or neuropathic pain conditions. The use of viral vectors, due to their precision and specificity, modulates the expression and function of molecular pain targets. The research seeks to better understand the molecular mechanisms of pain to develop targeted therapies to alleviate neuropathic and inflammatory pain, personalizing the intervention. A critical role in this research is the collaboration with Diatech Gene Synthesis, whose expertise is fundamental in several key areas: • Production of analgesic or pain-modulating peptide molecules. Inserted into viral vectors, these will create a targeted delivery system to influence specific pain pathways. • Genomic modifications of viral vectors to optimize the selective expression of the gene of interest in specific cells or tissues, minimizing side effects and improving treatment efficacy. • Development of viral vectors capable of overcoming biological barriers, such as the blood-brain barrier, to deliver therapeutic genes to the central nervous system. This capability is essential to reach the central nervous system, which is difficult to access due to protective barriers.				
COMPANY	Diatech Gene Synthesis S.r.l.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian	July 25th 2024	10:00 a..m.	Remotely (videocall)

BIOMEDICAL SCIENCES

Director prof. Fabrizio Chiti

CUP	M.D. 630/2024	B12B24000490007

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**PROGNOSTIC FACTORS IN THE IMPLANTATION OF DEVELOPMENTAL EMBRYOS - HIMEA (HYSTEROSCOPIC IMMUNOHISTOCHEMICAL MOLECULAR ENDOMETRIAL ANALYSIS) STUDY**
PRINCIPAL INVESTIGATOR	Elisabetta COCCIA
RESEARCH TOPIC	Embryo implantation is defined as the 'black box' of reproductive medicine. Successful embryo implantation requires a receptive endometrium, a viable embryo and their synchronised communication. Many aspects of the dialogue remain unknown. Compromised endometrial function can lead to abnormal cross-talk with failure to implant. Causes include chronic endometritis (CE). Histopathological evaluation with immunohistochemistry (IHC) for the marker CD138 is considered the gold standard. It was recently discovered that the endometrial microbiome plays a crucial role in implantation and dysbiosis in the uterine cavity defined as the presence of a microbiome dominated by non-lactobacilli, is associated with poor reproductive outcomes. The study aims to identify the correlation between EC and the molecular assessment of the endometrial microbiome, in order to correct the 'health status' aimed at improving embryo implantation by 5% with probiotics.
COMPANY	IBSA Farmaceutici Italia S.r.l.
MANDATORY EXPERIENCES	**INTERVIEW**

COMPANY (months)	ABROAD (months)	LANGUAGE	DATE	TIME	MODE	PLACE
6	6	Italian	July 26th 2024	09:00 a.m.	In-person*	Dipartimento di Scienze Biomediche Sperimentali e Cliniche Mario Serio Viale Morgagni 50, 50134 Firenze Aula 2 sez. Biochimica

* In the application form candidates may ask to conduct the interview remotely

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**MAGNETIC NANOPARTICLES IN CANCER THERANOSTIC**
PRINCIPAL INVESTIGATOR	Francesca BIANCHINI
RESEARCH TOPIC	In recent years, immunotherapy has made significant progress in the treatment of malignant tumors, and in particular the use of nanoparticles has improved certain

	aspects of immunotherapy by enhancing the functions of antigen-presenting cells and effector cells, as well as reducing the adverse effects of the immunotherapy itself. In this context, metallic nanoparticles (MNPs) are the most promising candidates for antitumor immunotherapy due to their theranostic properties, as they can act both as therapeutic agents and as diagnostic tools for non-invasive imaging. MNPs will be loaded onto lymphoid and non-lymphoid cells, which will be directed towards the target tissue through the application of an external magnetic field. This procedure aims to investigate the delivery of activated immunomodulatory agents into the tumor microenvironment and to monitor the effect of the therapeuti treatment with magnetic resonance non-invasive imaging					
COMPANY	Ce.Ri.Col Centro Ricerche Colorobbia					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	**PLACE**
6	6	Italian	July 26th 2024	09:00 a.m.	In-person*	Dipartimento di Scienze Biomediche Sperimentali e Cliniche Mario Serio Viale Morgagni 50, 50134 Firenze Aula 2 sez. Biochimica

* In the application form candidates may ask to conduct the interview remotely

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**EPIDEMIOLOGICAL AND ECONOMIC IMPACT EVALUATION OF RESPIRATORY INFECTIONS AMONG OLDER ADULTS IN ITALY**
PRINCIPAL INVESTIGATOR	Sara BOCCALINI
RESEARCH TOPIC	Respiratory syncytial virus (RSV), Influenza virus and Streptococcus pneumoniae diseasea are overall a public health issue, especially among older and high-risk adults. There is a lack of epidemiological data on this matter in Europe but also in Italy. It is crucial to investigate respiratory infections' disease burden and their synergistic effects and assess the impact of current and future vaccines. The use of vaccines can also have an impact on the phenomenon of AMR. Methodology: 1. Analysis of Disease Burden and Economic Impact of respiratory diseases. 2. Analysis of vaccination coverages against respiratory infections available for the older population and survey on Perception and Acceptance of vaccines. 3. Collecting data on AMR.
COMPANY	GlaxoSmithKline S.p.A.

MANDATORY EXPERIENCES		INTERVIEW				
COMPANY (months)	ABROAD (months)	LANGUAGE	DATE	TIME	MODE	PLACE
6	6	Italian	July 26th 2024	09:00 a.m.	In-person*	Dipartimento di Scienze Biomediche Sperimentali e Cliniche Mario Serio Viale Morgagni 50, 50134 Firenze Aula 2 sez. Biochimica

* In the application form candidates may ask to conduct the interview remotely

EVOLUTIONARY BIOLOGY AND ECOLOGY

Director prof. Duccio Cavalieri

CUP	M.D. 629/2024	B12B24000580007
	M.D. 630/2024	B12B24000360007

M.D. 629/2024	Digital and green transitions				
TITLE OF THE SCHOLARSHIP	**PALEOGENOMICS OF HISTORICAL POPULATIONS OF CENTRAL ITALY**				
PRINCIPAL INVESTIGATOR	David CARAMELLI				
RESEARCH TOPIC	This doctoral project will develop through a diachronic paleogenomic study of Italy focused on the "heart of our peninsula", Tuscany and Umbria, witnesses of the rise and fall of two of the most intriguing and enigmatic ancient civilizations, the Etruscans and the Umbrians. An important contribution can certainly come from the study of the Volumni Hypogeum, an archaeological area and National Museum belonging to the Ministry of Culture and the Umbria Regional Museums Directorate, which belonged to the Velimna family (3rd century BC) and inside there are the urns of seven members of the same family, you are linked by close kinship ties. In addition to this exceptional case study, the necropolis is now known for approximately two hundred further tombs, which have yielded both cremated and inhumed individuals that have never been studied. The Palazzone necropolis is the largest in the territory of Perugia, a border city very close to the territory inhabited in ancient times by the Umbrians				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 24th 2024	10:30 a..m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**DEVELOPMENT OF BIOMARKERS FOR THE IDENTIFICATION OF PATHOGENS FOR THE PROTECTION OF THE BOVINE SUPPLY CHAIN, ZOOTECHNICAL MICROBIAL BIODIVERSITY AND CONSUMER HEALTH**
PRINCIPAL INVESTIGATOR	Massimiliano MARVASI
RESEARCH TOPIC	The project aims to develop innovative biomarkers for the rapid and accurate identification of pathogens, effectively meeting the needs of livestock farms. Farms need advanced diagnostic tools to detect low quantities of pathogens in the environment and in live animals, long before they can be detected in post-mortem carcasses. Early environmental diagnosis is crucial not only to ensure animal health,

		but also to prevent the spread of diseases and the occurrence of pandemic events. Through the implementation of these biomarkers, it will be possible to continuously and accurately monitor the environment, and the ecology of pathogens, in which animals live, significantly reducing the risk of infectious outbreaks. Technological innovation in this area is essential to improve biosecurity and promote more sustainable and safer farming practices. The project is therefore not only a step forward in veterinary diagnostics, but also a significant contribution to global public health.			
COMPANY		ISLA S.r.l. (Istituto Sicurezza e Legislazione Alimentare)			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 24th 2024	10:30 a..m.	Remotely (videocall)

PHYSICS AND ASTRONOMY

Director prof. Giovanni Modugno

CUP	M.D. 630/2024	B12B24000390007

M.D. 630/2024	Scholarships co-funded by Companies				
TITLE OF THE SCHOLARSHIP	**COMPUTATIONAL DESIGN OF MULTIVALENT, MULTISPECIFIC SYNTHETIC ANTIBODIES FOR IMAGING AND IMMUNOTHERAPY OF HARD-TO-TREAT CANCERS**				
PRINCIPAL INVESTIGATOR	Francesco PIAZZA				
RESEARCH TOPIC	Many cancers are characterized by specific membrane receptors that are difficult to reach by conventional therapeutic antibodies, either for imaging purposes or for immunotherapy purposes. An innovative approach in these cases involves the development of multi-specific, multivalent artificial antibodies made by conjugating different nanobodies via various binding architectures, such as appropriate peptide chains or DNA-origin structures. In such cases, molecular dynamics simulations and artificial intelligence techniques are indispensable tools for the design of such complex molecules. The company MCK THERAPEUTICS, a pioneer in the development of synthetic antibodies, has an interest in expanding through this project, integrating an in-silico design and optimization effort to develop new molecules for a broad class of difficult-to-treat cancers, such as triple-negative breast cancer and pancreatic cancer.				
COMPANY	MCK Therapeutics S.r.l.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	09:00 a..m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**ON THE DEVELOPMENT OF MACHINE LEARNING TECHNIQUES FOR TIME SERIES ANALYSIS AND APPLICATIONS**
PRINCIPAL INVESTIGATOR	Duccio FANELLI
RESEARCH TOPIC	The project will focus on the development of dedicated machine learning techniques for the study of temporally resolved data. With reference to this area of research we intend to propose an innovative approach to the training of Long Short Term Memory (LSTM) models, by exploiting for this purpose the spectral

		attributes of the transfer operators. This latter approach has been successfully applied to classification problems and will allow to (i) automatically identify the relevant features (recurring patterns) on which the model's prediction is based; (ii) to eliminate nodes deemed non-productive ex post, by yielding a compact version of the trained network. The applications we intend to explore include the analysis of financial time series (leveraging on the industrial partner's expertise on the topic). Other areas of interest include weather forecast models and/or the analysis of earthquake precursors.			
COMPANY		Tecnolink S.r.l.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	09:00 a..m.	Remotely (videocall)

INTERNATIONAL DOCTORATE IN ATOMIC AND MOLECULAR PHOTONICS

Director prof. Diederik S. Wiersma

CUP	M.D. 630/2024	B12B24000430007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**SPECTRAL RECONSTRUCTION USING BROADBAND OPTICAL FILTERS**					
PRINCIPAL INVESTIGATOR	Diederik S. WIERSMA - Alice BOSCHETTI					
RESEARCH TOPIC	Spectroscopic applications aim for high spectral resolution and broad bandwidths, often encountering a tradeoff between the two. Recent advancements in reconstructive spectroscopy offer promising solutions, particularly beneficial for compact and cost-effective instruments in various fields such as sensing, quality control, environmental monitoring, and biometric authentication. This research will focus on the design and fabrication of multilayered optical filters using wet-processable materials with large spectral bandwidth. Optical characterization experiments will be conducted to test the performance of the filters in spectral reconstruction, involving post-processing algorithms and artificial intelligence. The optical filters will be implemented in CMOS arrays to create compact spectrometers and hyperspectral cameras with high spectral resolution for in-field applications.					
COMPANY	Carl Zeiss AG					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
10	6	English	July 25th 2024	10:30 a..m.	Remotely (videocall)	

INTERNATIONAL DOCTORATE IN STRUCTURAL BIOLOGY

Director prof. Roberta Pierattelli

CUP	M.D. 630/2024	B12B24000450007

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**STRUCTURAL-FUNCTIONAL CHARACTERIZATION OF BIOMARKERS, ANTIGENIC MOLECULES, AND NOVEL BIOMOLECULES FOR THEIR USE IN THE PROPHYLAXIS AND TREATMENT OF INFECTIOUS DISEASES**
PRINCIPAL INVESTIGATOR	Simone CIOFI BAFFONI
RESEARCH TOPIC	Due to the serious and growing problem of antibiotic resistance, new therapeutic approaches for the treatment of infectious diseases are needed. In this scenario, combating antibiotic resistance requires the creation of new prophylactic and/or therapeutic approaches. Through the cultivation of microorganisms and cells, Contraria Biotech is developing novel new vaccines and antibody candidates that could help overcome the problem of antibiotic resistance. These novel biomolecules require structural characterization through spectroscopic and chromatographic techniques such as NMR, UV-vis and HPLC-SEC. Within this frame, the PhD student's research project focuses on structural investigation of these novel biomolecules as well as on the in vitro and in vivo characterization of how these biomolecules perform their prophylactic/therapeutic function.
COMPANY	Contraria Biotech S.r.l.

MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	**PLACE**
6	6	English	July 26th 2024	10:00 a.m.	In-person*	Centro di Risonanze Magnetiche (CERM) Via Luigi Sacconi, 6 50019 Sesto Fiorentino FI

* In the application form candidates may ask to conduct the interview remotely

MATHEMATICS, COMPUTER SCIENCE, STATISTICS

Director prof. Alessandra Sestini

CUP	M.D. 630/2024	B12B24000470007

M.D. 630/2024	Scholarships co-funded by Companies				
TITLE OF THE SCHOLARSHIP	**INNOVATIVE DATA SCIENCE APPLICATIONS FOR MOBILITY ANALYSIS**				
PRINCIPAL INVESTIGATOR	Silvia BACCI				
RESEARCH TOPIC	Research should investigate the use of innovative data science techniques in the transportation sector for the analysis of people's mobility. Integration with existing infrastructure, safety (including in terms of transportation system performance), and safeguarding against abuse and external interference will need to be explored. Although there are numerous fields of application of data science in transportation, the focus here is on mobility analysis and transportation planning and forecasting. In particular, the Ph.D. student will be expected to develop and investigate innovative techniques, which combine traditional statistical methods and models of data analysis with artificial intelligence algorithms for processing big data, in order to improve the predictive ability of evolving passenger flows and transportation demand.				
COMPANY	Ferrovie dello Stato Italiane S.p.A.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
12	6	Italian	July 25th 2024	09:30 a.m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**A DATA-DRIVEN APPROACH FOR OPTIMAL RESOURCE ALLOCATION IN SUISTANABLE LOGISTICS SYSTEMS**
PRINCIPAL INVESTIGATOR	Carlotta GIANNELLI
RESEARCH TOPIC	The project addresses the design and development of an automatic logistics system for the integrated management of waste. The main objective is efficient dispatching of collection vehicles, which takes into account the variability of the volumetric filling of the bins and the need to minimize operational and environmental costs. We want to develop innovative data-driven methods and new automatic algorithms for the volumetric approximation of data detected by sensors and optimal path planning strategies. The latter require the development

		of techniques capable of satisfying multiple volumetric and space-time constraints, such as vehicle capacity, minimization of CO2 emissions, road viability and collection times. Using advanced numerical modeling techniques and approximation and optimization algorithms, the project aims to create a dynamic and adaptive system, capable of rapidly responding to changes in environmental conditions.			
COMPANY		Alia Servizi Ambientali S.p.A.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian	July 25th 2024	09:30 a.m.	Remotely (videocall)

M.D. 630/2024		Scholarships co-funded by Companies			
TITLE OF THE SCHOLARSHIP		**Assessing large scale impacts of health policies and interventions on populations: a pipeline based on causal inference, uncertainty propagation, and global sensitivity analysis**			
PRINCIPAL INVESTIGATOR		Michela BACCINI			
RESEARCH TOPIC		The proposed Ph.D. project will focus on health impact assessment, intended as the quantification of health benefits, but also potential adverse effects, of actions and interventions targeted on specific populations. Grounding on tools of causal inference, uncertainty propagation, and global sensitivity analysis, as well as on instruments for quality-of-life measurement, the project will develop pipelines tailored to forecast the effects of interventions or policies in real-world scenarios or at the population level, while considering various sources of uncertainty. The versatility of the project will be exemplified through its exploration of diverse applications in environmental epidemiology, social and clinical domains. The project will provide an holistic perspective on health outcomes, considering the complex interplay between environmental and social factors, health, and intervention strategies.			
COMPANY		Medea S.r.l.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
12	6	Italian	July 25th 2024	09:30 a.m.	Remotely (videocall)

CHEMICAL SCIENCES

Director prof. Anna Maria Papini

CUP	M.D. 630/2024	B12B24000500007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**DEVELOPMENT OF NANOFIBERS FOR THE PRESENTATION OF SACCHARIDIC ANTIGENS**					
PRINCIPAL INVESTIGATOR	Cristina NATIVI					
RESEARCH TOPIC	In terms of reduction of mortality and prevention, vaccines represent a real triumph of the medicine and glycoconjugated vaccines are among the most safe and successful in the last 30 years. The development of glyconjugated vaccines in personalized immunotherapy is a forefront objective for the non-aggressive treatments of some non-responsive adenocarcinomas. In this research, we aim to develop peptidic nanofibers as innovative platform for the multivalent presentation of saccharidic antigens. Among others, it will be studied antigen mimetics stable in vivo and immunogenic. The correct presentation of the antigen(s) and the type of platform are indeed, relevant to overcome the tolerance of the patients' immune system towards saccharidic antigens and to elicit an effective personal response. The type of platforms that we propose will be also studied for the design of glycol-based vaccine prototypes to treat bacteria/viral infections.					
COMPANY	GSK Vaccines S.r.l.					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	**PLACE**
6	6	Italian/English	July 24th 2024	08:30 a.m.	In-person*	Dipartimento di Chimica "Ugo Schiff", Edificio P2, Biblioteca "Parrini", Via della Lastruccia 13, 50019 Sesto Fiorentino (FI)

* In the application form candidates may ask to conduct the interview remotely

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**DEVELOPMENT OF ENCAPSULATION SYSTEMS INSPIRED BY NATURE FOR THE CONTROLLED RELEASE OF ACTIVE MOLECULES**
PRINCIPAL INVESTIGATOR	Emiliano FRATINI
RESEARCH TOPIC	The project aims to develop innovative encapsulation systems and technologies for the confinement/release of active molecules with applications in the cosmetic, nutraceutical, agrochemical and medical fields. The research will lead to the

		development of rigid, "soft" and/or hybrid capsules inspired by nature, responsive to stimuli, starting from green components that have a low environmental impact also in terms of quantity of use and biocompatibility. The capsules could also be functionalized to perform intelligent targeting of the active ingredients to be released.				
COMPANY		NV Procter & Gamble Services Company SA				
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	**PLACE**
6	6	Italian/English	July 24th 2024	08:30 a.m.	In-person*	Dipartimento di Chimica "Ugo Schiff", Edificio P2, Biblioteca "Parrini", Via della Lastruccia 13, 50019 Sesto Fiorentino (FI)

* In the application form candidates may ask to conduct the interview remotely

DEVELOPMENT ECONOMICS AND LOCAL SYSTEMS (DELOS)

Director prof. Donato Romano

CUP	M.D. 629/2024	B12B24000590007

M.D. 629/2024	Public Administration
TITLE OF THE SCHOLARSHIP	**CLIMATE CHANGE, AGRICULTURE AND CONFLICTS: MICROECONOMIC ANALYSIS OF CAUSAL PATHWAYS**
PRINCIPAL INVESTIGATOR	Donato ROMANO
RESEARCH TOPIC	The research project aims to contribute to the understanding of the relationship between climate change, agriculture, and conflicts. The increase in climate variability and the rise in extreme weather events contribute to generating a variety of impacts, including not only income loss but also an increased risk of conflicts as a consequence of negative socioeconomic effects. Empirical evidence regarding the link between climate change and conflicts remains controversial and largely depends on the estimation methodologies adopted, the assumptions made, and the interpretations of causal pathways. Among the various causal pathways proposed in the literature, one of the most promising is the shock caused by climate change on the agri-food system. Therefore, this project aims to empirically test the conditional effects of climate change on violence and conflicts in less developed countries (LDCs), taking into account the mediating effect of the agri-food sector. In particular, two pathways will be analyzed: the one that passes through the adverse effects on agricultural production, and the one that passes through the increase in competition for renewable natural resources. From a methodological point of view, three types of georeferenced datasets will be used: (i) agroclimatic, (ii) socioeconomic, and (iii) conflicts. The estimation methods will refer to both standard econometric methods that adequately address the problem of endogeneity and structural approaches such as Structural Equation Models (SEM).

MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	English	July 24th 2024	02:00 p.m.	Remotely (videocall)

POLITICAL AND SOCIAL CHANGE

Director prof. Angela Perulli

CUP	M.D. 629/2024	B12B24000610007

M.D. 629/2024	Public Administration					
TITLE OF THE SCHOLARSHIP	**THE CHANGING FACES OF WORK. ANALYTICAL TOOLS FOR INCLUSION AND SUSTAINABILITY**					
PRINCIPAL INVESTIGATOR	Angela PERULLI					
RESEARCH TOPIC	The transformations that have been affecting work for decades now pose increasingly critical challenges both in terms of the labour market (availability of jobs and kinds of jobs on offer; profiles required; availability of workers, their aspirations and their characteristics) and in terms of the effects that the varied forms of work have on the daily lives of men and women, young and old, and the challenges posed to policy makers in terms of social inclusion models and the combination of these with the quality of domestic life and access to resources such as health services or support networks other than family ones.					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
6	6	Italian	July 26th 2024	10:00 a.m.	Remotely (videocall)	

LEGAL SCIENCES

Director prof. Maria Luisa Vallauri

CUP	M.D. 629/2024	B12B24000620007
	M.D. 630/2024	B12B24000510007

M.D. 629/2024	Public Administration					
TITLE OF THE SCHOLARSHIP	**COMPARATIVE ANALYSIS OF THE LEGAL REGIMES OF INTERNALLY DISPLACED PEOPLE IN AFRICA AND THE IMPLICATIONS FOR THE COMMON EUROPEAN ASYLUM SYSTEM AND FOR THE NATIONAL PROTECTION MECHANISMS IN EUROPE**					
PRINCIPAL INVESTIGATOR	Veronica FEDERICO					
RESEARCH TOPIC	The precariousness of the legal regimes for protecting and guaranteeing the rights of internally displaced people, a trait that characterises the entire continent, will be the object of analysis in this research. Africa presents a very high number of internally displaced people (IDPs), poor, uneven and fragmented legal frameworks, a strong institutional fragility and low human development indices, all elements that combined may cause severe rights' violation and may represent strong migration push factors. Capturing and discussing whether and to what extent IDPs legal regimes' precariousness impacts on the process of recognising international protection in Europe, both within the framework of the Common European Asylum System and that of the Member States' national protection instruments is the overall aim of the research. Based on the comparative analysis of the most paradigmatic experiences of the African continent, the research intends to contribute: (1) to enhance knowledge on the legal and institutional framework of migratory phenomena in the countries of origin, focusing on internally displaced people and adopting a rights-based approach, (2) to the critical analysis of the European countries' responses in terms of protection and rights enforcement.					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
6	6	Italian/English	July 26th 2024	09:30 a..m.	Remotely (videocall)	

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**INSURANCE IN THE DIGITAL AND ENVIRONMENTAL TRANSITION**
PRINCIPAL INVESTIGATOR	Sara LANDINI

RESEARCH TOPIC	The project will focus on the system of insurance distribution in the light of economic, technological, social and environmental innovation. The research will be structured along two lines: - Insurtech : meaning the use of new technologies in production distribution, governance, regulation and supervision. - Responsible Insurer: meaning the action of the insurance market oriented towards environmental and social sustainability (including climate adaptation education of policyholders policyholders, resilience of companies with respect to catastrophic events, management of longevity risk).				
COMPANY	SNAS S.r.l.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 26th 2024	09:30 a..m.	Remotely (videocall)

SOCIAL SCIENCES FOR SUSTAINABILITY AND WELLBEING (S3W)

Director prof. Leonardo Boncinelli

CUP	M.D. 629/2024	B12B24000570007
	M.D. 630/2024	B12B24000530007

M.D. 629/2024	NRRP Research IMT Lucca					
TITLE OF THE SCHOLARSHIP	**HUMAN HEALTH AND ENVIRONMENTAL SUSTAINABILITY**					
PRINCIPAL INVESTIGATOR	Massimo RICCABONI					
RESEARCH TOPIC	Human and ecosystem health are inextricably linked. Analyzing the complex interaction between environment and health requires an interdisciplinary approach to develop cost-effectiveness analyses of policy measures in several relevant dimensions. This research aims to theoretically and empirically investigate the development of an integrated “One Health" strategy that improves the environmental sustainability of health systems. A second area of interest concerns the analysis of the relationship between the adoption of more environmentally conscious lifestyles and the sustainability of health systems.					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
-	6	Italian (with an English question)	July 25th 2024	10:00 a.m.	Remotely (videocall)	

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**EVOLUTION OF ECONOMIC AND ENVIRONMENTAL PERFORMANCE IN THE ITALIAN WATER AND WASTE SECTORS THROUGH THE ANALYSIS OF TIME SERIES OF TECHNICAL AND ECONOMIC DATA**
PRINCIPAL INVESTIGATOR	Ginevra Virginia LOMBARDI
RESEARCH TOPIC	The management of integrated water services and municipal solid waste are typical local public services of general economic interest, recognized for their strategic role in the national economic growth process. It is indeed a national interest to ensure progressive organizational-management, economic, and environmental efficiency in the water and waste sectors (law no. 481/1995) to protect users and

		consumer welfare through the regulation of relevant markets. In this context, the research aims to analyze technical data and financial statements of a sample of 60 companies for the years from 1997 to 2022 for the water service, and a sample of 55 companies for the waste sector for the period 2017-2022, using financial indicators and non-parametric econometric models (e.g., DEA-Data Envelopment Analysis) appropriately selected to evaluate the evolution of environmental and economic performance in these sectors. This will allow for the verification of the effectiveness of policies and instruments dedicated to the regulated market. The research results, also through the analysis of alternative scenarios, will identify the best practices at the national level that allow maximizing efficiency levels in economic, environmental, and organizational-management terms in the considered sectors.			
COMPANY		Confservizi Cispel Toscana			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian (with an English question)	July 25th 2024	10:00 a.m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**THE ROLE OF FINANCIAL AND MONETARY SECTORS FOR AN ECOLOGICAL TRANSITION: NEW METHODS AND INDICATORS**
PRINCIPAL INVESTIGATOR	Tiziano DISTEFANO
RESEARCH TOPIC	This grant aims to investigate the role of the financial sector in driving an ecological transition, with a focus on developing new methods and indicators grounded in ecological economics. The study will integrate macroeconomic analysis through scenario policy to explore the impact of financial activities on environmental sustainability. It will examine how financial institutions can promote investments in green technologies, sustainable infrastructure, and renewable energy while considering various macroeconomic scenarios, both at national and regional scale. By analyzing the effectiveness of financial instruments such as green bonds, impact investing, and sustainable banking practices within different economic contexts, the research will provide insights into the mechanisms driving ecological transitions. The ultimate goal is to propose policy recommendations and strategies to align financial markets with sustainability goals and foster a more environmentally conscious economy.
COMPANY	Fondazione Finanza Etica 50% - PIN S.c.r.l. (Laboratorio Arco) 50%

MANDATORY EXPERIENCES		INTERVIEW			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian (with an English question)	July 25th 2024	10:00 a.m.	Remotely (videocall)

ARCHITECTURE AND DESIGN CULTURES, KNOWLEDGE AND SAFEGUARDING OF CULTURAL HERITAGE

Director prof. Fabrizio Franco Vittorio Arrigoni

CUP	M.D. 630/2024	B12B24000340007

M.D. 630/2024	Scholarships co-funded by Companies						
TITLE OF THE SCHOLARSHIP	**INNOVATIVE AND SUSTAINABLE STRENGTHENING TECHNIQUES, BASED ON FIBRE-REINFORCED COMPOSITE MATERIALS, FOR COMPATIBLE INTERVENTIONS ON HISTORIC BUILDINGS: RECENT RESEARCH DEVELOPMENTS IN PRACTICE APPLICATION**						
PRINCIPAL INVESTIGATOR	Luisa ROVERO						
RESEARCH TOPIC	The conservation of monuments and historic centers concerns social and economic aspects, as well as cultural ones. Italy, with its architectural heritage exposed to seismic risk, is a world leader in knowledge, methodologies and technologies for conservation. Research on anti-seismic systems, based on inorganic matrix fibre-reinforced composites, FRCM, still presents open questions and design support tools are lacking. In the context of FRCM systems, research will have to combine scientific advances with practical conservation needs and integrate with the development and design activities of the company involved. Shared interest is the development of FRCM optimization methodologies with respect to the specific application case, in order to combine mechanical performance with sustainability and compatibility with historical materials. The research must include mechanical experiments, to be carried out at the DIDA PMS laboratory; digital analyzes of thin sections of mortars observed under the microscope at the DIDA LARC.						
COMPANY	Hydea S.p.A						
MANDATORY EXPERIENCES		**INTERVIEW**					
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	**PLACE**	
6	6	Italian	July 24th 2024	10:00 a.m.	In-person*	Dipartimento di Architettura, sede di Santa Teresa, Aula 402 Via della Mattonaia, 8 50121 Firenze	

* In the application form candidates may ask to conduct the interview remotely

SUSTAINABLE MANAGEMENT OF AGRICULTURAL RESOURCHES, FORESTRY AND FOOD

Director prof. Erminio Monteleone

CUP	M.D. 630/2024	B12B24000400007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**INTEGRATION OF SENSORY AND IMPLICIT APPROACHES IN THE STUDY OF EXPECTATIONS FOR SUSTAINABLE PRODUCTS**					
PRINCIPAL INVESTIGATOR	Sara SPINELLI					
RESEARCH TOPIC	The research aims to develop integrated sensory and implicit methods for studying consumer responses to innovative products, particularly those oriented towards sustainability. The integration of sensory and implicit methodologies represents an innovative approach in analyzing consumer expectations and their influence on product choice. This integration allows for a more comprehensive understanding of the dynamics of choice and the affective responses of consumers, identifying both explicit expectations and unconscious influences that drive purchasing decisions.					
COMPANY	Fater S.p.A					
MANDATORY EXPERIENCES	**INTERVIEW**					
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	**PLACE**
6	6	Italian/English	July 26th 2024	10:00 a.m.	In-person*	Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali DAGRI Via Donizetti, 6 50144 Firenze

* In the application form candidates may ask to conduct the interview remotely

INFORMATION ENGINEERING

Director prof. Stefano Ricci

CUP	M.D. 630/2024	B12B24000410007

M.D. 630/2024	Scholarships co-funded by Companies				
TITLE OF THE SCHOLARSHIP	**STUDY OF INNOVATIVE TECHNIQUES FOR THE ANALYSIS OF WATER DISTRIBUTION NETWORKS AIMED AT LEAK DETECTION**				
PRINCIPAL INVESTIGATOR	Simoen MARINAI				
RESEARCH TOPIC	Water distribution networks have variable and not easily identifiable leaks. The research objective is to study techniques for detecting potential leaks by extending the currently used methods through Artificial Intelligence approaches. In particular, we will explore the use of generative AI approaches, considering both algorithms based on Generative Adversarial Networks (GANs) and Large Language Models (LLMs), which are increasingly used in contexts beyond linguistics. These techniques allow for spatial considerations, with georeferencing of distribution system components and users, as well as temporal aspects, analyzing time series data to identify daily and seasonal variations. The methods will be evaluated using international benchmarks and field data collected by the company involved in the project, a leader in the utilities sector. Types of information considered include meter readings, process point measurements, satellite and aerial images, and data from sensors (e.g., geophones mounted on meters, thermocameras, soil moisture sensors). Integrating AR/VR technologies will enable operators to visualize networks and potential leaks immersively, enhancing post-detection analysis and operational decision-making.				
COMPANY	Terranova S.r.l.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	10:00 a.m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**DEVELOPMENT OF ADVANCED METHODS FOR ULTRASOUND IMAGING**
PRINCIPAL INVESTIGATOR	Alessandro Ovidio PARIS RAMALLI

RESEARCH TOPIC	Recently, methodological and technological advances are leading to a notable expansion of the diagnostic potential of ultrasound imaging. The main research fields concern high frame rate acquisition techniques and the related processing methods for extracting quantitative information. The general objective of the doctorate is to study, develop and implement advanced signal processing methods for ultrasound equipment. The research activity will include: - the analysis and development of transmission strategies; - the study of post-processing techniques aimed, for example, at quantitatively estimating the direction and speed of blood flow; - the implementation of these algorithms in prototype code; - testing based on simulated data, experimental signals and, where possible, on clinical examinations.				
COMPANY	Esaote S.p.A.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	10:00 a.m.	Remotely (videocall)

INDUSTRIAL ENGINEERING

Director prof. Giovanni Ferrara

Gross Annual amount of the scholarship € 21,000.00 (gross value)
The increase of the scholarship is funded by Department of Industrial Engineering

CUP	M.D. 630/2024	B12B24000420007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**NUMERICAL-EXPERIMENTAL ANALYSIS FOR COMPRESSION TECHNOLOGIES**					
PRINCIPAL INVESTIGATORS	Giovanni FERRARA					
RESEARCH TOPIC	The research will focus on the development of high-performance centrifugal compressors, a crucial element in the energy transition. Specifically, the study involves designing and experimentally validating new geometries for impellers and stator components. Numerical simulation tools, both commercial and proprietary, will be utilized to analyze the fluid dynamics and structural aspects of the compressors. Additionally, fluid-structure interaction verifications will be conducted to ensure performance optimization. This integrated approach will allow us to develop innovative and more efficient solutions, significantly contributing to energy sustainability.					
COMPANY	Baker Hughes S.r.l.					
MANDATORY EXPERIENCES	**INTERVIEW**					
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
6	6	Italian/English	July 25th 2024	09:00 a.m.	Remotely (videocall)	

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**CAVALIERE: VCHP ADVANCED CYCLE: HIGH TEMPERATURE HEAT PUMP FOR INTELLIGENT WORK WITH EFFICIENT RECOVERED ENERGY**
PRINCIPAL INVESTIGATOR	Maurizio DE LUCIA
RESEARCH TOPIC	The research program aims to develop a high-temperature heat pump using hybrid solutions that combine VCHP (vapor compression heat pump) and MVR (mechanical vapor recompression). The goal is not only to enhance energy efficiency but also to reduce emissions, targeting solutions with zero environmental impact. Additionally, the program seeks to train professionals with

		specific skills in the steam production sector for industrial and other purposes, ensuring these individuals can operate with cutting-edge and sustainable technologies. The combination of training and technological innovation aims to create a qualified workforce and promote the adoption of clean technologies in the industrial sector.			
COMPANY		GlobalTherm S.r.l.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	09:00 a.m.	Remotely (videocall)

M.D. 630/2024		Scholarships co-funded by Companies			
TITLE OF THE SCHOLARSHIP		**INTERNET OF MEDICAL THINGS IN BIOMEDICAL APPLICATIONS**			
PRINCIPAL INVESTIGATOR		Filippo CAVALLO			
RESEARCH TOPIC		The research program aims to design, develop, and validate innovative architectures that integrate wearable, robotic, and portable systems with internet technologies and machine learning for healthcare services. This cutting-edge approach leverages advanced technologies to significantly enhance the delivery of healthcare. By utilizing these systems, continuous and real-time monitoring of a wide range of bodily parameters is possible. This continuous monitoring allows for the collection of valuable data that can be analyzed to plan personalized treatments tailored to each patient's specific needs. Additionally, remote patient management is greatly facilitated, enabling healthcare professionals to monitor patients' conditions from a distance and intervene promptly when necessary. This integrated system represents a significant step towards more efficient and personalized healthcare, improving patients' quality of life and optimizing available healthcare resources.			
COMPANY		CoAimed S.r.l.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	09:00 a.m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies				
TITLE OF THE SCHOLARSHIP	**SMART REUSE OF DATA CENTERS WASTE HEAT**				
PRINCIPAL INVESTIGATOR	Lorenzo TALLURI				
RESEARCH TOPIC	The research program aims to develop a thermal storage system to be coupled with the refrigeration cycle for the recovery of waste heat from data centers. The objective is to achieve technology experimentation at a TRL close to 6, at Schneider Electric's laboratories. Additionally, the program intends to train a professional with specific skills in data center cooling and efficient reuse of waste heat, combining industrial and academic know-how.				
COMPANY	Schneider Electric - Uniflair S.p.A				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	09:00 a.m.	Remotely (videocall)

INTERNATIONAL DOCTORATE IN CIVIL AND ENVIRONMENTAL ENGINEERING

Director prof. Luca Solari

CUP	M.D. 630/2024	B12B24000440007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**STRUCTURAL CONSOLIDATION INTERVENTIONS USING INNOVATIVE MATERIALS FOR THE PRESERVATION OF HISTORICAL AND MONUMENTAL MASONRY BUILDINGS**					
PRINCIPAL INVESTIGATORS	Mario FAGONE					
RESEARCH TOPIC	The Italian historical and monumental built heritage, which represents an enormous socio-cultural and economic asset, is mostly comprised of buildings with load-bearing masonry structures. As is well known, the mechanical characteristics of this material depend on several factors, including the properties of the constituent materials, the brickwork, the quality of the structural connections, etc. However, its most peculiar characteristic is the low tensile strength compared to the compressive one. This often leads to buildings being vulnerable to applied forces, particularly seismic actions. Therefore, the analysis and development of specific intervention procedures are proposed, based on the use of composite and other innovative materials, to mitigate vulnerability of masonry structures. The research will be carried out through specific experimental investigations as well as the development of appropriate predictive models.					
COMPANY	Laterlite S.p.A.					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
6	6	Italian/English	July 26th 2024	10:30 a.m.	Remotely (videocall)	

AGRICULTURAL AND ENVIRONMENTAL SCIENCES

Director prof. Carlo Viti

CUP	M.D. 630/2024	B12B24000480007

M.D. 630/2024	Scholarships co-funded by Companies				
TITLE OF THE SCHOLARSHIP	**BIOLOGICAL VALORISATION OF WASTE AND BY-PRODUCTS OF PLANT ORIGIN**				
PRINCIPAL INVESTIGATORS	Alessandra ADESSI				
RESEARCH TOPIC	The research aims to develop innovative systems to valorize waste and by-products of plant origin (such as fruits, vegetables, grains, pomace, etc.) using specifically selected microorganisms. Spontaneous fermentations will be developed to select lactic acid bacteria and yeasts with desirable characteristics for the nutritional valorization of by-products, which can be utilized in the food and possibly cosmetic industries. The research will lead to the establishment of a biobank that will facilitate process and product innovations in agri-food and agro-industrial companies.				
COMPANY	FoodMicroTeam S.r.l.				
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
12	6	Italian/English	July 25th 2024	09:00 a.m.	Remotely (videocall)

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**CIRCULAR VALORISATION OF AGROFORESTRY RESIDUES: CUSTOMIZED CORROBORANTANTS FOR ON-SITE USE AGAINST BIOTIC AND ABIOTIC ADVERSITIES OF AGRICULTURAL CROPS**
PRINCIPAL INVESTIGATORS	Stefania TEGLI
RESEARCH TOPIC	The concept of circular economy is often applied in agriculture to valorise agroforestry by-products/residues for commercial and industrial purposes, making this approach unsustainable. In this context, this research project aims to unveil the scientific aspects and to develop a local circularity approach in medium-small agricultural realities, based on the use of a technologically advanced gasifier. This circular valorization of agroforestry residues also aims to produce personalized corroborants, effective for on-site use.

		By integrating multidisciplinary scientific skills and Lab to Field levels of investigation, extracts from hitherto unexplored agroforestry waste will be verified here for biological activity, effectiveness in defense, molecular mechanisms involved, optimizing application and monitoring procedures, with advanced sensors and AI.			
COMPANY		Yanmar R&D Europe S.r.l.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	09:00 a.m.	Remotely (videocall)

SMART COMPUTING

Director prof. Stefano Berretti

CUP	M.D. 630/2024	B12B24000520007

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**GREEN AND PRIVACY-PRESERVING ARTIFICIAL INTELLIGENCE FOR FLEET LOGISTICS**
PRINCIPAL INVESTIGATORS	Andrew David BAGDANOV
RESEARCH TOPIC	The training and deployment of Deep Learning-based systems for the distributed management of vehicle fleets require enormous computational resources for both training and inference. The enormous costs — both monetary and in terms of carbon footprint — are exacerbated by the requirements that such systems be maintained and updated as new tasks and functionalities are incorporated. Additionally, driver-facing artificial vision systems must be maintained to comply with local, national, and international privacy regulations, which inevitably leads to non-stationary training data distributions that affect downstream performance. In this three-year PhD project, the candidate will investigate the potential of the latest developments in Continual and Federated Deep Learning to address the training and deployment of Deep Learning-based systems in a green and privacy-preserving manner.
COMPANY	Verizon Connect S.p.A.
MANDATORY EXPERIENCES	**INTERVIEW**

COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
6	6	Italian/English	July 25th 2024	10:00 a.m.	Remotely (videocall)

SUSTAINABILITY AND INNOVATION FOR THE DESIGN OF BUILT ENVIRONMENT AND SYSTEM PRODUCT

Director prof. Giuseppe Lotti

CUP	M.D. 630/2024	B12B24000540007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**APPLICATION OF MATERIALS DERIVED FROM RECYCLED PAPER, CARDBOARD AND COMPOSITES TO IMPROVE THE ACOUSTIC AND ENERGY PERFORMANCE OF PRODUCTS**					
PRINCIPAL INVESTIGATORS	Simone SECCHI					
RESEARCH TOPIC	The recovery and recycling of cellulose-based products has today achieved excellent results both in terms of resource circularity and product quality. This has driven the market towards the use of paper and cardboard even in sectors dominated by the use of other materials, such as soundproofing products. However, the recycling of cellulose-based materials (in particular for composites and the treatment of urban paper waste) involves the production of large quantities of a waste product (pulper waste) that still finds it very difficult to find a market outlet. The research will be oriented towards studying methods of improving performance and new forms of utilisation of products from the recycling of cellulosic materials and the waste from their processing (pulper). In particular, products will be studied that, by exploiting the intrinsic properties of cellulosic materials, emphasise their sound absorption and/or thermal insulation performance.					
COMPANY	Consorzio Nazionale Recupero e Riciclo degli Imballaggi a base cellulosica (COMIECO)					
MANDATORY EXPERIENCES		**INTERVIEW**				
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
6	6	Italian/English	July 26th 2024	10:00 a.m.	Remotely (videocall)	

URBAN FUTURE STUDIES

Director prof. Gherardo Chirici

CUP	M.D. 630/2024	B12B24000550007

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**SUITABILITY ANALYSIS FOR THE DEVELOPMENT OF DISUSED RAILWAY AREAS FOR URBAN AND ENVIRONMENTAL REGENERATION**
PRINCIPAL INVESTIGATORS	Stefano MANCUSO
RESEARCH TOPIC	The research is aimed at analyzing innovative solutions for the regeneration of abandoned or in-use railway areas by evaluating forms of regeneration serving cities in order to reduce their ecological footprint. Through the use of remote sensing and geographical analysis techniques, the PhD student will have to identify, together with FS experts, the areas no longer useful for the purposes of railway operations, station services or TPL services and propose their reevaluation through nature based solutions. The experiences already achieved will be explored in depth by analyzing the benefits and problems that have emerged in order to propose efficient innovative solutions for urban regeneration. The research will be carried out in close collaboration with the experts of the FS Research Centre, a center of excellence in the study of mobility, involving the presence in the center premises for 12 months. The company tutor will define the detailed work plan in agreement with the academic tutor. Compared to the aims of the PNRR, the alignment of the research with the M1 mission is highlighted. Digitalization and Innovation and to an even greater extent with the M2 mission. Green Revolution and Ecological Transition. Also consistent with the M3 Sustainable Mobility mission.
COMPANY	Ferrovie dello Stato Italiane S.p.A.

MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
12	6	Italian/English	July 25th 2024	10:00 a.m.	Remotely (videocall)

PHILOLOGY, ITALIAN LITERATURE, LINGUISTICS

Director prof. Francesco Bausi

CUP	M.D. 629/2024	B12B24000600007
	M.D. 630/2024	B12B24000380007

M.D. 629/2024	Public Administration					
TITLE OF THE SCHOLARSHIP	**STRATEGIES AND LINGUISTIC TOOLS FOR THE TRANSPARENCY OF PUBLIC ADMINISTRATIONS**					
PRINCIPAL INVESTIGATOR	Marco BIFFI					
RESEARCH TOPIC	The research project aims to develop guidelines and linguistic tools for effective and transparent communication within public administrations. In particular, it focuses on the accomplishment of: a) guidelines for a linguistic diversification of public administration texts (based on the sociolinguistic situation of the population: age, geographical origin, level of education, disabilities, etc.); b) a dictionary of technical terminology of public administrations, developed for different user levels and accessible through a centralized public and free website.					
MANDATORY EXPERIENCES	**INTERVIEW**					
COMPANY / PUBLIC ADMIN. / RESEARCH CENTER (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
6	6	Italian	July 24th 2024	09:30 a.m.	Remotely (videocall)	

M.D. 630/2024	Scholarships co-funded by Companies
TITLE OF THE SCHOLARSHIP	**CENTRALIZED ACCESS METASEARCH ENGINE FOR INTERNATIONAL DIGITAL LIBRARIES IN THE HUMANITIES FIELD**
PRINCIPAL INVESTIGATOR	Marco BIFFI - Simone MAGHERINI
RESEARCH TOPIC	Creation of a portal with a centralized access metasearch engine for international digital libraries in the humanities field - aimed at recovering bibliographies of individual sources - and realization of a tool evaluation system. The research project aims to train a professional figure of digital humanist - in order to improve scientific research (with educational impacts) - for the enhancement of digital resources, with the creation of an international reference model.

		The training activities will be carried out in synergy with the DILEF Laboratory of Digital Humanities and the Aldo Palazzeschi Study Center (Carte d'autore online project). The research project aims to a significant development of knowledge, including applied knowledge, in the PNRR areas of interest, as provided for in Art. n. 7, paragraph 1 of DM630. The support of Progettinrete S.r.l., a qualified company in the field, guarantees to the PhD student to benefit from qualified and specific operational and scientific structures, for study and research activities, as provided for in the same article and paragraph (Art. 7, paragraph 1 of DM630). This line of research contributes to the strengthening of basic and applied research systems provided for in PNRR- M4C2 (M4 Education and Research, From Research to Business) and is part of the PNRR- M1C2 (M1 Digitization, Innovation, Competitiveness, Culture and Tourism, Digitization, Innovation, Competitiveness in the Productive System).			
COMPANY		Progettinrete S.r.l.			
MANDATORY EXPERIENCES		**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**
12	6	Italian	July 24th 2024	09:30 a.m.	Remotely (videocall)

COMPARATIVE LANGUAGES, LITERATURE AND CULTURES

Director prof. Fernando Cioni

CUP	M.D. 630/2024	B12B24000460007

M.D. 630/2024	Scholarships co-funded by Companies					
TITLE OF THE SCHOLARSHIP	**LANGUAGES AND CULTURES AND EUROPEAN PLANNING**					
PRINCIPAL INVESTIGATOR	Fernando CIONI					
RESEARCH TOPIC	The project, in synergy with Nkey S.r.l., aims to develop a process of internationalization and euro-design within European languages and cultures. The PhD student will focus on research, territorial analysis, and identifying local needs, creating synergies between the company and the academic world. This collaboration will generate new projects that bridge academic research and the company, as well as the national and international entities with which Nkey S.r.l. collaborates. Of particular interest will be the exploration of projects addressing various technological and environmental issues related to the ongoing Digital and Ecological Transition promoted by the European Commission. The PhD student will develop strategies to enhance the skills of educators and other staff supporting adult learners, providing innovative technological tools that promote lifelong learning and training, increase awareness of European identity, and improve the psycho-physical well-being of citizens. Concurrently, they will lead an investigation to identify the strengths and weaknesses of the actions taken and analyze the needs of the territory to design new projects.					
COMPANY	Nkey S.r.l.					
MANDATORY EXPERIENCES			**INTERVIEW**			
COMPANY (months)	**ABROAD (months)**	**LANGUAGE**	**DATE**	**TIME**	**MODE**	
12	6	Italian/English	July 25th 2024	10:00 a.m.	Remotely (videocall)	