



PhD in DESIGN - 41st cycle

Number of scholarship offered	7
Department	DIPARTIMENTO DI DESIGN

Description of the PhD Programme

General descriptionDescription of the PhD Programme

Detailed information on research proposals to be developed for Ph.D application is available at: <http://phd.design.polimi.it/>

The PhD Program in Design prepares designer-researchers who, addressing the problems and opportunities of contemporary society, are able to apply research methods to produce original design knowledge. The curriculum lasts three years, during which both training and research activities are provided. The Program develops analytical and design abilities and promotes a collaborative disposition.

The complete list of research proposals is available at: <http://phd.design.polimi.it/>

Once enrolled, each candidate becomes an effective member of a research group, within which she/he develops an original research project. This research activity is the fundamental core of the learning process. Parallel to this, each candidate is involved in other educational activities.

Proposing department: Department of Design.

Other involved departments: Department of Mechanical Engineering; Department of Chemistry, Materials and Chemical Engineering.

Scholarships: More details on the scholarships offered by the PhD Program in Design are available on page 2 of this document. The specific research subject will be assigned to each candidate within the first months of the PhD activity, with the agreement of both the candidate and the Board of Professors of the PhD Program. The number of available scholarships may be increased up to completion of the evaluation process.



PhD in DESIGN - 41st cycle

**THEMATIC Research Field: ADVANCED INTERACTIONS IN AUTOMOTIVE EXPERIENCES:
GENERATIVE UI SYSTEMS FOR DYNAMIC HUMAN-VEHICLE INTERACTION IN EVOLVING
AUTONOMOUS ENVIRONMENTS**

Monthly net income of PhDscholarship (max 36 months)

€ 1300.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

The automotive industry is undergoing a profound transformation driven by autonomous technologies, electrification, and digital innovation. As vehicles progress from Level 3 to potential Level 5 autonomy, the digital layer becomes increasingly critical in defining the mobility experience. This evolution fundamentally changes the relationship between humans and vehicles, requiring a complete reimagining of interaction paradigms. Traditional automotive interface design approaches are increasingly inadequate as vehicles become more autonomous and software-defined.

Key challenges include:

- _ Creating seamless transitions between different levels of autonomy
- _ Developing adaptive interfaces that evolve with technological advancements
- _ Designing intuitive interfaces that reduce cognitive load while maintaining engagement
- _ Enabling personalized experiences across multiple users and contexts

This research aims to establish a comprehensive framework for designing and developing generative and intelligent user interfaces that adapt to different autonomy levels, user preferences, and usage scenarios.

The project will investigate:

- _ How generative AI can create dynamic, context-aware



	<ul style="list-style-type: none"> _ How generative AI can create dynamic, context-aware automotive interfaces that learn from user interactions _ Methodologies for designing adaptive interfaces across varying levels of vehicle autonomy _ Integration of multimodal interaction patterns (voice, gesture, haptic) with visual interfaces _ Tools for rapid prototyping, testing, and evaluation of AI-driven automotive interfaces _ Inclusive design principles ensuring accessibility for diverse user groups <p>By bridging theoretical frameworks with practical implementation strategies, this research will advance automotive interface design while addressing human-machine interaction challenges in increasingly autonomous vehicles.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The research methodology will adopt a mixed-methods approach within an action-research framework, combining theoretical exploration with practical application in real-world contexts.</p> <p>Foundation and Exploration Phase:</p> <ul style="list-style-type: none"> _ Comprehensive literature review covering automotive UX, generative AI in interface design, and human factors in autonomous vehicles _ Competitive analysis of current automotive interfaces across manufacturers and autonomy levels <p>Expert interviews with automotive designers, UX professionals, and engineers</p> <ul style="list-style-type: none"> _ Observational studies of users interacting with current automotive interfaces <p>Framework Development Phase:</p> <ul style="list-style-type: none"> _ Creation of a theoretical framework for adaptive automotive interfaces across autonomy levels _ Development of design principles and guidelines for generative UI in automotive contexts _ Establishment of evaluation metrics for assessing



	<p>automotive user experiences</p> <ul style="list-style-type: none"> _ Definition of methodologies for prototyping and testing generative interfaces <p>Prototyping and Validation Phase:</p> <ul style="list-style-type: none"> _ Design and development of prototype interfaces implementing the framework _ Laboratory testing using driving simulators to evaluate interactions _ Field testing in real vehicles (where possible) or advanced simulation environments _ Iterative refinement based on user feedback and performance metrics <p>Integration and Dissemination Phase:</p> <ul style="list-style-type: none"> _ Integration of findings into comprehensive design guidelines and tools _ Development of practical implementation strategies for automotive manufacturers _ Academic publication and industry dissemination of research findings <p>Throughout all phases, the research will involve different stakeholders including automotive designers, engineers, UX professionals, and potential users through collaborative workshops and co-design sessions. The research will utilize state-of-the-art tools including advanced prototyping tools, eye-tracking and biometric measurement, machine learning tools, and high-fidelity driving simulators.</p>
<p>Educational objectives</p>	<p>The educational objectives of this doctoral project aim to develop a professionally versatile researcher capable of bridging theoretical knowledge with practical application in the evolving field of automotive user experience design:</p> <p>Research Competencies:</p> <ul style="list-style-type: none"> _ Mastery of research methodologies relevant to UX design, HCI, and automotive interfaces _ Development of critical analytical skills for evaluating technological innovation _ Ability to design and conduct complex user studies in



	<p>technological environments</p> <p>Technical Expertise:</p> <ul style="list-style-type: none"> _ Proficiency in prototyping tools and methodologies for automotive interfaces _ Understanding of AI and machine learning applications in user interface design _ Knowledge of technical constraints and opportunities in automotive digital systems <p>Design Leadership Skills:</p> <ul style="list-style-type: none"> _ Ability to lead cross-functional teams in complex design challenges _ Capacity to translate research insights into actionable design strategies _ Skills in communicating complex technological concepts to diverse stakeholders <p>Industry Knowledge:</p> <ul style="list-style-type: none"> _ Understanding of automotive industry trends and technological roadmaps _ Awareness of regulatory frameworks affecting automotive interface design _ Familiarity with production constraints and implementation requirements <p>The educational path will combine structured academic learning with hands-on experience in both academic and industrial settings, ensuring that the researcher develops as both a scholarly contributor and a practical innovator, capable of addressing the complex challenges of designing user experiences for next-generation vehicles.</p>
<p>Job opportunities</p>	<p>The interdisciplinary nature of this research project positions the PhD graduate for various high-demand career paths in both industry and academia:</p> <p>In the automotive industry:</p> <ul style="list-style-type: none"> •UX Research Director or Lead UX Strategist at major automotive manufacturers •Innovation Manager specializing in digital experiences



	<p>and interface design</p> <ul style="list-style-type: none"> •Technical Product Manager for in-vehicle digital systems •Chief Experience Officer (CXO) focusing on next-generation mobility experiences <p>In the technology sector:</p> <ul style="list-style-type: none"> •Experience Design Lead for mobility platforms and services •AI Experience Designer specializing in intelligent interface systems •Consultant for digital transformation in mobility and transportation •Innovation Strategist for technology companies entering the mobility space <p>In academia and research:</p> <ul style="list-style-type: none"> •Research Professor specializing in automotive experience design •Principal Investigator for research programs on human-autonomy interaction •Director of automotive innovation labs or mobility research centers <p>In entrepreneurial contexts:</p> <ul style="list-style-type: none"> •Founder of startups focused on next-generation automotive interfaces •Developer of innovative aftermarket solutions for vehicle experience enhancement •Creator of specialized design studios focusing on mobility experience <p>The acquired expertise in combining design thinking, technological innovation, and user-centered methodologies provides a unique professional profile that bridges multiple disciplines, making the graduate highly valuable in an industry increasingly defined by experience rather than mechanical specifications alone.</p>
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Composition of the research group	1 Full Professors 3 Associated Professors 1 Assistant Professors 2 PhD Students
Name of the research directors	ARQUILLA VENANZIO

Contacts
E-mail: venanzio.arquilla@polimi.it 02 2399 5919

Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	650.0 €
By number of months	6

Stage and period abroad	
Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	0

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences) financial aid per PhD student per year: 5.300,25 euros per student (total for 3 years)</p> <p>Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD student</p> <p>There are various forms of financial aid both for research and teaching activities. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p> <p>Computer availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a laptop/desktop PC, if necessary.</p> <p>Desk availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a desk.</p>



PhD in DESIGN - 41st cycle

THEMATIC Research Field: AI FOR CRAFTS SECTOR IN DIGITAL TRANSITION

Monthly net income of PhDscholarship (max 36 months)

€ 1300.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

In the coming years, the Italian manufacturing sector is facing a profound transformation due to green and digital transition. In this challenging context, the research focuses on the artisanal enterprise, considering opportunities and risks associated with the adoption of advanced technologies such as Artificial Intelligence.

The main objective of the research is to explore possible ways to integrate generative AI into artisanal practices within Small and Medium Enterprises (SMEs) with a forward-looking systemic perspective. This asks for underlining possible threats to artisanal skills and production as the effects of this integration, expanding the creative horizon, customisation experience and grasping potentialities in order to preserve, support and revitalise craft. The research will define strategies method and approach to support SMEs innovations and improvements, ensuring a balance between innovation and material cultures.

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

The research will adopt a mixed methodology, starting from a literature study, to examining the state of the craft sector in contexts where it has a strong impact in socio-cultural life as well as its production. Case studies method will serve as a useful benchmark, offering insights from other international contexts engaged in the development and protection of artisanal practices.

The methodology will include qualitative and quantitative analysis, leveraging both primary and secondary data sources. Field research will involve interviews and



	<p>sources. Field research will involve interviews and surveys with artisans, industry experts, and policymakers to assess their perspectives on AI integration. Additionally, experimental applications of AI-driven tools in selected artisanal workshops will provide practical insights into their feasibility and impact.</p> <p>Furthermore, data analytics techniques will be employed to evaluate the economic and cultural effects of AI adoption, ensuring that findings contribute to a comprehensive understanding of best practices for integrating new technologies while respecting cultural traditions.</p>
Educational objectives	<p>The research aims to provide a structured framework for understanding the role of AI in traditional craftsmanship, contributing to the broader academic discourse on digital transformation in cultural industries.</p> <p>Educational objectives include:</p> <ul style="list-style-type: none"> •Developing a multidisciplinary perspective that bridges technology, heritage conservation, and business innovation. •Enhancing skills in data analysis, qualitative research methodologies, and comparative case studies. •Promoting awareness among artisans, students, and policymakers about the potential and challenges of AI in artisanal industries. •Creating educational materials and workshops to facilitate knowledge transfer on best practices for AI integration in traditional craftsmanship. <p>By fostering these competencies, the research will enhance the intersection of heritage preservation and technological innovation.</p>
Job opportunities	<p>The findings of this research will contribute to the growing demand for professionals who can bridge the gap between traditional craftsmanship and digital transformation.</p>



	<p>Potential career paths include:</p> <ul style="list-style-type: none"> •Assisting small businesses in integrating AI tools while maintaining their authenticity. •Working in institutions focused on preserving traditional crafts through technological advancements. •Contributing to government or NGO initiatives aimed at supporting artisanal industries in the digital age. •Expanding knowledge on AI applications in cultural industries and contributing to scholarly discourse. •Developing startups or business models that blend artisanal practices with AI-driven efficiencies. <p>This research will thus provide valuable insights for both industry professionals and academics, fostering innovation while ensuring the preservation of Italy's rich artisanal heritage.</p>
Composition of the research group	1 Full Professors 2 Associated Professors 0 Assistant Professors 0 PhD Students
Name of the research directors	Marinella Ferrara

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	650.0 €
By number of months	6

Stage and period abroad



Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	0

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

Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences) financial aid per PhD student per year: 5.300,25 euros per student (total for 3 years)

Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD student There are various forms of financial aid both for research and teaching activities.

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Computer availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a laptop/desktop PC, if necessary.

Desk availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a desk.



PhD in DESIGN - 41st cycle

OPEN SUBJECT Research Field: DESIGN

Monthly net income of PhDscholarship (max 36 months)

€ 1300.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

Research in the field of design is aimed at improving design processes and practices, with the final aim of developing domain-specific knowledge. It includes several forms of research, like research-based design practice, research through design, and research into design. It allows investigating new phenomena and technologies connected to emerging user behaviors and sociocultural models, in order to anticipate future scenarios. The overall goal is exploring research fields where design is applied at different scales and complexity degrees to people, organizations, communities and social entities. For a list of research topics proposed by the Design Department Faculty members, please visit: <http://phd.design.polimi.it/>

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

Different methods and approaches (e.g. historical research, experimental approach; actionresearch; meta-design; critical analysis; case study and scenario design) are being used to carry out research in the various fields of design. A multidisciplinary integration and humancentered and participated design processes will be encouraged.

Educational objectives

The learning process is based on theoretical studies linked with practical activities to enhance the skills necessary to act also as a design practitioner. The overall aim is educating design researchers with a specific attitude in exploring and devising forms of innovation able to generate value for the society, the 1 / 2 economy and the environment.



Job opportunities	The main request will come from companies, institutions, social and public bodies, NGOs and design firms looking for a design researcher able to interact with other professionals in research and innovation.
Composition of the research group	8 Full Professors 20 Associated Professors 2 Assistant Professors 92 PhD Students
Name of the research directors	LUCIA ELENA RAMPINO

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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	650.0 €
By number of months	6

Stage and period abroad	
Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	0

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences) financial aid per PhD student per year: max 5.300,25 euros per student (total for 3 years)</p> <p>Teaching assistantship: availability of funding in recognition of supporting teaching activities by the PhD student. There are various forms of financial aid both for research and teaching activities. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p> <p>Computer availability: 1st year, 2nd year and 3rd year: Each research group may supply phd</p>



student with a desk, if necessary.

Desk availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a desk.



PhD in DESIGN - 41st cycle

THEMATIC Research Field: NEW PARADIGMS FOR UNIVERSITY CAMPUSES GUIDELINES FOR THE DESIGN OF PEER-TO-PEER, EXPERIMENTAL, AND LEARNING BY DOING EDUCATIONAL ENVIRONMENTS

Monthly net income of PhDscholarship (max 36 months)

€ 1300.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

In recent years, partly due to the Covid-19 health emergency, the collective discussion on human spaces has become more intense, focusing first on residential spaces and then on public environments, in particular workplace and educational spaces such as university campuses.

The learning system was challenged in new forms, stimulating a heated debate on the role of physical space as a platform for knowledge exchange.

University campuses today are conceived as dynamic entities that must adapt and change according to the needs and demands of multiple generations and types of users, satisfying the needs of professors, students, workers, visitors and companies, becoming living organisms, composed by specialized and flexible structures that can be adapted to various conditions and requests.

This approach has prompted academic institutions all across the world to reconsider their objectives, to improve the performance and hospitality of their spaces, and to conceive new challenges and experiments.

In today's context, it is crucial to consider new creative educational models, defined not only as venues for face-to-face learning, but also as spaces where relational, experimental, and learning-by-doing activities can take place.

The research will focus on mapping international



	<p>The research will focus on mapping international experiences, considering laboratories, study spaces and relational spaces, investigating hybrid and interdisciplinary methods to create services and environments to stimulate and support innovative educational and research processes.</p> <p>The main objectives are the identification of a flexible and adaptable paradigm and the definition of guidelines for the design of permanent and temporary, dedicated and interstitial spaces that can contribute to supporting excellent, equitable and inclusive education, fostering different modes of interaction and offering new ways of experiencing space. The research is part of a broader framework of transformation and innovation, in line with RA2 of Framework D.2 Overall Departmental Development Objectives (Progetto Dipartimento di Eccellenza 2023-2027), which envisages the "strengthening of research, teaching and third mission infrastructures to support the development of the project and the achievement of its objectives (D5, D7)."</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The research methodology will be based on an interdisciplinary and hybrid approach, integrating qualitative and quantitative methods to analyze and design university campus spaces. The study will be structured into different phases, each one characterized by specific methods and techniques aimed at achieving the research objectives.</p> <p>Phase 1: Literature review and context analysisThe first phase will focus on an extensive literature review to map existing research on university campus design, including the analysis of international case studies. The review will cover architectural design, pedagogical innovations, and social interaction patterns within educational spaces. Data will be collected from academic journals, institutional reports, and policy documents.</p>



	<p>Phase 2: Field research and data collection This phase will involve direct observation and documentation of selected university campuses worldwide. The study will employ ethnographic methods, including site visits and spatial analysis, interviews and focus groups, large-scale data collection (Surveys and questionnaires).</p> <p>Phase 3: Experimental and participatory design approaches To explore innovative campus models, the research will incorporate participatory design workshops where students, educators, and interior designers collaboratively envision new spatial solutions. These workshops will employ co-design sessions, simulation and scenario building, pilot projects and living labs, testing small-scale interventions within existing campus environments to evaluate their impact and feasibility.</p> <p>Phase 4: Data analysis and synthesis The collected qualitative and quantitative data will be analyzed using mixed-method approaches, including thematic analysis, statistical analysis and comparative analysis, assessing case studies to identify successful strategies and adaptable design principles.</p> <p>Phase 5: Development of Guidelines and Frameworks The final phase will focus on synthesizing the findings into a set of flexible and adaptable guidelines for designing and managing university campus spaces. These guidelines will address key dimensions such as spatial flexibility, technological integration, sustainability, and inclusivity. By employing this methodology, the research aims to contribute to the redefinition of university campuses as dynamic, inclusive, and adaptable environments that support learning, collaboration, and innovation.</p>
Educational objectives	<p>The proposal aims to equip researchers with the knowledge and skills necessary to analyze and design innovative environments within university campuses. Given the evolving nature of educational spaces, the program focuses on interdisciplinary methodologies that integrate interior design, pedagogy, and technological</p>



advancements.

The major educational objectives are:

Objective 1: understanding the role of space in education

Doctoral candidates will explore the relationship between physical space and learning outcomes. By analyzing contemporary campus models, they will investigate how spatial configurations influence knowledge exchange, collaboration, and accessibility. This will involve:- Studying flexible and adaptive campus infrastructures.- Examining historical and contemporary shifts in educational spatial planning.- Assessing the impact of hybrid and blended learning environments.Â

Objective 2: developing interdisciplinary research skills

The program fosters a cross-disciplinary approach, integrating interior design, sociology, cognitive sciences, and digital technologies. Research methods will include:- Ethnographic studies and field research on university campuses.- Data collection through surveys, interviews, and participatory design workshops.- Simulation and modeling of spatial configurations using digital tools.Â

Objective 3: designing innovative learning environments

PhD candidates will actively engage in developing prototypes and experimental interventions that reimagine university spaces as dynamic learning ecosystems. This includes:- Conceptualizing and testing new campus configurations.- Creating guidelines - Implementing pilot projects.Â

Objective 4: contributing to policy and institutional strategies

By synthesizing their findings, researchers will provide evidence-based recommendations for policymakers and academic institutions. This involves:- Formulating frameworks for the flexible and sustainable development of campuses.- Advising universities on enhancing spatial and technological infrastructure.- Publishing research in academic journals and engaging in global discourse on educational spaces.Â By pursuing these objectives, PhD candidates will contribute to the broader academic discourse on educational innovation, helping universities



	redefine their spatial and pedagogical approaches in response to contemporary challenges.
Job opportunities	<p>The transformation of university campuses into dynamic, flexible environments has led to the emergence of new career opportunities across various sectors. As educational spaces evolve to accommodate hybrid learning models and interdisciplinary collaboration, professionals with expertise in space planning, technology integration, and user-centered design are increasingly in demand.</p> <p>Opportunities in Academic and Research Institutions Universities and research centers require experts who can contribute to the design and management of innovative learning environments. Career paths in this sector include:- Campus planning and development specialists- Academic Researchers who explore the impact of spatial configurations on learning outcomes and institutional strategies.</p> <p>Opportunities in Architecture and Interior Design As campuses transform, architecture and interior design firms are seeking specialists who can create adaptable, sustainable, and user-friendly spaces, applying the guidelines also to different application areas, such as corporate campuses.</p> <p>Opportunities in Policy and Consulting Institutions and governments are increasingly investing in research-based policies to improve educational spaces. Career options include:- Policy advisors in education and urban development- Consultants in learning space innovation.</p>
Composition of the research group	1 Full Professors 1 Associated Professors 0 Assistant Professors 0 PhD Students
Name of the research directors	Mauro Ceconello, Giulia Gerosa

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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	650.0 €
By number of months	6

Stage and period abroad	
Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	0

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences) financial aid per PhD student per year: 5.300,25 euros per student (total for 3 years)</p> <p>Teaching assistantship (availability of funding in recognition of supporting teaching activities by the PhD student): There are various forms of financial aid both for research and teaching activities. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p> <p>Computer availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a laptop/desktop PC, if necessary.</p> <p>Desk availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a desk.</p>



PhD in DESIGN - 41st cycle

THEMATIC Research Field: SYNTHETIC DATA FOR MORE-THAN-HUMAN DESIGN SPECULATION

Monthly net income of PhDscholarship (max 36 months)

€ 1300.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

The growing influence of artificial intelligence (AI) and machine learning (ML) invites critical engagement with how these technologies shape multispecies and more-than-human relationships. Current AI systems and synthetic data generation methods, whether based on statistical modeling, generative networks, or simulation approaches, remain grounded in biased datasets and colonial knowledge structures, often reproducing epistemic violence and marginalizing nonhuman agencies. **This PhD project investigates synthetic data as a speculative tool for fostering more-than-human futures**, emphasizing pluriversal and decolonial practices. Research objectives:

1. **Explore how synthetic data can enact more-than-human entanglements**, fostering multispecies justice and ecological responsiveness.
2. **Develop decolonial frameworks for synthetic data production** that resist epistemic violence and promote pluriversal world-making.
3. Investigate how synthetic modeling can center situated knowledge and **avoid universalizing or extractive modeling practices**.
4. **Probe synthetic data prototypes as speculative design tools** to interrogate contested realities and imagine alternative more-than-human futures.
5. Develop alternative approaches to current synthetic data practices that better **represent more-than-human**



	<p>relationships and ecological complexities.</p> <p>Broader impact: By integrating decolonial perspectives and situated ecological practices, this research in synthetic data for more-than-human design challenges the colonial legacies and geopolitical positionality of current AI systems, illuminating new sociotechnical pathways for more equitable futures.</p>
Methods and techniques that will be developed and used to carry out the research	<p>The research will follow a Research through Design approach and will entail:</p> <ol style="list-style-type: none"> 1. Theoretical framing: Engage with multispecies justice, decolonial theory, and relational ontologies to position synthetic data within more-than-human design practices. 2. Technical development: Engage with machine learning frameworks and generative models to create synthetic datasets that represent more-than-human relationships and ecological dynamics. 3. Design experiments: Develop synthetic data-driven speculative design projects, reflecting on their impact in promoting more-than-human futures. 4. Prototyping and reflexive evaluation: Create and evaluate synthetic data prototypes, emphasizing their potential for place-based, justice-oriented action. 5. Critical analysis: Apply decolonial and feminist frameworks to evaluate the ethical implications and effectiveness of synthetic data prototypes.
Educational objectives	<p>This PhD position will prepare the candidate to become a leading researcher in more-than-human AI and synthetic data. The position is designed to cultivate interdisciplinary expertise at the intersection of AI, synthetic data, and more-than-human design, fostering the ability to critically engage with emerging technologies through decolonial and multispecies perspectives. The selected candidate will develop a unique combination of theoretical, technical, and speculative design skills, contributing to transformative research on synthetic data for ecological</p>



and justice-oriented futures.

Educational objectives:

1. Develop a critical understanding of AI, synthetic data, and their sociotechnical implications

- Understand the historical and geopolitical dimensions of AI and their entanglement with colonial knowledge structures.
- Critically assess the biases and epistemic violence embedded in existing synthetic data practices.

2. Engage with decolonial, more-than-human, and pluriversal theories

- Study key texts in decolonial theory, multispecies justice, and relational, more-than-human ontologies to frame synthetic data as a speculative and political medium.
- Explore how feminist epistemologies can inform new modes of AI and data production.

3. Develop technical and computational proficiency in synthetic data creation

- Acquire hands-on experience with machine learning frameworks, generative adversarial networks (GANs), and synthetic data pipelines for more-than-human modeling.
- Experiment with data augmentation, simulation, and multimodal synthesis techniques to explore alternative approaches to representation.

4. Explore speculative design as a methodology

- Develop design probes and experimental prototypes that challenge dominant AI narratives and introduce pluriversal world-making perspectives.
- Engage with diverse stakeholders, including artists, activists, ecologists, and AI practitioners, to explore



	more-than-human applications of synthetic data speculation.
Job opportunities	The graduate of this PhD research will be well-positioned for diverse career pathways at the intersection of AI, synthetic data, and more-than-human design. The interdisciplinary nature of the research -spanning speculative design, machine learning, decolonial theory, and ecological justice - opens up opportunities in academia, industry, policy, and the creative sector
Composition of the research group	2 Full Professors 4 Associated Professors 1 Assistant Professors 0 PhD Students
Name of the research directors	Elisa Giaccardi, Chris Speed (RMIT, Australia)

Contacts	
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	650.0 €
By number of months	6

Stage and period abroad	
Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	0

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences) financial aid per PhD student per year: 5.300,25 euros per student (total for 3 years)



Teaching assistantship (availability of funding in recognition of supporting teaching activities by the PhD student): There are various forms of financial aid both for research and teaching activities. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a laptop/desktop PC, if necessary.

Desk availability: 1st year, 2nd year and 3rd year: Each research group may supply phd student with a desk.