PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 8 EXPERIENCED GRANTS LASTING 36 MONTHS AND 1 EARLY STAGE GRANT LASTING 12 MONTHS FOR CONDUCTING RESEARCH PURSUANT TO ART. 22 OF LAW NO. 240/2010 AT THE DEPARTMENTS WITHIN THE FRAMEWORK OF THE 2020 STARS PROGRAMME – II PART – CUP: F54I19000980001 (TYPE A) PICA CODE 20AR020

announced with decree of the Chancellor Rep. no. 325/2020 of 16.07.2020 and posted on the official registry of the University on 27.07.2020

RESEARCH PROJECT CODE 1

"Institutions, Social Norms and Preferences"

Research structure: Department of Management, economics and quantitative methods

Duration of the grant: 36 months

Scientific Area: 13 - Economics and Statistics
Academic recruitment field: 13/A1 - Economics
Academic discipline: SECS-P/01 - Economics
Scientific Director: Prof. Paolo BUONANNO

The proper functioning of societies and economic and social activities is based on the existence of cooperation, trust, coordination between individuals and, more generally, on the existence of "social preferences". Trying to explain the differences in economic growth and development rates, or why some nations are richer than others, a growing body of the economic literature points to differences in individual behavior in social interactions. Why we see so many significant differences between countries and differences even within the same country or city is still an open question. A possible answer to this question is the existence of prosocial norms and cultural traits which may or may not favor the success of cooperation and trust.

Similarly to the spirit in which STEM sciences draw on the data to verify their theories, economic experiments allow us to obtain the necessary behavioral principles to understand such observed data patterns in economics data. In contrast to other sciences, however, the experimental approach has not progressed to the point of being a cornerstone of the scientific method in economics. Moreover, while many experimental studies focus on social preferences per se, surprisingly little has been done to link laboratory data with real data on social institutions.

This project aims to broaden the understanding of the relationship between social preferences and the establishment of social and cultural norms in a group of individuals. By combining multiple-laboratories and lab-in-the-field experiments with non-experimental data (e.g. administrative, historical), this project aims to assess the influence of current and historical factors contributing to the quality of institutions to have a sharper inference on the prosocial behavior observed in the lab and, in turn, draw deeper policy-relevant conclusions.

"Computational tools to support personalized medicine"

Research structure: Department of Human and social Sciences

Duration of the grant: 36 months

Scientific Area: 01 – Mathematics and informatics Academic recruitment field: 01/B1 - Informatics

Academic discipline: INF/01 - Informatics **Scientific Director**: Prof. Paolo CAZZANIGA

This project focuses on the definition of innovative computational tools involving mathematical modeling, machine learning, simulation and analysis algorithms. Moreover, such tools will require unconventional computing infrastructures, such as Graphics Processing Units. The results of the analyses of the mathematical models developed during the project will help in understanding the complex molecular and cellular process at the basis of complex biological systems, which nowadays still need to be clarified, allowing to define accurate interventions of personalized medicine.

The summary of the project is the following:

- 1. literature review concerning single-cell data collection techniques, computational methods to analyze such data, and modeling and simulation approaches of complex systems.
- 2. Definition and implementation of innovative methods to integrate omics data and to manually and automatically define mathematical models for the analysis of complex cellular processes.
- 3. Validation of the computational tools exploiting both synthetic and publicly available data.
- 4. Application of the computational tools to real cases, exploiting the research collaborations of the project advisor.
- 5. Dissemination of the results in international conferences and journals; improvement and extension of the computational tools developed during the project.

"Mapping Russian Formalism, or Towards a Theory of Cultural Translatability"

Research structure: Department of Foreign languages, literatures and cultures

Duration of the grant: 36 months

Scientific Area: 10 - Antiquities, philology, literary studies, art history

Academic recruitment field: 10/M2 - Slavic studies

Academic discipline: L-LIN/21 – Slavic studies **Scientific Director**: Prof. Ornella DISCACCIATI

Objective:

Scholarship has yet to solve the issue of identity of Russian Formalism and to advance a philology-based organization of the ideas of a current that can be seen as the incipient moment of a new scientific consciousness.

The research goals are:

- 1) To create a corpus of primary and secondary sources and organize them in an open-access online platform in which also the history of the movement will be available in hypertext form;
- 2) To organize a research group that, via a shared methodology outlined at an international conference, will pursue a theoretical and methodological advancement of the Formalist ideas;
- 3) To carry out the first unabridged translation from Russian into Italian of a scientifically reconstructed and philologically reliable corpus of seminal works of the movement;
- 4) To implement the results in terms of methodology and educational purposes.

The results of the project will be of scholarly interest for slavists as well as for scholars of (not only) human sciences. After a long period of unsolved contrasts and contradictions throughout a turbulent twentieth century, Formalist ideas seem to suggest the opportunity of a "Philosophy of translation" as "strong" theoretical approach to contemporaneity.

Theoretical framework:

After decades of ideological closures and unproductive theoretical polemics, it seems now possible to fill a gap in the reconstruction of twentieth century Russian and European culture. After more than a century from its first appearance, the analysis of Russian Formalism, one the most productive and controversial scientific currents of the past century, still lacks, even taking into account often brilliant, yet isolated studies, a unanimously accepted structuring among scholars as it should be the case for a movement that, together with historically concurrent scientific discoveries, fostered an authentic epistemological revolution, the heuristic scope of which has yet to be equaled and acknowledged, despite its relevance for current scholarship. After suffering from strict "historicization," the movement needs to be reassessed within a larger perspective that would enable to fully exploit its potential.

Conversely, it seems now evident that only an updated mapping of the core ideas of Formalism can, on the one hand, permit the identification of the elements targeted by both Marxist critics and self-proclaimed adversaries such as M. Bakhtin and his Circle, and, on the other hand, allow to trace the evolution of concepts that, in later years, would be appropriated by all the main theoretical currents of the twentieth century, not only Russian: Prague Structuralism, Moscow-Tartu School, New Historicism, Cultural Studies and French deconstructionism.

The set goal is to reconstruct the history of a "Copernican revolution," supposedly the most powerful in "human sciences" – a definition that, despite its oxymoronic undertones, potentially owes its current status maybe precisely to the Formalists.

At the same time, the task pertains to the tracing of an isotopy in what we provocatively call the "long century." The intention is to create a linkage between the theoretical intuitions of major scholars of two turns-of-century ago such as Potebnia and Veselovsky, to our days through a reassessment of a series of "epistemological breaks" that are in effect just "micro factures" from the point of view of contemporaneity. It's not a chance if this isotopy, enforced by the Moscow-Tartu School, led to the theorization of the concept of "Total Translation" (Torop 1995).

Research project description:

Founded in 1915, the Moscow Linguistic Circle (MLK) would witness the birth of the Society for the Study of the Poetic Language (OPOJAZ) the following year. From the ideal conjunction of these two souls, a trend of literary criticism that initiated an authentic Copernican revolution in the humanities

took shape: the Formal School – or, according to a denomination from which its members distanced themselves, Formalism.

A century later, it can be stated that the analysis of one of the most thought-provoking and controversial currents of the past century has resulted in the publication of a limited amount of mustread anthologies (see bibliography), while focusing instead on discrete applications and investigations such as textual contextualization, restorations, refutations of single authors depending on the level of competence and field of research - and therefore of hermeneutic priority - of the scholars involved. In a word, this calls for a scholarly investigation in which the body of authors and works that, to a greater or lesser extent, can be labeled as "formalist" is given structure, and in which, at the same time, internal and too often "narcotized" links among these authors and works are "magnified" (Eco 1984). Hence the main goal of the project: first, to create a definitive corpus of primary sources that pertains to the theoretical aspect of the movement; second, to structure a corpus ("non definitive" - in progress - by definition) of the interpretative approaches advanced so far both in Russia and abroad. The results of the investigations will be made available to the international scientific community in the following hypostases (at different stages of the investigation): 1) An open-access hypertext; 2) A new miscellany of texts never translated into Italian a) from the Russian source texts b) organized by one single guide able to identify, à la Wittgenstein, "the connections" among the various texts and authors; 3) A new "mapping" accessible on multiple levels. This mapping will not limit itself to issues of "historicization", but it will prove an important heuristic tool whose full potential and range has never been fully investigated and developed. This tool will also serve as an methodological auxiliary tool in related fields such as translation studies (perevodovedenie) or, broadly speaking (if not vice versa), of Cultural Studies (kul'turologiia); 4) A cultural dissemination with important applications in higher education: for advanced university modules in linguistics, translation theory and practice, literary theory, philosophy of language, as well as in related fields such as philosophy of science,

Key-words:

Slavic Studies, Theory and practice of translation, History of ideas, Literary Criticism.

Time:

36 months divided into five partly overlapping phases.

- 1) online creation and dissemination of the corpus of primary texts 18 months;
- 2) online creation and dissemination of the corpus of secondary texts 18 months;
- 3) organization of an international conference to verify the validity of the chosen approach with the scientific community 6 months;
- 4) drafting of an open access hypertext 24 months;
- 5) development of teaching modules for distance learning 12 months

Expected results:

The project suggests the following applications:

ACADEMIC:

- 1. in the form of a hypertext that not only fills a prominent gap in the reconstruction, now possible, of a fundamental page of Russian culture of the twentieth century, but which presents itself as a free and easily accessible tool for specialists, researchers and even students of areas other than Slavic;
- 2. in the publication of a new corpus of translations signed by a single hand, carried out according to the only admissible heuristic approach, i.e. from Russian, on the basis of philologically reliable editions and archival materials;
- 3. in the organization of an international and interdisciplinary research network aimed at reconstructing the European cultural memory while strengthening the fusion between the philological tradition and the innovations of digital humanities.

DIDACTIC:

- 1. in the creation of a model of usability of the contents through an interactive approach that privileges the active participation of students with tools for verifying learning.
- 2. in the form of didactic modules created with the tools of the digital humanities in order to make the lesson of the formalists not only accessible but also applicable. The recipients are teachers of high schools (updating modules for teachers recognizable in the TIF programs), researchers, university professors of disciplines other than Slavic Studies as well.

EPISTEMOLOGICAL:

- believing that humanistic science (both in Russia and in Europe) has passed the stage of Formalism "too soon" (Avtonomova 2009),

- proposing different "welds": in relation to the historical context of reference, to the predecessors, to the successors; through an interpretive prism which underlies the individual theories.

If the translation presents itself as "refleksivnyj resurs ponimanija" (Avtonomova 2009) through our proposal of reading a long-read and rereading text - for too long, we dare to paraphrase Shklovkskij himself, "recognized" and no longer "seen": we might approach to a renewed idea of "Total Translatability" of culture, because the methodology of formalism, its system of concepts and the powerful metaphorical potential of its terminology have served as a paradigmatic matrix for many contemporary currents oriented towards overcoming a strictly disciplinary structure of knowledge.

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"Design of efficient algorithms for temporal network analysis"

Research structure: Department of Letters, Philosophy, Communication

Duration of the grant: 36 months

Scientific Area: 01 - Mathematics and informatics **Academic recruitment field**: 01/B1 - Informatics

Academic discipline: INF/01 - Informatics **Scientific Director**: Prof. Riccardo DONDI

The project will study problems related to the analysis of temporal networks (or temporal graphs). The evolution of complex systems has made the analysis of temporal networks a topic of considerable interest and has opened various research directions in algorithm design. The project will focus on some of the most interesting problems in the analysis of temporal networks, such as the identification of communities and cohesive subgraphs, the identification of recurrent patterns, the study of network connectivity related to the dynamics of temporal links.

The study of temporal networks poses new challenges both in problem definition and in the design and implementation of efficient algorithms. The evolution of temporal networks requires the introduction of new metrics to measure connectivity, density and width of the networks. These new definitions will have to extend the concepts defined for static networks in order to effectively characterize the importance of nodes and the structural properties of the networks.

From an algorithmic point of view, the project will address the new computational and experimental challenges posed by these network models. In particular, the project will analyze the computational complexity of the problems in the literature, also considering the recent fine-grained approaches. In addition, the activity will focus on the design and implementation of efficient algorithms for the analysis of temporal networks and their experimentation on synthetic and real data. In this direction, the project will consider the main techniques for algorithm design on graphs.

"QuAMeSS - Quality assurance of medical software systems"

Research structure: Department of Management, information and production engineering

Duration of the grant: 36 months

Scientific Area: 09 - Industrial and information engineering

Academic recruitment field: 09/H1 – Information processing systems **Academic discipline**: ING-INF/05 – Information processing systems

Scientific Director: Prof. Angelo Michele GARGANTINI

The QuAMeSS (Quality assurance of medical software systems) project aims to study methodologies for quality assurance of medical software systems.

QuAMeSS will develop in two integrated research lines.

The first will try to investigate how the use of rigorous methods based on logic and mathematics (formal methods) can be integrated into the medical software process in order to guarantee those desired safety properties. The use of formal methods is known in the literature and also recommended by the standards and guidelines for the development of medical software. These methodologies have the advantage of providing an objective and verifiable sw quality certification also by third parties. However, the cost of using these techniques makes their application not very widespread. Sometimes the lack of automatic support tools and the lack of training constitute a barrier to their diffusion. With this project we want to study possible actions that encourage the use of these methodologies in the industrial field.

The second line of research concerns the definition of methodologies for the quality assurance of machine learning algorithms (ML) (automatic learning) in the medical field. In fact, it is known that these algorithms can be subject to "adversarial examples" (antagonistic examples): data with changes imperceptible to humans confuse these systems leading to incorrect outputs (for example in the classification of carcinomas causing incorrect diagnoses). Starting from some of our preliminary works, we want to investigate robustness and reliability measures of ML algorithms and techniques to improve these qualities.

"Ego vero mansi hic". Between heremitae and aventures: phylogenesis of the island as a literary topos

Research structure: Department of Foreign languages, literatures and cultures

Duration of the grant: 36 months

Scientific Area: 10 - Antiquities, philology, literary studies, art history

Academic recruitment field: 10/E1 - Medieval Latin and romance philologies and literatures

Academic discipline: L-FIL-LET/08 - Medieval and humanistic Latin literature

Scientific Director: Prof. Francesco LO MONACO

Objective:

This research project takes aim at delving deeper into the literary history of the island as a topos, tracing back to the European Middle Ages the way it took shape while its representations followed one another. Such a diachronic and comparative perspective, as epitomised by Mimesis (Auerbach [1946] 2000), is bound to highlight how the distinguishing features of the island "ideogram" in the Western imagination (McMahon 2016: 5) were established as a pattern through the succession of echoes and reinterpretations. Specific attention will be paid to the rise of the modern era as medieval forms melted into different contexts. The model of the hermitage should provide relevant insights concerning: a) spatial and cultural displacements; b) the issue of individuation (at the crossing point of narrative voice and formae vitae); c) the temporal consequences of seclusion.

Theoretical framework:

From a theoretical standpoint, Curtius' classic work will be paramount, even more so in light of his mention of islands while discussing the locus amoenus (Curtius [1948] 1992: 216, 221); a pertinent hypothesis explaining the origins of overlapping temporal and spatial structures in medieval poetics is also set forth, albeit in passing (Curtius [1948] 1992; 217), Along these lines, the bakhtinian concept of chronotope (Bachtin 1979) is equally fundamental, as a hermeneutic device whose versatility allowed Bakhtin himself to apply it as suitably both in the case of Greek romance and 19th-century novel: likewise, it looks especially fitting in order to examine how cultural relations are organised around the rhetorical space of a topic (in its etymological meaning). Gurevich's research works on space-time forms in archaic and medieval mentality shouldn't be overlooked, either. Gurevich's relevance stretches even further when considering his seminal contribution to the debate surrounding the rise of individual awareness: in fact, he showed that it might date back to medieval categories prior to Renaissance. It can well be expected that the idea of individuation could be fruitfully related to both literary images, the island and the hermitage, granting a three-pronged mutual insight. Taking into account Lotman's work on the margins of culture (Lotman 1985) is just as unavoidable. The accent placed on the temporal dimension prompts to call upon the thought of Cioranescu, whose personal background, by the way, led him to experience insularity as a consequence of his voluntary exile: his legacy both in literary theory and comparative literature provides further elaborations on the subject of islands as he deals with the myth of Atlantis (Cioranescu 2014). Foucault should also be included among these well-established theoretical references, inasmuch as islands can be associated with several qualities of heterotopia (Foucault 2001). On the other hand, when addressing the most recent and innovative methodological approaches, the thematic trend of Italian comparative studies stands out: although it was at its peak during the first decade of the 2000s, it's still far from being worn-out (Domenichelli 2003). The constant growth of another branch of undoubtedly useful studies for this project, those dedicated to travel literature also covers a twenty-year time span, along with Itineraria, a journal expressly dealing with this topic which SISMEL has been publishing since 2002. In the international context, the works of Biemann are surely worth mentioning: the artist and theorist articulated an in-depth interdisciplinary examination of human geography in terms of circulation and flows, with a marked attention to thresholds and marginal spaces (Biemann 2003). The rising trend of ecocriticism is as well endowed with huge significance, both in general terms and for this project, according to its provisional definition as the "study of the relationship between literature and the physical environment" (Glotfelty, Fromm 1996: xviii). The last twenty years of its initially nebulous evolution have been summarised by Zapf (2016). Lastly, due attention should be paid to the fact that Exemplaria entirely dedicated its 2015 monographic issue to the relationship between medieval literary genres and formae vitae.

Research project description:

After a few decades of quiescence, in recent years the theme of the island has been raising again academic interest through a number of different fields, be them philosophy, semiotics or cultural studies: however, island studies, although rather prone to illustration with literary exemplars, often look upon their object as a given reality - a commonplace indeed - while neglecting its prior constitution in the realm of literature. As a consequence, we face the apparent paradox of a theme whose fortune is based on a solid literary history, but which was addressed with the tools provided by this discipline less often than one could expect, at least in Italy and in the context of its current voque. And yet: "Literary studies are an essential component of contemporary island studies in a number of ways. [...] [L]iterature is a major site where the Western imagination repeatedly reharses and develops the enthralment of the island. The island enchantment has created a kind of island ideogram in the collective psyche, one that connects identity, space and desire" (McMahon 2016: 5). The reconstruction of a phylogenetic profile (so to say) of this figure in the European tradition is urgently needed: Pinet (2011), though with a limited scope, represents a concrete example of Romance studies applied to the treatment of the island in the Iberian world (in literature and beyond), as it took shape through the cycles of chivalric adventures and then stabilised in a set of available metaphorical images. The recent publication of the editio major of the Navigatio Sancti Brendani (Guglielmetti ed., 2017) inspires a broadening of the horizons which were mapped out by Pinet: in particular, the Navigatio hints at a substantial line of research focussed on the interactions and feedbacks between textual forms and life forms. It's a subject which tends to surface with striking clarity in the case of the Middle Ages, whose study hence becomes especially productive when it comes to testing the corresponding results in the longue durée (Agamben 2011). It is thus possible to make out a promising convergence which links together the island and the paradigm of the hermitage: the key is not insisting on isolation, but on the peculiar combination of marginalisation and regained centrality embodied by the hermitage, with all the related implications in terms of temporality. According to what Lancioni points out in his quite uncommon work about the medieval vision of insularity, the island was thought as a "place of mediation and passage, of initiation. So, here we are: the island, a decentralised and marginal space, can [...] be transformed into the centre" (Lancioni 1992: 12). An inevitably reduced sample of the range of possible applications should include at least a reflection on the role of the island as an implicit model for the crystallisation of nation states; moreover, the trend towards urbanisation and the tumultuous evolution of the role of cities pose questions which can be tackled drawing upon the imagery of the island and of the hermitage; finally, the paradigm of the hermitage as forma vitae seems to entails, on the one hand, individuation or even seclusion, whereas on the other hand it makes room for multiplied or expanded perspectives: as such, it befits the latent logic of a society in which mobility redefines the sense of presence.

Kevwords:

Island; hermitage; European Middle Ages; forma vitae; chronotope.

Time:

In broad terms, the research will be scheduled along three main stages:

- 1) Bibliographic review of the existing academic literature and of all the primary sources involved. This first stage will be partly overlapping with preliminary papers given at conferences and with incipient teaching work (~14 months).
- 2) Dissemination of results in two "sub-stages": a) online platform, teaching activities, publications in scientific journals (6 months); b) organisation of a workshop or symposium and a teaching seminar; further papers given at international conferences (6 months).
- 3) Coalescence of the research work and of the confrontation with the scientific community into a monographic work (10 months).

Expected results:

The project fully abides by the terms of the section "Europe in a changing world – Inclusive, innovative and reflective societies" from Horizon 2020. An exploration of the collective archives of the European imaginary, as embedded and circulated by literature, answers efficiently the demands of this challenge, which have indeed materialised in the pursuit of "[the] transmission of European cultural heritage". The comparative approach, characteristic of medieval philology, responds to the need of work programmes that concentrate on "a better understanding of Europe's cultural and social diversity and of its past" (ec.europa.eu: Horizon 2020, SC6). The potential scope of the project, nonetheless, goes beyond the appreciation of memory and a suitable redefinition of identity based on the symbolic genealogy: in a sense, the proposals of Horizon 2020 were conveyed in advance by the goal which Weaver-Hightower set in 2007 for her research around the role of insularity in colonial cultures, that is "[a] better

understanding of how literature and island narratives in particular participate in sociohistorical processes" (Weaver-Hightower 2007: 5). Besides, and just as consistently with the work programmes of Horizon, it is essential to claim "the enduring relevance of literary studies and its interpretive approaches to a full appreciation of human diversity, which cannot be captured by purely quantitative methods", as it was again proposed, among others, by a recent study significantly dedicated to "[e]xploring the links among accelerating patterns of migration, homogenizing forces of globalization, and transnational sites of creativity" and "discuss[ing] the critical effectiveness of literature as an agent of cultural change" (Lionnet, Jean-François 2016: 1222). This, by the way, points to a specific Call of Horizon, namely Narratives on migration and its impact: past and present (MIGRATION-09-2020). The dissemination of the research results will follow two traditional channels of the scientific community: one day seminars, symposia or conferences; publications in academic journals. Alongside these two aspects, one should mention the constant teaching activity, following the advancement of the research. An online platform (a site and a forum) will be the major teaching tool, based on principles of collaboration with scholars in the field. There will be a at least one participation a year to conferences or symposia with individual papers. There will be also a constant effort to diversify the international venues of the events. The third and last year of the research will be devoted to the writing of a volume which has to be concluded within the three years of the scholarship, but that could be published after the end of the research period (because of publishing and printing reasons). Before the end of the three years the researcher will have at least three essays accepted for publication in scientific journals (two of these publications should be in "Classe A" journals, according to the ANVUR LIST). There will be a final international conference at the University of Bergamo: in case this meeting cannot take place for practical reasons, the conference may be substituted with a workshop. In any case the proceedings will have the researcher as the one and only editor.

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"Towards an integrated knowledge management of Historical Urban Landscapes. Applying H-BIM and Web-GIS tools to the conservation and maintenance of the historic heritage belonging to Bergamo City Council"

Research structure: Department of Engineering and applied sciences

Duration of the grant: 36 months

Scientific Area: 08 - Civil engineering and architecture

Academic recruitment field: 08/E2 - Conservation, restoration and history of architecture

Academic discipline: ICAR/19 - Conservation and restoration of architecture

Scientific Director: Prof. Giulio MIRABELLA ROBERTI

The research aims exploiting the experience in the field of survey of architectural heritage for setting up a platform integrating GIS systems, geo-referencing registered heritage, and systems for registering the information on historic buildings based on the extension of BIM models to the heritage, the so-called H-BIM (Heritage Building Information Model).

These systems start from a 3D model of the existing building, to register in it all the information characterizing each element: from the material constituency to the constructive stages detection, from the sequence of the past restorations to the provision for future maintenance intervention, in a dynamic data-base continuously updating, easily accessible also by web. Many H-BIM applications have been already developed, as well as in-depth analysis of the ontologies needed to define the relevant characters of different elements; but the application of BIM in an urban environment is still in the beginning.

On the other hand, some important developments have been achieved in GIS environ-ment for the Risk Map of the MiBAC (Ministry of Cultural Heritage), particularly by the team of 'La Sapienza' University in Rome. At this point, the connection of the two levels of analysis appears particularly useful, building a 3D model able to keep the spatial level of information and matching more closely the complexity of the urban environment.

In practice, the information level at the territorial scale of GIS, based usually on cartographical 2D maps, has to be transferred first to a volumetric GIS at the urban scale, in order to integrate the essential landscape elements, and then have to enter in detail at the single relevant building level by H-BIM models. In these models can be integrated the geometrical description, obtained by modern 3D survey tools, and the technical and historical information, coming from the analytical investigations and the record of previous maintenance interventions.

"The Giuseppe Lombardo Radice Legacy in the Post-War Period: Pedagogy and Didactics. The Educational theory of "Scuola serena" and the raising of teaching experience."

Research structure: Department of Human and social sciences

Duration of the grant: 36 months

Scientific Area: 11 - History, philosophy, pedagogy and psychology

Academic recruitment field: 11/D1 - Educational theories and history of educational theories **Academic discipline**: M-PED/02 - Pedagogy, theories of education and social education

Scientific Director: Prof. Adolfo SCOTTO DI LUZIO

The aim of this research is to investigate the transit of G. Lombardo Radice's pedagogy among fascism, post fascism and Italian Republic, through the study of the intellectual journey of a group of scholars that in those years transfer the pool of ideas and teaching experiences gained in the early 20th century in the construction of democratic school. At the same time, the project aims to train a type of researcher that, based on a deep historical and pedagogical knowledge, also develops specific competences in the analysis of educational models as well as of teachers' training processes.

"Bergamo Detected and Revealed: the digital documentation of an important past"

Research structure: Department of Engineering and applied sciences

Duration of the grant: 12 months

Scientific Area: 08 - Civil engineering and architecture

Academic recruitment field: 08/E1 - Representation of architecture and 08/E2 - Conservation,

restoration and history of architecture

Academic discipline: ICAR/17 - Representation of architecture and ICAR/19 - Conservation and

restoration of architecture

Scientific Director: Prof. Alessio CARDACI

Introduction. The city of Bergamo is full of places of great historical, architectural and artistic importance; plots of the urban fabric and monuments of high cultural value which, studied in the past, need to be re-read and understood in the light of modern metric and material research technologies. The proposal "Bergamo Detected and Revealed: the digital documentation of an important past" is centred on the theme of the historical-architectural knowledge of the built heritage of our city, for understanding, enhancing and communicating the traces still existing today.

Objectives The project aims to develop a path of knowledge of the most significant architectures of Città Alta capable of creating a digital archive (databases, 3D models and hypertexts with HDR and 360 ° panoramic images) that can be used remotely and virtually navigable. A proposal that is based on historical-archival investigation and detection, operated through the most modern spatial acquisition tools (3D laser scanning and digital photogrammetry 3D Image-Based Reconstruction) and surface diagnostics (thermography, thermo-hygrometry, ultrasound analysis, macro and micro UV photography, etc.).

Case studies. Currently, our university is involved in two important ongoing activities: the relief of the fortress of Bergamo, with its extensive walls and imposing gates, and the plexus of San Francesco, an important hub of the urban system and example of medieval architecture in the heart of the Upper Town. The project aims to extend the historical-constructive research to the ancient seat of the University of Science, Letters and Arts of Bergamo, above the Visconti Fontanone behind Piazza del Duomo, and to the Palazzo del Podestà with the imposing civic tower, known as the Campanone, in Piazza Vecchia. Possibly, concerning the timing of the project, the detection of the Rocca and the Parco delle Rimembranze.

Phases. The annual project will be divided into three phases. a) Digitization and study of archive materials to acquire drawings, images and documentation for the interpretation of the evolutionary phases and transformations of buildings. In particular, the funds from the State Archive, the Municipality's Historical Archive, the Archives of the Bishop's Curia, the Sestini Photographic Archive and those contained in the Angelo Mai library will be examined. b) The 'in situ' surveys aimed at acquiring the metric, material and colorimetric information of the buildings and their surroundings; the measurements will use both topographical instrumentations for the creation of a general georeferencing network and active and passive sensors for the three-dimensional scan of the existing one. c) Data processing focuses on processing the raw data to transform it into clouds of colored points and continuous photo-realistic patterns. The transformation of the bit sequences into final products will take place at the lab-S.A.B.E. of the School of Engineering because it is equipped with the necessary tools for the study, reconstructive simulation and the return of graphic designs and multimedia products. The sequence of the four phases will follow the following schedule, although there may be a short overlap in the transition of transition between the one and the other; in particular phase A will have a duration of approximately two months, phase B for three months and phase C for five months (more expensive from the computational and the calculation point of view); the last phase will have a shorter duration - about a month - for the preparation of the panels and the preparation of the products.

State of the Art and originality of research: For several years, our university has started an important work of documentation and awareness of the vast complex of artistic and architectural heritage in our area. The research conducted to date – as well as those in progress – have highlighted how important monuments, although in the heart of every Bergamo, are still unknown in many respects. Symbolic architectures of the city are still lacking inaccurate surveys and appropriate graphic restitutions because they have never been investigated according to a 'scientific' approach and thanks to the use

of modern technology; the construction phases, the evolution of the construction site, their real extension and geometry, the nature of the materials and their alteration status (therefore the future 'lifetime' of the work) are still uncertain of many works. The originality of the study is linked to the use of virtual models, both for the knowledge of the work and for its enhancement; the photo-realistic models and the 3D images form the basis for the construction of multimedia platforms whose impact, linked to museum display and tourism enhancement, is widely documented by the great scientific literature on the theme of the virtual museum. The project will allow consolidating the existing relationship with the cultural institutions of the city, for future collaborations and projects.