POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture (Rehabilitation and Revaluation)
Honors theses

The Conservation Project: New technologies (laser scanner and GIS) for its formulation. The ex Convent of the Carmelite at the "Colletto" (city of Roletto)
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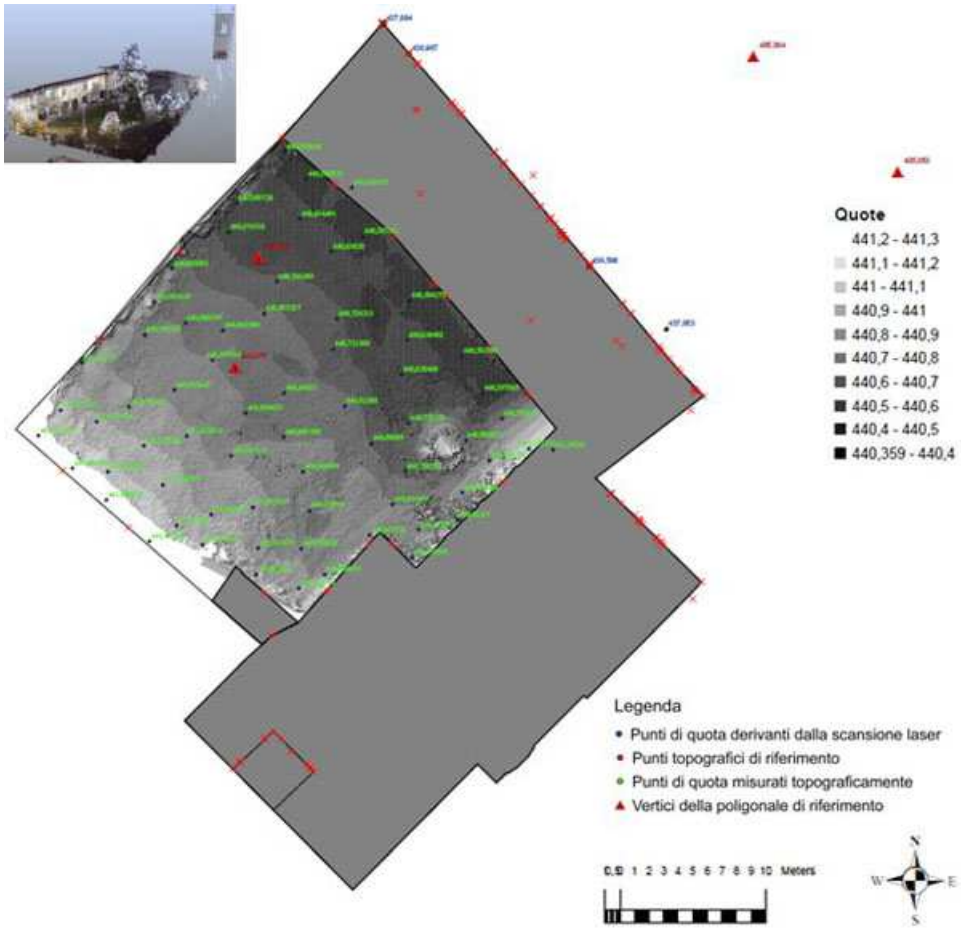
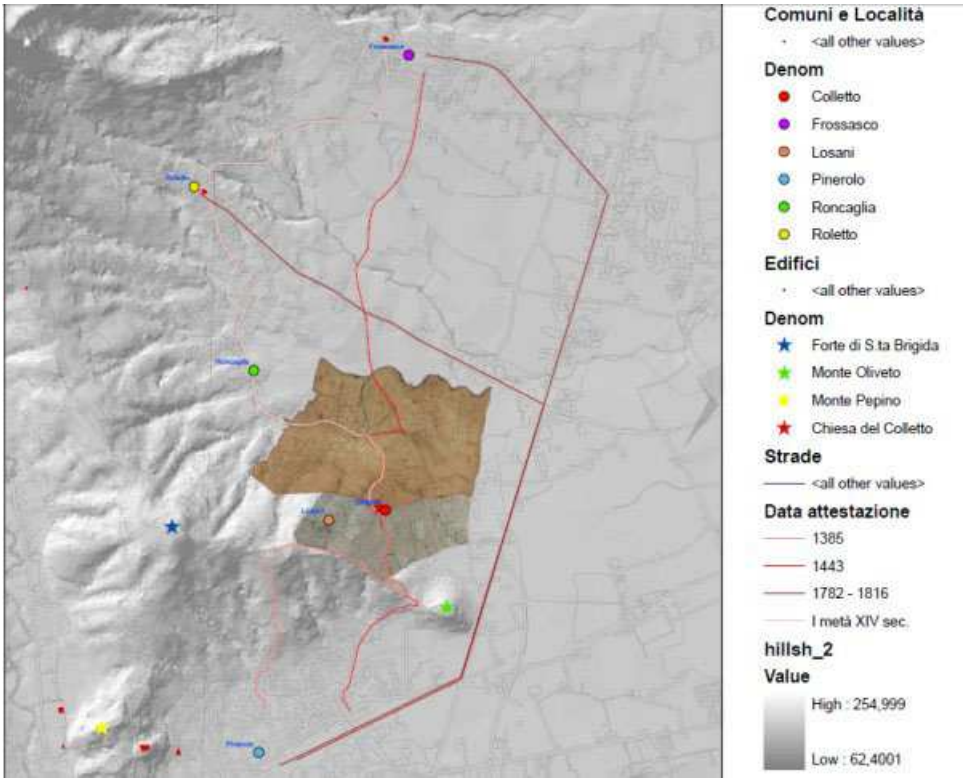
The studied object is the ex Convent of the Carmelite (1506) in locality called “Colletto”, at the boundary between the towns of Roletto and Pinerolo (TO). The building, which has a great historic and artistic value, suffered in the centuries several changements in its form and in its role, becoming very heterogeneous. Moreover it’s affected by a huge deterioration, that consists in particular in serious static and humidity problems, due to the lack of maintenance along the centuries and to the demolition (1884) of 2 wings of the convent because of their damages. Furthermore, staying in a site in the middle of different administratives and religious authority, and enjoying a strong independence until the Convent suppression (1798), there are few available documents. So incertitude and difficulty elements subsist, this makes a deep investigation through new technologies appropriate, as an help of the formulation of the Conservation Project.

The metric surveying of the building use integrated techniques: the 4 reference points are measured with a GPS instrumentation, in order to join points not visible each other and to gain georeferenced data, useful for the successive elaborations. Basing on topographic measurements, the surveying is integrated by a photographic redressing of the NE prospect and with laser scansions of the court, interesting for many reasons: differences in altitude that cause humidity problems, irregular geometry, amputation of the pulled down wings, variations in the arrangement of some elements, that show the building instability. These can be deepen from the scans, that give in a short time, with great precision, tridimensional point clouds in a unique reference system; an RGB code, captured from the integrated camera of the instrument is associated to every point. The superabundant data, are elaborated in a later time to obtain useful and communicable information, and they rest available for further elaborations or for the comparison with successive measurement to realize a goods monitoring.

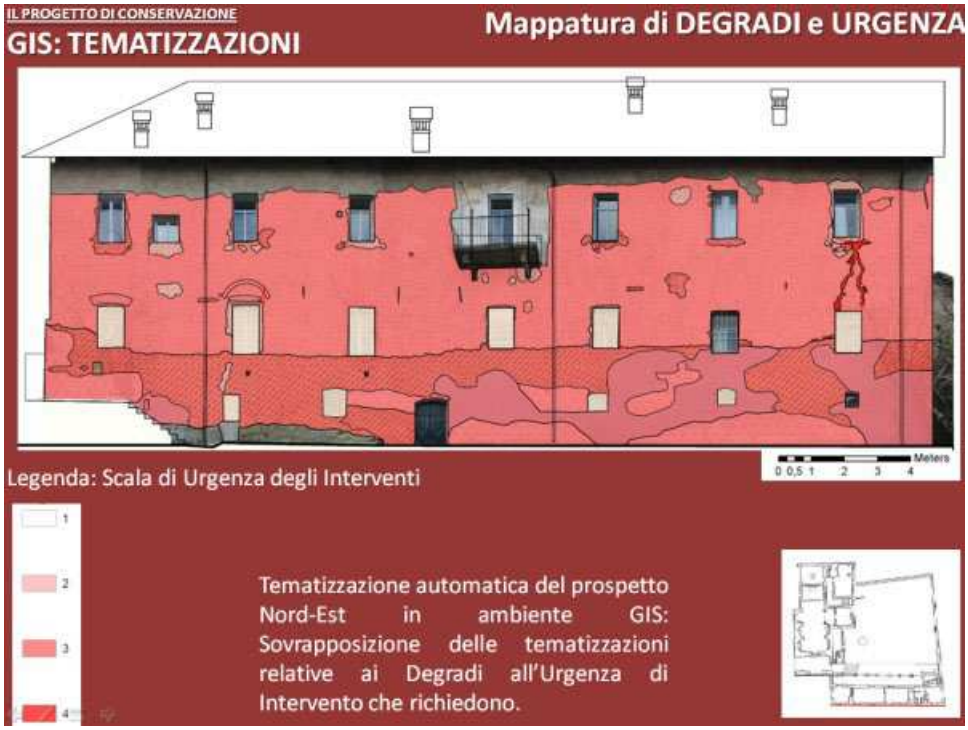


It’s important to manage in an effective way the huge amount of data collected during the preliminar phases of knowledge or producted during the redaction of the project.

In GIS you can relate and join different databases containing data of different nature, following projected univocal and express rules, to derive further data, elaborations and information (maps, query, crossing data …).
In GIS I investigated the site of the Convent in the different times, delving into the road system, properties and nature of the grounds around the church, the quite defensive rule in the XIV sec., basing on historic attestations, and with the help of the historic cartography, georeferenced with control points, for a diachronic visualization of the territory. From these elaborations, you can derive new information (es. the collocation of strategic sites related with the orographic relief, created in GIS with the interpolation of the level curves).



In particular these investigations are important when, as in this case, there aren't many documents. The real restauration project of the NE prospect of the Convent is formulated as an experimentation with GIS. After the conceptual and logic project of the system, the databases are realized, in part in GIS (spatial database) and in part with MsAccess (alphanumeric data about materials, deteriorations and interventions), related each other in GIS. Advantages of this elaborate are given from the time, considered in the succession of the interventions and in the insert of data; it remains so valid also for the future both as a form of Documentation, and for successive integrations: it's easy to update and it rest so usable and correctable. Moreover, once the databases filled in, you can question the system in order to gain further information: automatic measurement of areas, maps, query, etc.



These are useful for different objectives, included the redaction and communication of the project.

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