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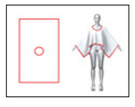
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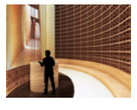
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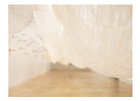


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Memories in Motion: The Assietta Road

Memorie in Movimento: la Strada dell'Assietta

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"*Memory is the fourth dimension of every landscape*" (Janet Fitch): it is along this trajectory that the present research unfolds, focusing on the relationship between historical stratification, perceptual experience, and representation. The contribution proposes the adaptation of the methodological framework developed within the N.O.D.E.S. project to the context of the Assietta Road, with the aim of testing its scalability and fostering knowledge of an Alpine historical-landscape heritage. The methodology is structured into four phases – historical reading, technological observation, integrated analysis, and visual narration – and generates a dynamic archive of the landscape capable of interweaving memory, interpretation, and innovation. The central figure is the technological nomad, a wandering interpreter of the territory, who traverses, documents, and reworks the traces of their path. Through drawing – both a cognitive act and an open-ended form of thought – and the most advanced techniques of representation, experience is transformed into language, giving shape to a new grammar of the landscape. The results demonstrate the effectiveness of the adopted approach, opening up to a shared mode of representation that restores to the landscape a cognitive, narrative, and culturally significant dimension.

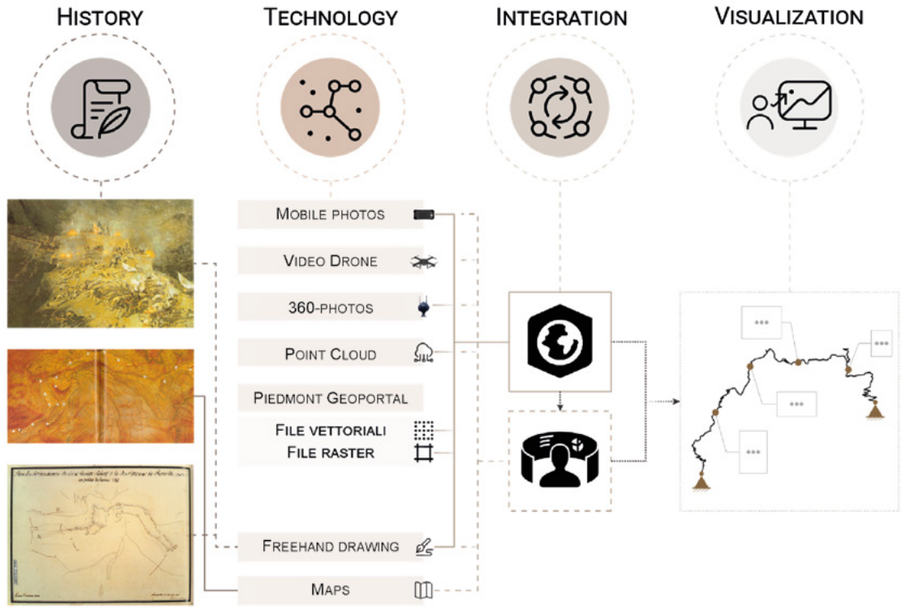
"*La memoria è la quarta dimensione di ogni paesaggio*" (Janet Fitch): è lungo questa traiettoria che si sviluppa la presente ricerca, incentrata sul rapporto tra stratificazione storica, esperienza percettiva e rappresentazione. Il contributo propone l'adattamento del framework metodologico del progetto N.O.D.E.S. al contesto di alta quota della Strada dell'Assietta, con l'obiettivo di verificarne la scalabilità e promuovere la conoscenza di un patrimonio storico-paesaggistico alpino. La metodologia si articola in quattro fasi – lettura storica, osservazione tecnologica, analisi integrata e narrazione visuale – e genera un archivio dinamico del paesaggio capace di intrecciare memoria, interpretazione e innovazione. Protagonista principale è il nomade tecnologico, interprete errante del territorio, che percorre, documenta e rielabora le tracce del proprio cammino. Attraverso il disegno – atto conoscitivo e forma aperta del pensiero – e le più avanzate tecniche di rappresentazione, l'esperienza muta in linguaggi, dando forma a una nuova grammatica del paesaggio. I risultati mostrano l'efficacia dell'approccio usato aprendo a una rappresentazione condivisa capace di restituire al paesaggio una dimensione conoscitiva, narrativa e culturalmente significativa.



01.
Assietta road view

INTRODACTION

As digital tools and immersive environments increasingly mediate our perception of the landscape, there is a growing need to recover expressive languages capable of capturing its layered complexity, memory, and emotional resonance. In this context, drawing—as a gnoseological medium—regains centrality as a tool able to intertwine stability and transience, memory and innovation. It emerges as a visual grammar of space, understood in its living and dynamic dimension, and takes on a central role within a multidisciplinary and technologically enhanced mode of interpretation.
Promoted by the Italian Ministry of University and Research and funded through the National Recovery and Resilience Plan (PNRR), the NODES project (Nord Ovest Digitale e Sostenibile) is conceived as an innovation ecosystem aimed at enabling digital and ecological transition. One of its experimental platforms, DTforVR, integrates immersive technologies and digital models to support territorial risk analysis and community-based preparedness (Aschieri et al., 2024).



02.

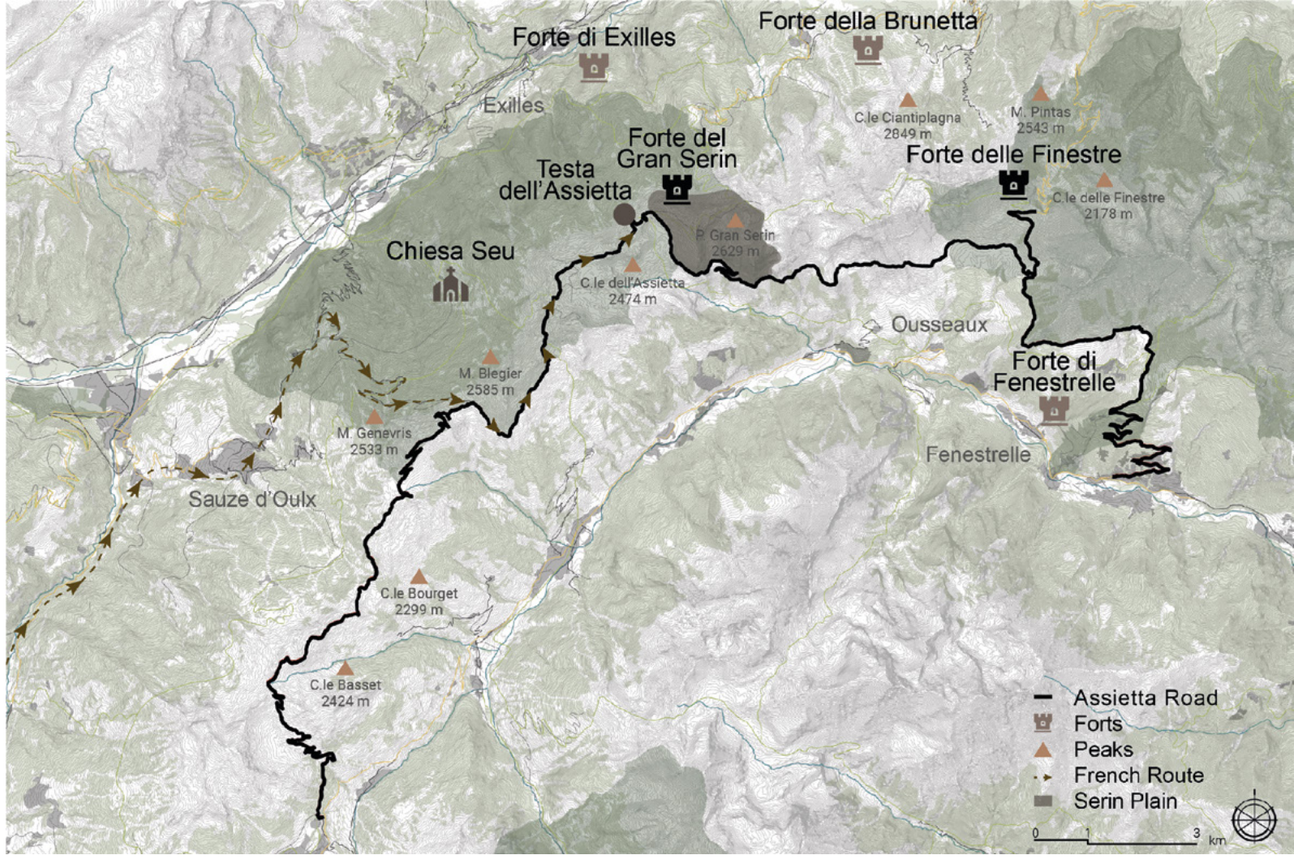
Methodological framework

This contribution applies the consolidated methodology developed within NODES to the context of Assietta Road, a former military route tracing the high crests of the Cottian Alps [Fig. 01.]. Once a strategic defense line, the road now weaves together historical fortifications, alpine villages, and contemporary landscape imaginaries. It offers a powerful site in which to explore the dialectal tension between two seemingly opposite polarities: the permanence of urban military structures and the fluid mobility of nomadic experience.

Inspired by Ingold's (2011) concept of *wayfaring*, this project reframes landscape representation not as the objective reproduction of form, but as a situated, narrative practice of movement. The landscape, in this view, is not simply occupied—it is traversed, lived, and told. The goal is twofold: to test the scalability of a multidisciplinary, digitally empowered methodology within a site of strong historical and environmental significance, and to activate new strategies for the cultural valorization of both tangible and intangible Alpine heritage.

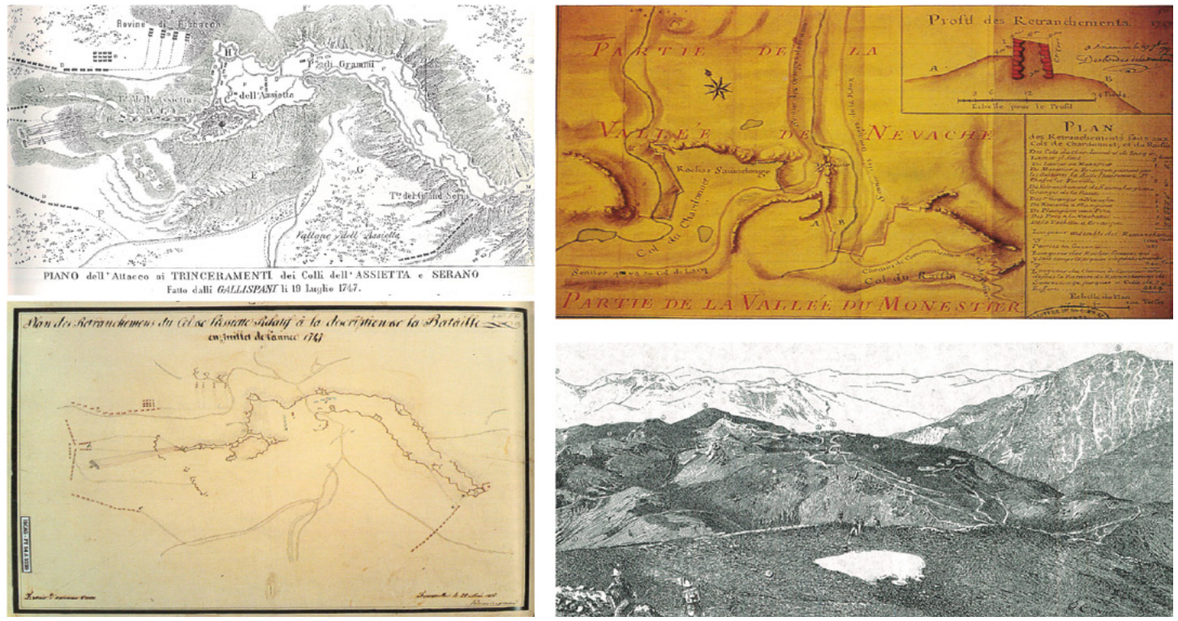
METHODOLOGY

The methodological framework adopted is presented as a process of hybridization between the historical dimension of the landscape, the subjective and emotional perception of the observer in motion – the "nomad" who interprets and redraws space through hand drawing – and the analytical and interpretative potential offered by digital technologies. The aim is to transform the territory into a narrative medium in constant evolution, where historical data is not merely preserved, but continuously reinterpreted through interactive environments and multi-scalar representations.
The methodology unfolds through four integrated macro-phases [Fig. 02.], designed to construct a dynamic knowledge structure capable of conveying the stratified complexity of the landscape: (i) History, involving critical analysis of sources to reconstruct the spatial and temporal evolution of the area; (ii) Technology, combining traditional drawing techniques with computational tools to explore hybrid visual languages; (iii) Integration, enabling interactive and multi-layered readings



03.

Visualization of the Assietta Road with main points of interest and fortifications



04.

Historical drawings of the entrenchments of the Battle of Assietta

of the landscape through the aggregation of data in GIS and immersive (VR/AR) environments; (iv) Visualization, through the creation of a digital narrative platform that functions both as a dynamic, customizable archive of collective memory and as a shared interface for knowledge dissemination.

HISTORY

Archival research reveals the complex origins of the Assietta Road, first conceived in the 18th century as a military corridor connecting the Savoy fortifications of Exilles and Fenestrelle, located in the Susa and Chisone Valleys respectively [Fig. 03.].
An emblematic moment in its strategic history is the homonymous Battle in 1747, when a small Savoyard contingent successfully repelled a larger French force, exploiting the mountainous terrain and purpose-built entrenchments [Fig. 04.].
This event established the road's symbolic role as an emblem of resistance and military ingenuity.
In the late 19th century, the construction of additional forts at Gran Serin and Colle delle Finestre integrated the road into a broader alpine defense system. Today, no longer serving military functions, it has been reimagined as a heritage route, frequented by hikers, cyclists, and travelers seeking both historical depth and panoramic immersion.
Technology. Documenting the landscape is never a neutral act: every representational tool functions as an interpretive lens, shaping how the territory is observed, understood, and narrated. Alongside the evocative power and analytical precision of freehand drawing, a diverse array of digital technologies now extends and amplifies our spatial awareness. Like the bag of a wandering traveler, filled with traces and fragments of past journeys, the "Technological Nomad's" backpack [Fig. 05.] gathers heterogeneous instruments that convert the landscape into structured data and visual records.
These include:

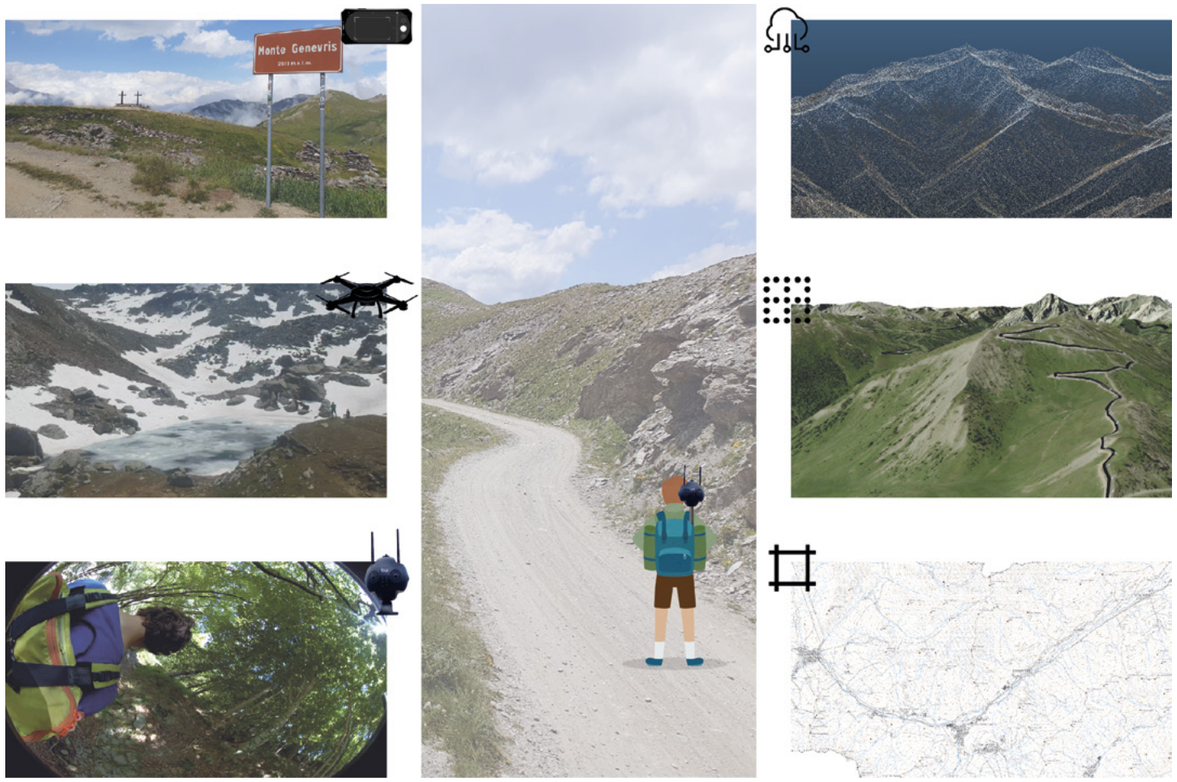
— Traditional photography (camera and smartphone), used to capture details and compositions;
— 360° photography, enabling immersive visual perspectives;
— Drone footage, offering aerial views and spatial overviews;
— Point clouds generated from laser scanning surveys, for accurate digital terrain modeling;
— Historical maps overlaid with present-day data, revealing temporal layers and transformations.

The integration of these tools produces a dynamic archive, an evolving ecosystem of representations that reflects the landscape's complexity and multiplicity of narratives.

INTEGRATION

The central phase of the workflow concerns the integration of territorial data, aimed at building a georeferenced and interactive digital twin of the case study [Fig. 06.]. Open-access datasets were acquired from the Piemonte Geoportal, in both vector (shapefile, geojson, etc.) and raster (orthophotos, DTM) formats, selected to ensure accurate morphological reconstruction and semantic structuring. These data were imported into ArcGIS Pro, an advanced GIS environment that allows for the normalization of layers and the integration of historical, morphological, and infrastructural information. This environment supports overlay operations, georeferencing of historical maps, thematic classification, and terrain modeling, leading to the production of a coherent, multilayered geospatial model. The model was then published as a browser-accessible interactive web application via ArcGIS Online, transforming the landscape into a readable and explorable information system.

To enhance its immersive potential, the model was exported into Unity, a 3D development environment. Here, the digital terrain is reconstituted as an interactive VR space using three key tools:



05.
Tools and visualizations of the Technological Nomad

— ArcGIS Maps SDK for Unity for live geospatial data synchronization;
— BlenderGIS for terrain modeling and spatial editing;
— Autodesk InfraWorks for automated, detailed rendering of buildings, hydrological systems, and infrastructure.

The result is an immersive, narrative-driven platform that allows users to traverse, interpret, and co-construct the landscape within a shared digital space.

VISUALIZATION

The final phase of the project culminates in a participatory digital platform that presents the Assietta Road as a layered, interactive, and continuously evolving landscape [Fig. 07.].
The digital twin functions as an immersive, multi-layered interface in which user-generated content, archival media, and spatial data converge. Each point of interest is interactive and, upon moderation, extendable, contributing to a living archive enriched by collective experience.
Here, users are no longer passive observers but become technological nomads who move through the digital space along non-linear, subjective paths. They actively contribute to the platform through personal insights and mapped points of interest. In this dual role of users and co-authors, the journey becomes a narrative act, shaped by the sedimentation of cultural, perceptual, and technological layers.



06.

Integration process of heterogeneous data.



07.

Interactive Platform

As Laplantine (2006) notes, it is through métis—a form of hybrid thinking—that personal and collective knowledge merge, unlocking interpretive pathways otherwise inaccessible. Within the platform, the landscape ceases to be a neutral backdrop and becomes a narrative medium. Echoing Lynch's (1964) theory of spatial perception structured through paths, nodes, and landmarks, the Assietta Road becomes a narrative sequence, articulating memory, vision, and orientation.
Ultimately, the platform [Fig. 07.] stands as a cognitive and relational environment in which representation and participation are intertwined, restoring to the landscape its active role in shaping memory, imagination, and shared meaning.

CONCLUSIONS

The investigation carried out highlights how representation, through the integration of analog drawing, photography, and digital tools has given rise to a renewed form of landscape representation: a dynamic, interactive archive of memory that repositions the human—both as observer and author—at the core of spatial knowledge production. The resulting platform, shaped by a transdisciplinary methodology and embodied by the figure of the *technological nomad*, is not a mere repository of data, but a generative, human-centered device in which the landscape unfolds as an open-ended narrative in constant transformation. In this perspective, space is no longer seen as a fixed, objective entity, but rather as a collective, stratified construction continuously rewritten through the wandering gaze of those who traverse and represent it. The Assietta Road thus becomes both an operational and symbolic paradigm of this vision: a site where mobility and permanence, individual experience and collective memory intersect. Here, the act of wandering becomes a design gesture that activates new imaginaries and reclaims marginal territories through situated forms of knowledge. The emerging methodological model, based on the intertwining of participatory practices and digital visual tools, critically redefines the boundaries between observation, interpretation, and narration, proposing an open, replicable, and radically inclusive framework. It significantly expands the epistemic horizon of the disciplines of drawing and landscape representation, while also promoting democratized access to knowledge: a form of knowledge that becomes shared, accessible, and usable by a plurality of actors. The resulting representation does not merely reflect reality, but interprets it, activates it, and transforms it—recognizing the authorial and constructive value of communities in defining the identity and memory of places.

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