



**Politecnico
di Torino**

Honors Thesis

Master's degree Architecture for Heritage

Abstract

**Choice, or the Terrain of Uncertainty
a study on how surveillance fragments memory**

Tutor/Correlator

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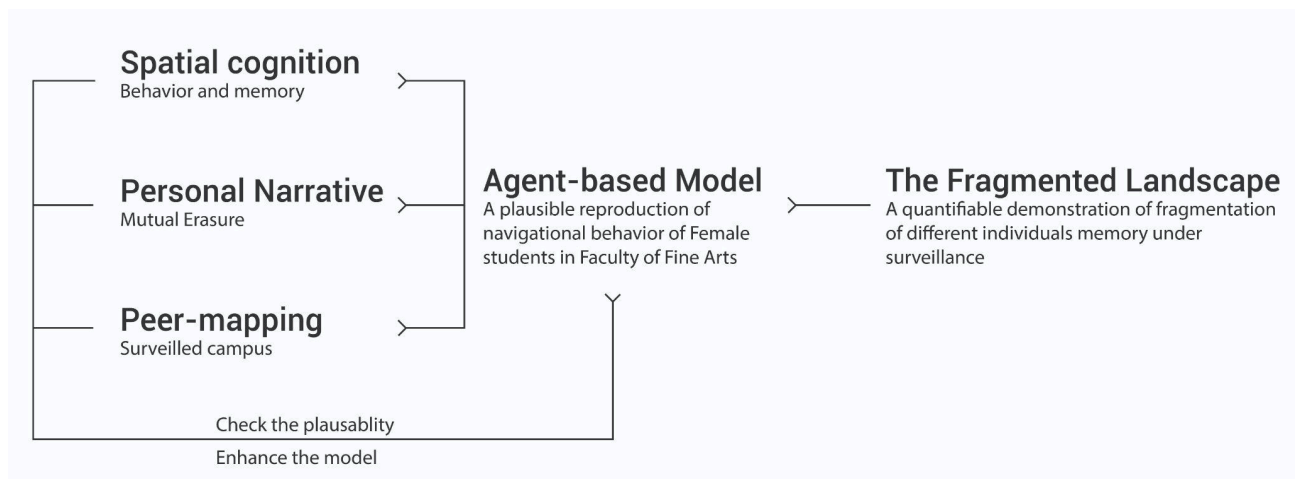
Candidate

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This thesis investigates how surveillance fragments spatial perception and memory through agent-based computational modeling. Using women's navigation under surveillance at the Faculty of Fine Arts of the University of Tehran as a case study, this research examines how systematic threat reshapes the cognitive maps of individuals in controlled environments.

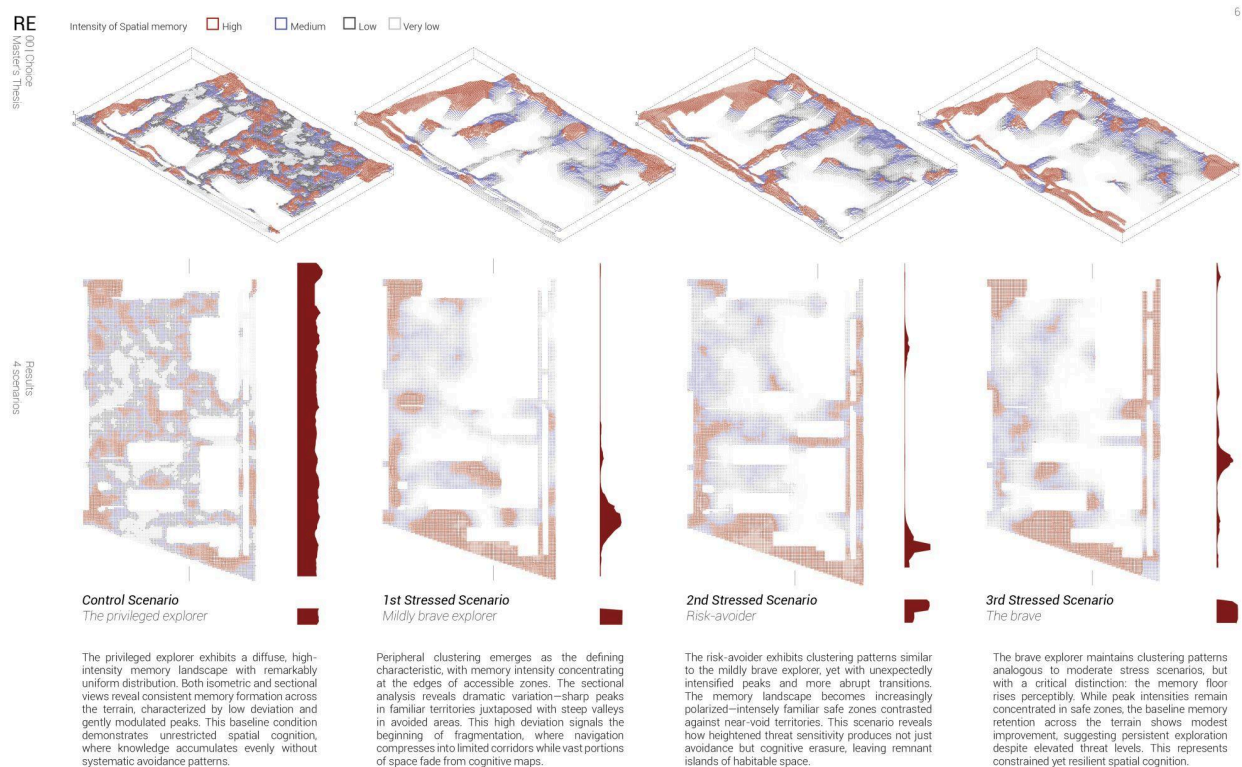
The methodology integrates spatial cognition theory — drawing on Tolman, Mallot, and Ingold — with agent-based simulation to model navigation under stress and uncertainty. The simulation operationalizes three interacting systems: constrained perception through heading-dependent intake zones and occlusion; dynamic dual-layer memory distinguishing spatial detail from learned threat, with differential decay rates; and stress-driven reinforcement learning through which agents psychologically erase physically accessible paths. The model tests how individual risk tolerance thresholds determine the breaking points where viable navigation collapses.



Results demonstrate that surveillance operates not through direct physical control but through the fragmentation of spatial knowledge itself. Even moderately cautious agents lose between 60 and 76 percent of accessible space, while highly risk-averse agents experience paralysis in 33 percent of movement attempts. Critically, the simulations reveal an inaccessible void — spaces rendered unusable not by direct threat but by network topology, as surrounding paths are

psychologically erased from the cognitive map. The loss of access is therefore not proportional to surveillance coverage: a relatively contained system can fragment the navigable world far beyond its immediate reach.

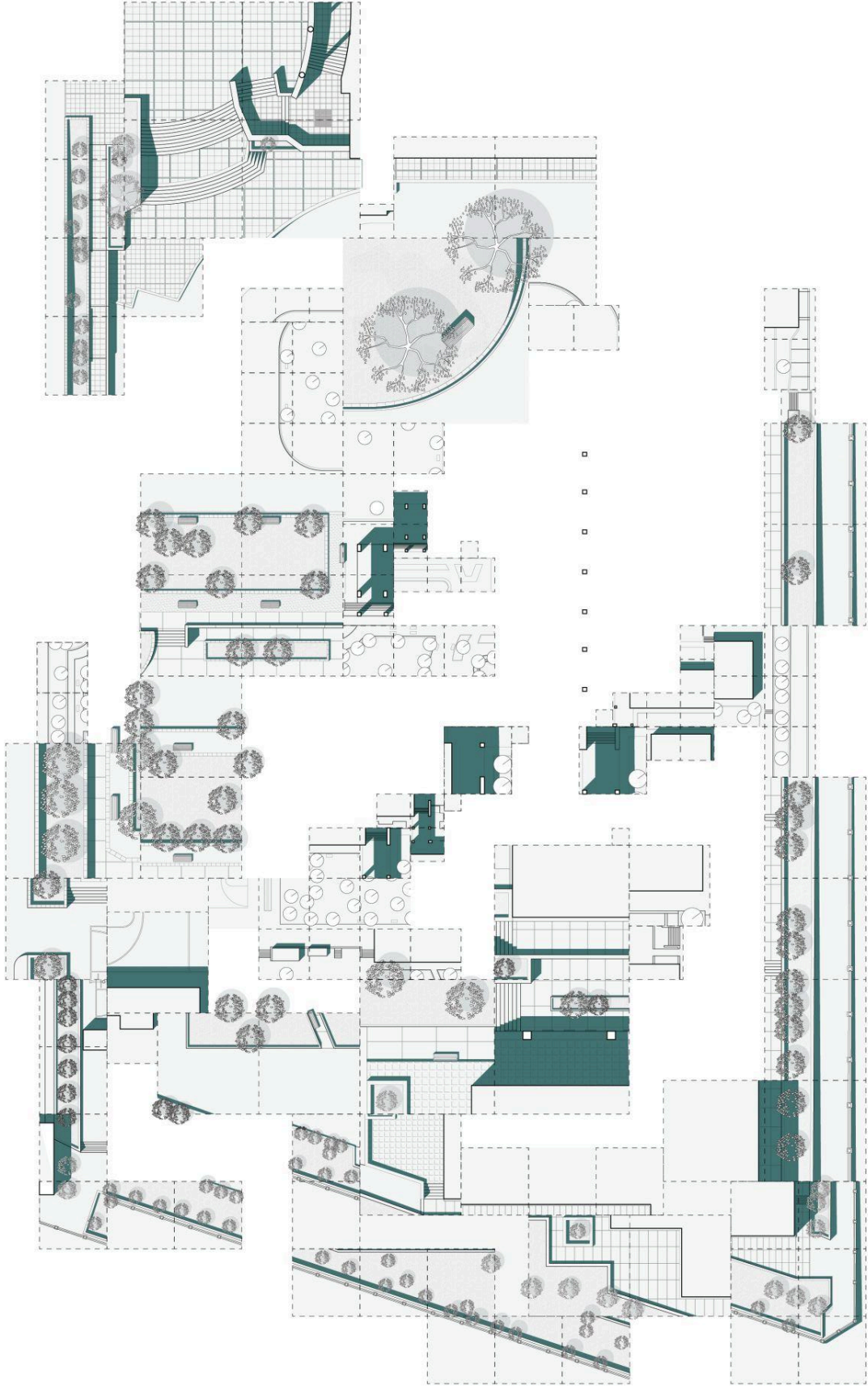
The research contributes both a methodological framework for quantifying experiential distortion and conceptual insights into how power operates through the erosion of spatial memory and the systematic denial of the right to inhabit public space. The design implications proposed in response outline architectural strategies — mutual visibility, efficient zoning, functional ambiguity, network redundancy, and material complexity — aimed at increasing the cost and friction of comprehensive surveillance without denying the reality of security. The goal is to defend cognitive optionality: the capacity to choose, wander, and appropriate space guided by curiosity and connection rather than fear alone.



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Results | The Experienced World Under Four Scenarios
A comparative study, showing fragmentation of memory

Four scenarios test the same space against four different thresholds of courage. Across every surveilled scenario, the accessible world collapses by at least half, not through direct prohibition, but through network fragmentation. A limited surveillance system poisons the topology far beyond its immediate reach: spaces that were never themselves watched become unreachable simply because the paths around them were erased.



Results | Distortion of scale
Concentration of spatial memory

As the navigable world contracts, the familiar patches intensify, the agent visits them repeatedly, memorizing not just their location but their texture. A bench in a sheltered corner accumulates more cognitive weight than an entire corridor. The remembered scale inverts. In the visualization, that bench renders twice the size of the corridor. It reflects how surveilled inhabitation actually works: the world doesn't disappear, it concentrates. What survives becomes deeply, necessarily known.

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