parameter identification and numerical error must be specified for each executable model. Digital brush radius, opacity and texture can imitate visible effects without simulating real fluid chemistry; label the operational mode.

For cloth, retain v2.2 seams, pattern topology, contact, motion and fit constraints, but make dimensional conventions explicit. With dimensionless membrane strain ε, a membrane stiffness C_s in N/m, bending stiffness B in N·m, curvature II in m^{-1}, mass density ρ in kg/m^3, thickness h in meters and gravitational potential Φ in m^2/s^2:

$$E_{cloth} = \int_\Omega [\tfrac{1}{2}\, \varepsilon^T C_s\, \varepsilon + \tfrac{1}{2}\, B\, ||II - II_0||^2 + \rho\, h\, \Phi(y)]\, dA + E_{seam} + E_{contact} + E_{actuation}$$

has units joules. If C is instead a three-dimensional modulus [Pa], the membrane term must include thickness appropriately. Static minimization addresses equilibrium, not moving cloth. Dynamic cloth requires mass, damping, contact/friction history and an integrator. Use unilateral/signed contact constraints with a declared surface orientation; unsigned distance alone does not distinguish the inside of a closed body.

In the heat equation $\rho\, c_p\, \partial T/\partial \tau = \nabla\cdot(k_{th}\nabla T)+Q$, T is in kelvin, c_p in J/(kg·K), k_{th} in W/(m·K), and volume sources Q in W/m^3. Convective, radiative and evaporative exchanges are boundary fluxes [W/m^2] unless converted by a specified volume model. Organism-specific comfort/safety thresholds remain unknown until justified; an optimization label cannot certify them.

3.2 Mark, pattern and multiscale organization

For each mark, record tool/type, centerline γ(l), physical or image-space width, pressure proxy, pigment/opacity response, orientation, curvature, spatial scale, support layer, stroke order and source. A width is in meters on the support or pixels in a declared raster, never a unitless mix of both. Orientation modulo π is represented by (cos 2θ,sin 2θ), avoiding an artificial jump between equivalent line orientations.

PatternIR = (motif IDs, support charts, adjacency/topology, repetition group, periods, phase fields, orientation fields, scale hierarchy, variation budget, material/process linkage, cultural provenance, semantic uncertainty).

A physical repetition period has units meters; spatial frequency has cycles/meter; phase has radians. For a scalar illustrative channel,

$$P(a) = \Sigma_j\, A_j(a) \cos(2\pi\, k_j\cdot a + \varphi_j),$$

where k_j has cycles/meter, A_j has the chosen output-channel units, and φ_j is dimensionless radians. This is a local texture model, not a universal formula for ornament or meaning. Arbitrary motif topology, tessellation rules, embroidery paths and symbol syntax require discrete/symbolic records. A geometric symmetry group does not identify a culture or authorize a symbol's use.

Separate surface ornament physically present on a locked garment/object from representational strokes used to depict it. The former remains part of S* across q. Macro/meso/micro/nano are explicit scale ranges, not instructions to maximize detail everywhere. “Intricacy without clutter” is a contextual design aim evaluated by task, hierarchy and reader/viewer response, not an identity between two numerical variables.

3.3 Attention and perceptual organization

For a declared viewer/task population, $a(p,\sigma) \geq 0$ with $\int_D a(p,\sigma)\, dp = 1$ is an attention-density hypothesis on normalized image coordinates. It is dimensionless under normalized dp; physical support density would have units m^{-2}. Let a* be a user-authored desired attention distribution, and let uncertainty distinguish intended, model-predicted and measured attention.

One finite-grid proxy is $a_i = \exp(h_i/T_a)/\Sigma_j \exp(h_j/T_a)$, $T_a>0$, where h_i are dimensionless logits. Define a proposed mismatch $E_{att} = \Sigma_i\, (a_i - a^*_i)^2$, or a transport discrepancy only after specifying

grid geometry and units. Logits may depend on contrast, scale, edges, face/body cues, narrative task and context. The formula does not establish that viewers actually look there. Gaze traces, task performance or blinded comparisons would be empirical evidence; a saliency model alone is not.

Extend composition features to subject/ensemble/no-primary modes; direction, height and distance of camera; task/action; scale and spacing; positive and negative shape; edge hierarchy; value and color grouping; rhythms and interruptions; environmental/contextual variation. Define the reference measure for feasible-layout sampling, including discrete choices and coordinates on constraint manifolds. The v2.2 history-based debiasing is retained as a heuristic, with explicit no-primary and ensemble bins. It does not prove independence, uniform diversity or absence of semantic repetition.

3.4 Temporal, procedural and interactive digital media

TemporalIR = (mode, duration, world trajectory or snapshot, time mapping, frame/sample rate,

event log, transition policy, executable/dependency manifest,

external-input capture, replay contract, accessibility/fallback).

For a snapshot, $W^*(\tau^*)$ is fixed and σ controls only declared presentation effects. For animation, commit a trajectory $W^* : [\tau_0,\tau_1] \to \text{WorldIR}$ and a time map $\tau=\psi(\sigma)$; both are independent of q. Then $I(q,\sigma)=\text{Render}(W^*(\psi(\sigma)),\theta(q,\sigma))$. Animation permits world motion across σ while forbidding a hidden change of world motion across q. A scene version can represent a locked trajectory rather than just a single frame, but it must declare that different contract.

For interactive media, an event $e_j = (\sigma_j,\text{type},\text{payload},\text{origin})$ is a typed input; transition $W_{j+1}=T(W_j,e_j)$ is deterministic only under the specified runtime and captured dependencies. Live feeds, clocks, network responses and model APIs break exact replay unless their relevant inputs/outputs are captured. A generative system's code, model/weights, settings, seed, random state, color pipeline, assets and environment are dependencies, not interchangeable labels. Time-based work also needs timing, transitions, installation/display context and interaction rules; one representative still is insufficient for its temporal behavior.

A parameter q controlling medium does not authorize a different action, hidden event or story. An interactive choice that changes content creates a new state/epoch; retain the event log and parent version rather than pretend the snapshot is unchanged.

4. Fixed-scene realism path and its actual guarantee

Retain the ten v2.2 anchors $q_j=j/9$, $j=0,\ldots,9$, and hat weights $w_j(q)=[1-|9q-j|]_+$. They are nonnegative, sum to one, and reproduce q. Retain the original R_j labels and seven-component B_j weights, reproduced in Appendix A. The inherited line-control vector is specified there, but its numerical anchor values were not supplied. Each B_j lies on the medium simplex; $B(q)=\Sigma_j w_j(q)B_j$ remains on it. Interpolation is piecewise affine and normally not differentiable at anchors.

Theorem 2. Continuity of aligned fixed-scene image interpolation

Let H be a normed real vector space of finite-resolution, scene-linear image channels before output quantization, and let $I_0,\ldots,I_9$ in H be fixed anchor outputs. Define $I(q)=\Sigma_j w_j(q)I_j$. Then $I(q_j)=I_j$ and

$$\|I(q)-I(q')\| \le L_I\,|q-q'|,$$

$$L_I = 9 \max_{j=0,\ldots,8} \|I_{j+1}-I_j\|.$$

If all anchors are rendered from the same immutable S^*, use of this interpolation does not change the authoritative scene record. The theorem does not infer that the anchors share geometry from their pixels; that premise must be checked independently.

Proof. On $[q_j,q_{j+1}]$, only w_j and w_{j+1} are nonzero, and $I(q)=(1-a)I_j+aI_{j+1}$ with $a=9q-j$. Its slope has norm $9\|I_{j+1}-I_j\|\le L_I$. For points in different intervals, partition $[q,q']$ at the finitely