

From Diegetic Interface to Analytic Method: A Citation-Aware Translation Ledger

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ABSTRACT

Science-fiction interfaces are often presented as inspiration boards, where a compelling image can silently become evidence. We propose a stricter workshop instrument: a **Translation Ledger** that records the direction of transfer, the exact source, the visualization concept extracted, and the boundary of what that source can support. Eighteen textual cases span film, television, games, public installation, maker hardware, HCI, and visualization research. Ten are *documented*, six *plausible*, and two *speculative*. The ledger is deliberately screenshot-free and separates attribution from inference. Its purpose is not to prove that fiction causes technology, but to make productive crossings contestable, extendable, and safe to discuss.

1 THE IMAGE-BOARD PROBLEM

Diegetic interfaces compress system state, intent, and consequence into scenes that are unusually easy to remember. That rhetorical power is useful to visualization, but it also invites three category errors: production intent is read as user evidence; resemblance is read as influence; and a future proposition is narrated as a result. Existing research already treats science fiction as a corpus for programming inquiry [4], interface comparison [3], and visualization design fiction [6, 13]. Our contribution is a compact record structure that keeps these modes from collapsing into one another.

Evidence is a boundary, not a quality score

18 cases; every claim keeps a source and a limit.

DOCUMENTED 10 cases	Source explicitly records the named connection No causal monopoly implied
PLAUSIBLE 6 cases	Source records the interface; lesson is our reading No measured effect claimed
SPECULATIVE 2 cases	Authored opportunity for workshop critique No implementation claimed

Original ledger diagram; no source imagery reproduced.

Figure 1: Evidence grades delimit claims; they do not score design quality. Counts: 10 documented, 6 plausible, 2 speculative.

2 LEDGER METHOD

Each case contains an observed interface, transfer direction, source type and URL, translation claim, visualization concepts, narrative

function, feasibility, attribution, rights note, and an explicit evidence boundary. *Documented* means that an attributable source records the named production connection, implementation, venue transfer, or research method. *Plausible* means that a source records the interface or interpretation while the visualization lesson is our bounded reading. *Speculative* is an authored design opportunity, never an observed outcome. These are evidence boundaries, not quality scores.

We selected 18 cases to maximize directional and media variation, then ran a schema audit requiring unique identifiers, HTTPS sources, complete fields, explicit uncertainty language, exactly two speculative rows, and no redistributed media paths. The companion viewer exposes the full text and filters without network access. This is a curated argument map, not a systematic review; completeness refers only to the declared 18-row corpus.

3 WHAT THE CROSSINGS REVEAL

The strongest cases are not one-way predictions. Underkoffler’s MIT interaction research informed *Minority Report*, then entered room-scale systems [5]. Territory Studio describes NASA/ESA consultation and real data behind more than 400 *The Martian* screens [10], followed by an interactive public installation [11]. A working M314-inspired tracker later coupled a fictional radial convention to real radar hardware [12]. These documented crossings are specific enough to trace yet too narrow to justify technological determinism.

Plausible rows work differently. Readings of the Esper photo inspector [2], Iron Man’s awareness channels [7], spacesuit overlays [8], a situated galaxy map [1], and Braindance’s synchronized channels [9] become *research variables*: provenance, peripheral placement, command context, and multimodal replay. The ledger preserves the move from source observation to our analytic interpretation.

Two speculative rows keep authorship visible. A “provenance capsule” would travel with a visualization and expose source, transformation, expiry, and authorization at the point of use. A “dissent corridor” would force a consequential forecast to retain minority models and unresolved evidence. Neither is reported as built or validated; both are starting points for workshop critique.

4 USE IN A SCI-FI-VIS SESSION

We propose a 35-minute ledger clinic. Pairs first assign an evidence grade to one case, then rewrite its claim until the boundary and attribution agree. Next, participants translate one interface into a falsifiable visualization question: which variable changes, who is affected, and what observation could contradict the idea? Finally, groups add a counter-row from practice back into fiction. The output is not a ranked gallery but a set of inspectable claims whose disagreements remain visible.

The ledger also exposes gaps. Our small corpus overrepresents high-stakes command and forensics, while everyday, disabled, non-Western, and low-resource futures remain thin. That absence should guide expansion rather than be mistaken for a property of science fiction itself.

Table 1: All 18 submitted cases. D = documented, P = plausible, S = speculative. The JSON retains full claims, sources, and evidence boundaries.

ID	E	Direction	Artifact / source object	Visualization concepts
D01	D	both directions	Minority Report / Oblong g-speak and Mezzanine	embodied interaction; spatial analytics; shared display
D02	D	reality → fiction	The Martian mission control and spacecraft graphics	coordinated views; telemetry; operational dashboard
D03	D	fiction → reality	The Martian Mission Control exhibit at the Barbican	public engagement; situated display; interaction design
D04	D	practice → fiction	The Expanse ship and control-panel graphics	narrative visualization; distributed display; status encoding
D05	D	practice → fiction	Star Trek LCARS	visual grammar; consistency; cross-display identity
D06	P	fiction → reality	Blade Runner Esper photo inspection	image provenance; semantic zoom; forensic inspection
D07	P	fiction → research	Iron Man suit HUD	situational awareness; attention; head-up display
D08	P	fiction → research	Sunshine spacesuit interface	peripheral awareness; risk communication; wayfinding
D09	P	fiction → research	Star Trek: Discovery spacesuit display	spatial registration; wayfinding; attention
D10	P	fiction → research	Mass Effect galaxy map in the Normandy CIC	multiscale navigation; situated analytics; commitment
D11	P	fiction → research	Cyberpunk 2077 Braindance	multimodal timeline; provenance; forensic replay
D12	D	fiction → reality	M314-inspired Raspberry Pi motion tracker	radial display; sensor uncertainty; tangible interface
D13	D	fiction → research	Science-fiction depictions of programming	corpus analysis; speculative design; end-user programming
D14	D	fiction → research	Portable diegetic interfaces across science-fiction games	comparative analysis; mobile visualization; diegesis
D15	D	research → fiction	IEEE VIS 2020 VisFutures workshop	design fiction; participatory speculation; research agenda
D16	D	research → fiction	Visualization design-fiction thought experiments	thought experiment; design fiction; reflexivity
D17	S	fiction → research	Portable authenticated mission briefing concept	provenance; authentication; portable analytics
D18	S	research → fiction	Proposed diegetic analytic scene	uncertainty; model pluralism; decision provenance

The corpus crosses in six directions



Direction groups claims; it does not assert chronology or causality.

Figure 2: The complete corpus spans six translation directions. Counts organize claims without implying chronology or causality.

5 LIMITS, RIGHTS, AND CONTRIBUTION

The corpus is purposive, English-language, and source-availability constrained. URLs can disappear; documentation can reproduce institutional self-narratives; a citation can establish attribution without establishing effect. We therefore publish the codebook, complete JSON, source register, and machine-readable audit. No frames, screenshots, clips, or interface artwork are redistributed. The ledger’s contribution is disciplined permeability: fiction can generate analytic questions, and visualization can shape fictional practice, without disguising inference as evidence.

REFERENCES

- [1] B. Allen. Mass Effect: Meaning through design. *Game Developer*, October 4, 2012.
- [2] B. Behr. Esper Syndrome: Tracing forensic imaginaries and spatial pathologies in Blade Runner’s photographic apparatus. *Blade Runner @40: Origins and Legacies*, Bangor University, 2022.
- [3] T. Kiianmies, A. Colley, and J. Häkkinä. Exploring the design of portable devices in science fiction video games. In *HCI International 2025 - Late Breaking Papers*, LNCS 16338, pp. 388-401. Springer, Cham, 2026. doi:10.1007/978-3-032-12808-9_24.
- [4] K. Krings, N. S. Bohn, N. A. L. Hille, and T. Ludwig. “What if everyone is able to program?” - Exploring the role of software development in science fiction. In *Proc. CHI*, pp. 1-13. ACM, 2023. doi:10.1145/3544548.3581436.
- [5] S. Levy. The Minority Report interface is now real. *Wired*, 2010.
- [6] S. Panda. Thought experiments in design fiction for visualization. *arXiv preprint arXiv:2411.08621*, 2024.
- [7] Sci-Fi Interfaces. Iron Man HUD 1: Person view. 2015.
- [8] Sci-Fi Interfaces. Sci-fi spacesuits: Interface locations. 2021.
- [9] O. Świerad, P. Ankermann, and K. Krzyścin. The tech and art of cyberspaces in Cyberpunk 2077. In *SIGGRAPH Talks*, 2 pages. ACM, 2021. doi:10.1145/3450623.3464662.
- [10] Territory Studio. *The Martian*. 2015.
- [11] Territory Studio. *The Martian: on set in Mission Control*. 2016.
- [12] Tom’s Hardware. Fully working M314 motion tracker replica. 2025.
- [13] VisFutures. Envisioning futures of visualization. *IEEE VIS Workshop*, 2020.