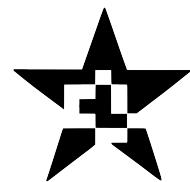


**application to the DesInC Symposium**

**submission category:** *interactive demo*



## 1. Introducing Ghostfinger

Ghostfinger is a novel technology for research into fingertip control actions that happen at right angles above a surface. While such actions unfold, a range of stimuli are computed in real time:

- touch stimuli (including passive touch, active touch, haptics, and manipulation);
- visual stimuli (in glassless stereoscopic 3D, and at the same spatial scale as touch);
- auditory stimuli (including musical applications).

The resulting experience can be described as that of tangibly and audibly interacting with a small hologram.

From a programmer's perspective, the system offers a set of algorithmic primitives that are always parametrized using physical units. For example, you can use a computed touch primitive to instantiate a certain viscosity, *in N/(mm/s)*, activated across a certain range (*in mm*), which is also made visible (*in mm*); and then add a degree of freedom (DOF) to link, say, fingertip speed (*in mm/s*) to the loudness (*in dB*) of some heard sound wave.

Please consider the introductory video at <https://youtu.be/ahw9630FLgU> an integral part of this application. Also, further information can be found in the video description.

## 2. How design has driven Ghostfinger development so far

The design process of the visual output side of Ghostfinger started with only the imagination of interacting tangibly with small, colored, transparent, floating blocks. This was then first made more real in static mockups made from paper and plastics. These confirmed the strong but subjective aesthetic preference I had for such a solution. However – what would work for me, might not work for everyone.

Therefore, during further development and implementation I made a point of starting from scratch, by making explicit and documenting each design choice implicit in the general idea. This to then re-make each choice, but now not based on subjective, aesthetic considerations, but instead on objective, functional ones. What would work for everyone, would work for me.

And, for most of the choices, it was indeed possible to explicitly re-judge based on objective, functional argumentation, and thus more or less “safely” proceed to a realization of the imagined design. However, in parallel to this, aesthetic judgments (however humble in nature) also kept cropping up, often seeming to confirm choices. Interestingly to me, in one case (having to do with an aspect of simulated lighting) such a judgment even seemed to be *the only way* to efficiently resolve a choice.

In any case, whenever my considerations did again turn subjective and aesthetic, they were guided by two design traditions: For spatial, functional objects, the *Bauhaus* movement provided great examples of achieving *friendly* minimalism (experienced both visibly and tangibly, example attached below). Second, the *De Stijl* movement provided great examples of how to consciously construct color use and shape use, up from the level of basic stimuli (example also attached below).

It seems to me that this (unavoidable?) transition from objective and functional considerations into subjective and aesthetic ones is really interesting and perhaps universal, and I greatly look forward to interacting with many other design perspectives, at the upcoming *DesInC* Symposium.

Sincerely,  
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### 3. Appendix: relevant examples of Bauhaus and De Stijl influence



↑ 1929 - Bauhaus movement - Marcel Breuer - Kitchen unit (seen in Berlin)



↑ 1928-1929 - De Stijl movement - Andries Copier - Graniver glass press-moulded flower pots (seen in Amsterdam)