Apparatus

Toby Schachman (2015), and Joshua Horowitz

"Apparatus is a hybrid graphics editor and programming environment for creating interactive diagrams" (http://aprt.us). It's central fantastic trick is that the diagram elements can be directly manipulated, allowing the diagram and code to be played backwards and forwards. A numerical solver is used to make the magic happen.

What works:
• Powerful causal linkages between visual and parametric elements.
• Solver magically brings these bidirectional linkages to life.
• System has a lot of expressive power.
• Clear linkage between visual and inspector relationships.
• Combination of direct manipulation and coding.

I wish:
• Multiple representations—outline, inspector view, constraints—were more consolidated, ideally as manipulables in the main canvas.
• More responsive performance.
• An ecology of reading and writing:
    • Easy to embed diagrams and make content for them to live in.
    • Easy to share components.
• Complex network of causal and hierarchical relationships was somehow less dizzying.
• Improved graphics tools, e.g. color picker.
• Simulations: feedback loops and time.