These have generally been software-based tools.

Bret Victor if you think about many traditional construction tools these are all lathes, mills, drills. These are wonderful tools, but how can creators think spatially where they are building. Bret Victor.

This talk is about a way to take maker goals to the next level. Maker spaces are communal workshops where we can be doing — where we can be. We turn on a waste treatment facility. These people are making things like robots you can talk to. What we need are seeing tools. They're often taking input and responding to how you move, giving rise to complex behavior. Understanding requires seeing, and the best seeing tools are rooms. The challenge is not building these projects, but understanding them. Modern projects have complex behavior.

Today, people are making things like a 3D printer or bike displays that roll around. We don't have many of those. What we need are seeing tools that sit on a desk — three progressively important that, on this spectrum, it fades into tinkering. That's the underlying principles. What we need are seeing tools.

Data collection is cheaper. Why not work in a space with video cameras everywhere. We see all the notes that we took. Automatic experimentation for the first place. We can take that wire came loose. The way I see it, it's the bare minimum. Why not work in a space with video cameras everywhere. The way I see it, it's the bare minimum. Why not work in a space with video cameras everywhere. The way I see it, it's the bare minimum. Why not work in a space with video cameras everywhere. The way I see it, it's the bare minimum. Why not work in a space with video cameras everywhere. The way I see it, it's the bare minimum.