

SITU ATED KNOW LEDGES MACHINES ISSUE 2

Situated Knowledges is part of *Situated Systems*, an experimental, collaborative, site-specific research project which explores military and industrial infrastructure in San Francisco and the Bay Area, investigating how this history has shaped the technology culture of the region and its outputs. This zine series collects interviews with people conducted as part of this project. *Situated Systems* is the inaugural project of the Experimental Research Lab at the Autodesk Pier 9 facility, from February through June 2016. The title of this series comes from Donna Haraway's 1988 essay, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," in which she writes, "Situated knowledges are about communities, not isolated individuals." <http://situated.systems> twitter: @situatedsystem

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Michael Vergalla

Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert.

Donna Haraway, "A Cyborg Manifesto" (1991)



I think the machines I'm connected the most with are ones that allow me to do more. They allow me to work really hard upfront and then throw it into the machine and I can go and do other things. These can be the 3D printers - the Objet, the Fortis, the Ember - or it can be software like DreamCatcher or Memento. I think of them as my digital and hardware robots. The nice part about it is that you know in 10 or 12 hours, you're going to get what you want and, during that time you go and do everything else. I've worked really hard, for example, going out and doing a hike and flying over terrain, whether it be coastal or inland cliffs that are collapsing due to the El Niño event that's happening this year—and that might take three or six hours of hiking and capturing footage. Then, when I get back to the computer, I just dump the pictures in and press "Go" and I walk away, and a couple of hours later I have a 3D model of terrain which used to take people a month or more to stitch together through photogrammetry. It's the same with the 3D printers. Through a lot of upfront work and project management, you're able to be this robot shepherd and guide the design and curate this design through its evolution and through its life.

Nervous Energy; So Much For Subtlety; I Thought He Was With You; What Are The Civilian Applications?; Ethics Gradient; Not Invented Here; All Through With This Niceness and Negotiation Stuff; Poke It With A Stick; You Naughty Monsters; Value Judgment; Now We Try It My Way.

Names of various spacecraft in the novels and short stories set in the Culture universe of Iain M. Banks

Kate Hartman

I guess the machine I have most connection with is the DMS. The main reason for that is not exactly what it does or how it works, which I think is really wonderful, but just that when I took the class the thing that really appealed to me about it was the scale and shape. And, for me, I identified with it as being kind of human scale. So, it's the one machine here that I could actually crawl inside. When I was looking at the build platform I kind of just wanted to get in and curl up on it, or curl up on something the same dimensions and just mill myself and in its eyes. You know, in its build envelope eyes. Just as a way to kind of relate with it, or do a little dance with it or something like that.



What relationships
have the Spring
2016 cohort of
Artists in Residence
& the members of
the Experimental
Research Lab
developed with
the machines at
Autodesk's Pier 9?

Hannah Perner-Wilson



I've been thinking about the straight pins that tailors use in dressmaking to pin fabrics together. They're so reduced to their elements. There's one end that's intended for us to interact with and that's the head, where we won't poke ourselves. Then there's the sharp end that we're not going to interact with and that's going to be interacting with the material. And then there's the shaft in between, which is the distance between us and the material, which is kind of a tool. I came into the residency already reflecting a lot on the tools that I use in my practice. But a lot of them are hand tools. In taking a step to automated tools, I wondered: what do I do while it's working? What does the shaft become if there's no direct manipulation? But then I realized that actually when I get comfortable enough with the machines, you re-establish that control again. I'm very comfortable now with the laser cutter and, so, if it messes up I can think of lots of different ways to fix it, and almost I can anticipate what might go wrong. And then other tools that I'm new to—I guess it's this reaching the point where you've mastered something versus you're in the process of learning how to use it.



Georgina Voss

My heart belongs to the Coherent Metabeam. It's not the easiest machine to love: it's big, it's bad-tempered, passive-aggressive even. The software is incredibly counterintuitive: you start with a plain gray square, then have to carefully talk the Metabeam through what you want to as you would someone in a terrible mood -- yes this, please, yes, I agree, please, okay, shall we get some food? When did you last eat? Is your blood-sugar...low? But once it's on your side, it is glorious -- a huge, powerful badass laser cutter that uses fire to cut through metal, with a savagely fast servomotor. In evolutionary terms, it's one step down from a flame-thrower.



Charlie Katrycz

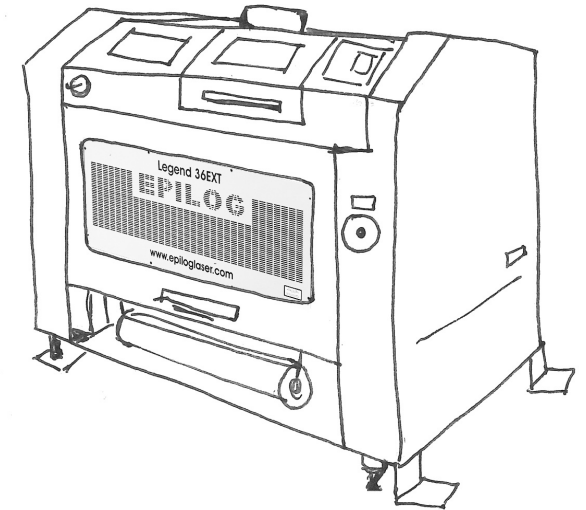
I've spent a fair amount of time down in the metal shop using tools that I wasn't very familiar with prior to coming here, and I started to really get into the manual metal lathe. There's something very methodical about it. It's got such heavy momentum as it turns, and this cutter comes in and scrolls along and strips away aluminum or steel or whatever it is that you're milling or turning. It has something meditative about it. It squeaks when it starts up and then it's got this low hum, and it's just always turning at like 800 RPM. You have these cranks that control the X and Y axis, and you bring this carbide cutter into the metal and just sort of touch it and these tiny, little spiral scrolls spin off of the material. And they're really interesting, because they curl and spiral - I think it's neat that you're creating these little growing spirals. I just enjoy that - everything you do ends up being a symmetric around the axis, because it's spinning while you cut. It definitely calms me down. I guess I lose track of time and can be there for hours.

What if we refuse to uncouple nature and culture? What if we deny that human beings are exceptional? What if we stop speaking and listening only to ourselves?

Anne Galloway
"More-Than-Human Lab: Critical and Creative Ethnography After Human Exceptionalism" (2016)



Purin Phanichphant



Once I got through the hurdle of getting used to the Epilog laser cutter, I became super-comfortable with it and it felt extremely easy to use. I was opposed to the idea of it at first—if you can cut things on a table saw or something, why would you use a laser cutter? But more recently I've been cutting things or making things that only the laser cutter would do a great job at because it's a complex shape or something. I just draw something quickly in Illustrator and then, boom! Just put a sheet down and cut, cut, cut and it comes out great. The Epilog is, in theory, a little bit more tame compared to the Metabeam, which is like this monster. The Epilog, especially because there are four of them, feels a little like an interchangeable group of friends: "Oh, you don't work. I'm going to go do that one. Oh, that one's busy; I can still go to that one and it trusts me."



Amy Karle

I feel like my strongest relationship is with the computer. That's what I spend most of my time with, and it stays with me no matter what I do or I stay with it no matter what I do. I feel very bound to using the computer, because it's the interface that is required for the most of the machinery that we have here. As an artist it's very interesting, because I feel like most of my kinesthetic intelligence comes out of my hands. I was trained as a sculptor and I do really well in 3D and working from my body to another material that was human-sized, human-scale. It becomes very abstracted when I use different—when I have to go through the box of the computer. So I have to insert my creative ideas into the black box of the computer and somehow negotiate within there for what I want to come out and it's usually not what I intend. So, there becomes this romance there of what is our inner relationship between the computer and the programs that it's running and myself? And how do I dance with what it gives me when it's not what I ask for? Or it's not what I anticipate? How do I take that and appreciate what it gives me?



Sherri Wasserman

Pier 9 is filled with all sorts of beguiling machines, most of which I've barely gotten the chance to use yet. So I declare my favorite familiar machines as the staplers placed near the second floor office printer/copier. I'd forgotten how much very specific skill it takes to properly hand-staple zines. As confirmed by the secret stash that I've kept as "very forgiving friends & family only," I'm still in the midst of re-perfecting my technique.

Are we not shaped by our nonhuman grooms, though I admit only a very little bit? Are they not our brethren? Do they not deserve consideration? With your self-serving and self-righteous social studies of technology, you always plead against machines and for deskilled workers – are you aware of your discriminatory biases? You discriminate between the human and the inhuman. I do not hold this bias (this one at least) and see only actors – some human, some nonhuman, some skilled, some non-skilled – that exchange their properties.

*Bruno Latour
"Where are the Missing Masses?
The Sociology of a Few Mundane
Artifacts" (1992)*



Wendy Fok

The machines that I do like using are the ones that are kind of easy to grapple with. What I've started to really like is the water jet, because it's like a big version of a laser cutter and a laser cutter is like a small version of a paper-cutter machine. I started using laser cutters as an undergraduate, and I've always been very interested in kind of doing 2D cuts and flat pack, and seeing how things could be easily manufactured and shipped. Conceptually, the water jet is similar to what a laser cutter is. For me, I think there's a beauty of looking at something that's flat, but then cutting it in very fine detail and re-representing it in 3D format. I think that's a kind of fun way of doing work. But my personal favorite machine are my hands and using them to wield an X-Acto knife. I feel like that translation from cutting to machine cutting to large-scale production is quite an interesting relationship. It's about scaling up, essentially.



Jimmy Chion

My favorite machine is currently the waterjet, which is not a unique answer among the artists in residence (AiRs) I would guess, but it's so versatile and powerful. I came in to the residency stoked to use the CNC Haas mill, and used it heavily in the beginning, but then started down another project and was using the waterjet heavily. It didn't happen because I wanted to use the waterjet. It was the only tool in the shop that could cut glass. It's the only tool I know of that can cut glass without adding a special diamond-encrusted bit to it. It's precise, has 5 axes, and is really really powerful considering it just shoots two materials out of a tiny nozzle. I'm not as stoked that the water is disgusting and the software is some of the worst I've used, but nevertheless, it's a tool that has expanded how I design and imagine. That's the ideal for a tool. It not only expands what you can do, but how you imagine.



Ingrid Burrington

The technology that hit me the hardest the first time I came into the Pier and that I still think about constantly are the office chairs. The swivel ones with the gray felt backs. It's that kind of industrial gray felt that is maybe supposed to suggest pragmatism but is also ridiculously expensive, a kind of self-effacing expensive. It's the kind of office furniture William Gibson would place in the near-future office of a PR agency and spend at least three paragraphs lovingly describing because it perfectly encapsulates a certain kind of subtle pronouncement of wealth and power.



Deb Chachra

My favorite machines in the Pier 9 workshop are the sewing machines. I like how they are holding their own alongside these incredible industrial milling machines and with sophisticated 3D printers. Textiles are probably the oldest human technology, and yet they are in a constant state of innovation and flux. Sewing machines are a link to a long history of gendered labor, from mill girls during the Industrial Revolution, to garment workers around the world, to the Playtex seamstresses who designed and made the Apollo spacesuits. Sewing is the original technology for additive fabrication.

Ships have feelings.

Ann Leckie, Ancillary Justice (2013)



Alex Schofield

Of all the machines at Pier 9, my secretly most feared machine is the table saw. I've used one several times before. I've never witnessed any accidents with the table saw. I even know it has a SawStop blade that would immediately lock it in case of contact. But there is something scary about a giant spinning circular saw directly pointed at my face! What if I slipped? What if the material got caught and kicked back? What if I just simply wasn't paying attention and my fingers wandered into its line of sight? The good news is because these fears are a bit exaggerated, I have become hyper-vigilant when I end up using the table saw. I even make sure I get all my cuts and measurements correct the first time so I don't have to go back and use the table saw again!

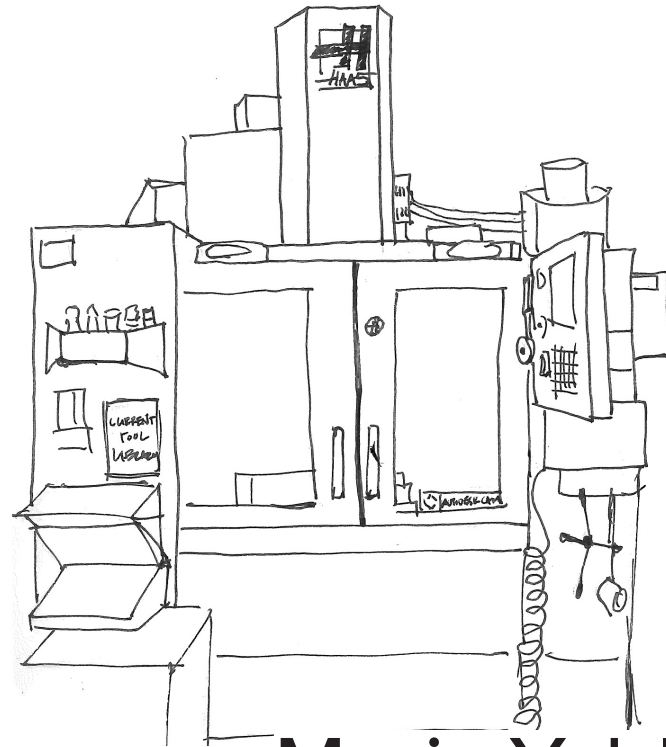
Shantell Martin

I'm definitely quite far away from love for any machine here. I think that's because I haven't really been able to get to know them: there's been this barrier between me and the machines and that barrier is in the form of software. It's almost like there's this vast sea or ocean between us and it's getting in the way of me getting to know these machines. It's actually kind of a frustrating relationship because you know its potential and ability, and yet, coming from where you're coming from, which is slightly different to everyone else, there isn't a built-in workflow that is designed for you. So you have to go against everything just to try and get simple things out with it, and that gets really frustrating because it takes a huge amount of time to get very little results. But: you do know that after you get through this - once you get to the other side of this ocean - it's like, wow. So, it's like a bit of a frustrating relationship where you see the potential and you know that there is also potential to cooperate, help each other, but we're definitely not there yet.



Jonah Ross-Marrs

I really like the Mcor IRIS, the paper-cutting 3D printer. I think I like it because it's an odd machine. I was thinking last night it's like the DeLorean car, because it seems that there weren't very many made. It uses a kind of process of making something that is romantic in that—it's not high-tech; it's a very low-tech way of making things, even with glue. And the idea of making things out of paper is really appealing. I think the output of the machine has qualities that you don't find in a lot of other 3D printers. It has texture, and because you were so familiar with the components that go into it, you're like, "Ah, this is paper. I've cut paper before. I can imagine what happens if you glue two pieces of paper." It's different from, like, a milled piece of aluminum where it's hard to imagine how you could do that yourself or what that would look like.



Maria Yablonina

I'm mostly working with Fortus printers and I have a weird relationship with them, because I feel that they're boring, because I've been doing FDM [fused deposition modeling] for a while. At the same time, I've gone through all the training on the Haas mill, but I haven't really milled anything except for the test part. And those two relationships together are really weird because I'm happy with Fortus, but really want to be with Haas. So, I'm hoping that I'll get there and I'll mill some parts in the Haas. But it's very scary to prepare a part that's like good enough to actually be milled in this beautifully shiny material on this crazy machine that makes things in seconds. I think it's a little bit out of my league; I have to put more effort into creating something that's worth machining on that one. At the end of the residency we all have to go back home, and it's almost like a breakup with a partner; like, "Oh, but he's not into a long-distance relationship. Damn! He's not taking it as seriously as I am!" How do you break up with a Haas mill? I might write a letter to say good-bye--"We'll always have that broken bit to remember each other by."





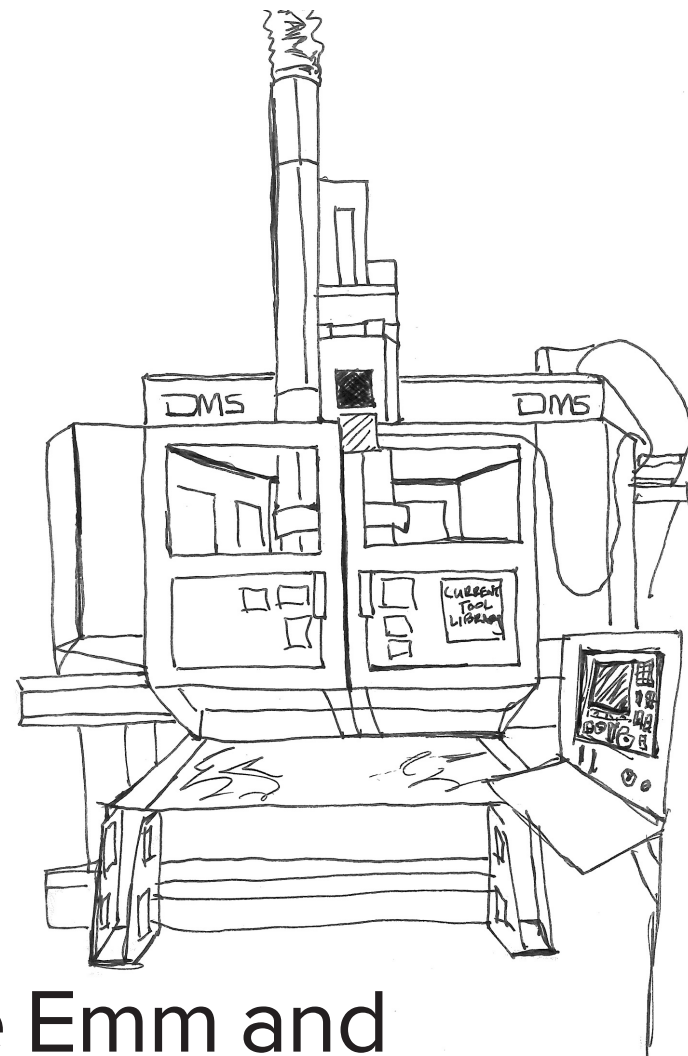
Mary Franck

I love the DMS [5-Axis Enclosed] CNC Router the best because it is like a beautiful animal—it moves with a sensual, embodied kind of elegance. It's about the size of a dog and the process of loading and unloading tools in particular is rather like playing fetch or otherwise commanding a domesticated animal.



Michael Koehle

Right now, I'm happy with the Haas. This is my second day I'm working on it and, in comparison to DMS, it's not so messy. There's no smell from machinery or plastics or resins and it seems really precise. It makes me feel classier than with the DMS—you're using aluminum rather than other materials, and the way that it looks compared to the huge blue DMS is nicer. But you might have caught me on a good day—I've had a few bad experiences with the DMS, and I haven't yet on this guy. With other machines, all you have to do is push 'Go' and you don't have to worry about big moving parts. These guys, the Haas and the DMS, are more tricky. There's more prep and set-up; there's a software program which people don't usually use and the G-Code that I have to modify before I load it. It does make me feel like I'm accomplishing something when I figure it out. But it's never just push-button—there's always something that goes wrong or something to figure out.



Pierre Emm and Johan da Silveira



The most impressive and sexiest machine that we saw here at Pier 9 is the DMS. It's the biggest, you can drive it by multiple axes—more than three. We think it's sexy. But we were afraid, a bit, by the time it took in class to get to be familiar with this machine. So we just dreamt about it. We didn't use the DMS, because we didn't want to waste time to play with a machine, and we were more focused on our project.