

Sara Hendren:

Welcome to episode four of Sketch Model. An audio series about the engineering classroom and how the humanistic disciplines of the arts, the humanities, the social sciences, shape the why and should questions about the technologies we build.

So far in this series, we've talked a lot about the big barriers that have hindered the engineering classroom from taking up ethical concerns in a sustained way. But we also want to explore what happens when technologies are deeply tied up with questions in a successful practice, in the things we build and in blended classrooms where we teach.

Today I'm talking to Mimi Onuoha, an artist and creative technologist who also held a creative residency at Olin as part of the Sketch Model program on our campus. That's the same program from which this audio series arises. Mimi makes all kinds of artworks and design collaborations using tech as her medium. Databases, digital maps, artificial intelligence and more. And in the classroom she brings students along with her, pushing them in new directions, right there in the laboratory.

Mimi Onuoha:

Sometimes the students will become fixated on, what do you know how to do? But what I want them to think about is what do you choose to do in this moment? And that's a different question because that one, it matters what you know but it's not the end all be all. It's what you apply in a particular moment, which means you have to think about the context from an audience and the place where it is and who you're talking to and why. You have to just deal with so much more that it doesn't become this simple optimization of one variable. Instead, it's like you're going to juggle, you got to juggle it all, which is life.

Sara Hendren:

Mimi Onuoha has a wide ranging art practice. She's held residency fellowships and professor appointments at the Royal College of Art, the Data and Society Research Institute, NYU, Columbia and many others. And this past summer she was the inaugural artist in residence at the IDA B. WELLS Just Data Lab at Princeton. We talked about how an anthropology major became an artist in tech and how an engineering classroom can also make space for the messy, unfinished nature of politics. I hope you'll stay with us.

Mimi, I'm glad to have you today in part because you are our first creative in residence this kind of residency program that we ran through Sketch Model at Olin. But you're also an artist in between a number of platforms of technology, social practice, you do some writing. And so I wanted to talk to you about what that looks like, what it looks like to be an artist whose natural language in vocabulary is also in the technical and in engineering and how it is that you've built a career in between those two things. So I wonder if we could just begin at the beginning because you weren't first trained in engineering and I think you went to Princeton as an undergrad and I wonder if you could just talk to us a little bit about that time and what happened to you there.

Mimi Onuoha:

So as you said, I did go to Princeton as an undergrad. I went to Princeton not really knowing what to expect. This sounds really silly, I know, but I'm Nigerian and there are some schools in the US that you hear about a lot when you're not from here. Princeton is not actually one of the ones that I heard about a lot. So I went to Princeton thinking it was going to be... I was like, "Wow, this is the most humble Ivy so I can get a good education but nobody knows the school." Only to get there and realize it was me.

So being there was a really interesting experience I will say. But one of my first weeks I think when I got into Princeton, I talked to somebody who was a little bit older than me and I think was maybe a third year when I was a first year. And now that means nothing. But as a young person, that was hugely different as you know. And I remember, I was just talking about my interests and she was like, "Oh, you sound like an anthro major." And I was so offended being so neatly pinned into a box that I refused to take any anthropology classes for at least three semesters. And then the fourth semester, which is a semester when you have to choose your major, I took one class and loved it and then ended up deciding in that semester that that's what I was going to do.

So I did anthropology and I loved a lot of things about it. One of the things I loved was that it just had this wide purview of topics that you could be interested in. Anthropology, it was about the world so you could think about anything and talk about anything. And also it had this really strange history, which was problematic because it had been used as a tool of empire, of colonialism. But because it had that history, it was a thing that was just constantly discussed in the field. And so it felt to me very different than some other fields, which I thought had a similar history but just didn't have to wrestle with it in the same way. And then the other thing I liked about it is that, as I said, I could talk about anything and the things that I was interested in thinking about had to do with just tech really and emerging technology.

When I was young, I actually had these communities online that I would write with just people around the world and we would write and share our writing with each other. And it really was a community of practice, but we were so young we wouldn't have thought to call it that. Really for me, the idea of the internet as this place where you could just connect with people who shared your interest, it was that before I even really knew what it was. And so as I got older, I started to realize, "Oh, that's kind of interesting." And I ended up focusing a lot on tech then and trying to do this stuff that I kept calling anthropology of tech or anthropology of media, depending on who I was talking to. And at this time it was not like this was something that a lot of people were talking about.

I'm sure a lot of people are talking about it in places. But I went to university in 2007 and Facebook was founded in 2005. It was early days. And one of the things that happened in Princeton is that you have to work on the senior thesis. And so mine had to be tied to anthropology because that was my major. And I had this thing that happened, which was just one of my friends actually passed away when I was in university. And this was during that time when Facebook was still new. And so a lot of people were writing on her wall. I was watching this happen and also looking at a lot because also just grieving and trying to figure out what it meant to grieve. A lot of grief has to do with people you're around and searching for something. When someone is gone, you're searching for a kind of connection.

And what I was watching was people having that impulse and sort of leaking it out onto this Facebook page or really pouring it out onto her Facebook page. And what I also was seeing was, as some people were doing that, a lot of other people were furious at that happening. And they were like, "What are you doing? This is Facebook. Don't put these things here. This is so..." And of course no one was like, "Oh, because of privacy." At the time people were like, "This is like a desecration. How could you use this place to be talking about these kinds of feelings and emotions? That's not what it's for."

And maybe probably as a bit of distance too from the situation, I really latched onto that moment and found it really interesting and found myself thinking, realizing, "Oh, this is a moment when we are deciding what the terms of this space are going to be, but we have to make the decision in real time because we haven't seen this happen. Facebook is for young people, you're not supposed to die here." And I ended up focusing my whole senior thesis on this whole topic.

Sara Hendren:

Wow. So just hearing those twin anecdotes, when you were a young person, you were on the cusp of that generation who was finding online communities, like niche communities that we think of as the promise of the internet, that kind of democratized and flattened world. And then you got rushed right up to... And that really was those early days where it was the wild west in terms of rituals. No one had some sense of what is appropriate, what is the decorum that we're all going to make up here? And as you said, watching people just wildly diverge in their expectations because we were still in those days, it was still surprising to keep hearing from, in a flat platform a person that you went to junior high with when you lived in another town three houses ago or whatever. And then to hear from your colleague and that flat space was still surprising. All that adjacency was still surprising.

And so it sounds like you were looking at the anthropology of tech in those very emergent social forms of digital tech right when they were also busting at the seams of what they could do. Is that right?

Mimi Onuoha:

I think you've put it so well. That is exactly what it was. And I feel lucky in some ways because as I said, this wasn't a moment when at Princeton... Now at Princeton, there's a whole department that's around digital humanities and that's a field that has a lot of weight and it means something and people understand what that is about. But when I was there, that wasn't the case. In fact, when I told my fellow students I was writing something on Facebook, they were like, "What?" It was like, "Oh my God," they were really made fun of me. They were like, "You find the strangest things. How are you getting away with this? So you just wanted an excuse to be on Facebook." And I was like, "No, I promise this is a moment, something is happening that's very interesting." And they were like, "Uh-huh."

But I was so lucky because I had this advisor who I feel so grateful to because she was like, "Look, here's the thing." I explained to her, I was like, "I think there's something interesting here." And she was like, "You're right there is. Here's the thing. No one else is going to see it. No one else is going to think that it is, but it is. So you have to write on this." And I was like, "Okay." If not for her, I think I would've just dropped it because I would've been like, "What am I doing?" But having someone who just was like, "Yes, yes, look at this thing. Yeah, who cares? Who cares if it's mainstream? Who cares if people can see what that is? Your job is to show that, reveal that a bit." And I just still feel very grateful.

Sara Hendren:

Yeah. That's a kind of iconic teacher moment where-

Mimi Onuoha:

Oh, yeah.

Sara Hendren:

... it surpasses any idea that the professor's main sort of contribution to you was this X amount of knowledge that they poured into your head, but instead the permission, that moment of permission.

Mimi Onuoha:

Yes.

Sara Hendren:

And even when it was outside of her purview, maybe just saying, "You're right. It is going to seem counterintuitive, go. Go toward that thing." There's something really just enduring I think about that

quality. But also, it makes sense that in what other field but anthropology would you go, "Oh no, no, no. I've learned enough to know that material culture really is everywhere." Right?

Mimi Onuoha:

Right. Exactly.

Sara Hendren:

There is something really moving about that. And I'm also just really struck by how grief and suffering is often this catalyzing thing.

Mimi Onuoha:

Yes.

Sara Hendren:

It's not as, it would be cheap to say that things happen for some kind of reason. I don't mean that at all in that pattern way. I just mean it is a kind of glue. It just electrifies our intellect too, how powerfully shaping that was to your career. It's just remarkable. Well, so you finished this degree and then I seem to recall that you had an internship more deep in the heart of tech. Is that right?

Mimi Onuoha:

When I was writing that, that would've been my fourth year, My last year of university. In the summer before my fourth year of university I... Again, almost the whole time I was there, I had no idea what I wanted to do, I really didn't know. It was this ongoing tension and ongoing issue I thought. And I managed to get an internship in advertising and a huge advertising company the summer before my final year. And everybody was like, "That's not important. What is important is anyone who has these skills." And I just remember sitting there and being like, "Okay, well, first off, I feel like I could do all of that. I just didn't know that that was what people were supposed to be doing." And at the same time I was thinking that I had been spending a lot of time thinking about tech from this supposedly anthropological point of view, that's what I thought, anthropological perspective.

And I felt like I knew things and I understood it. But then I started to wonder if I actually knew what I was talking about, if I didn't know how things worked under the hood. Like, can I talk about Facebook if I didn't know how to code? The answer is yes. But at the time I thought, "Oh, maybe it's not. Maybe I can't. Maybe they're right." And so as I got to my final year, I thought to myself, "Well it's too late. I am about to leave this place. And I didn't learn anything around physical computer, I didn't learn anything around just general computer. I just learned how to write and think, Ah, what's that going to do?" And so I just Googled really. I typed into Google any graduate program where I could learn how to code. And what I found was this program at NYU called the Interactive Telecommunications Program.

And I noticed that it was pretty much the only graduate program that didn't really expect too much. They were like, "Yeah, just come here, we'll teach you." And so I thought to myself, "That's where I got to go so I can learn how to understand what's actually happening in these platforms that I'm talking about." And so that's what I did. Right after I graduated, I went straight there. I think it was in some ways a big risk because I didn't know what I was stepping into, but I knew that it was buying time too.

And the thing is, I applied to this program because I thought it would teach me these things that I thought I needed to know. The thing I did not pay very much attention to is that it was also an art program. So I sort of fell into this art school and really ITP is a mix. It's art, it's design, it's tech, it's all of

those things and absolutely none of those things. But it is enough of all of them that I felt like I had no idea what was going on. So for instance, they would say, "Show me your portfolio." And I was like, "Well, what would be in that? I don't understand."

I genuinely was very confused. I remember also people would always ask, "What did you do before you came here?" Because when I went to that program, most people were in their late 20s. They were using it to pivot out of some career and into something else. And so in a class of a hundred and something, there were maybe four of us who came straight from university. They really didn't encourage it at that time. And so when they say, "What's your background?" And I was like, "I have no background, that's why I'm here." And then I struggled. I will say I struggled a lot at ITP partly because of that.

Sara Hendren:

Did you actually struggle with like, "I'm just thinking about myself building a circuit board?" Did that stuff come easily to you or was that also another world in terms of mindset and know how?

Mimi Onuoha:

Nothing came easily. That was another world. And I had this sense the whole time I was there like, "Everybody knows something that I don't, but I can't even ask the question because I don't know what that question is to what everybody knows." I felt very outside of it. I don't say it was difficult, but I was learning and picking things up. I think it was difficult in that way that any new space will be. And for me, because I felt outside of it in across a lot of different axes in terms of my age, my background by just everything. It was like my ethnicity but also my focus, but also just the way that I looked at the world, everything, not knowing any of this stuff. And a lot of people came there having heard about the program, knowing what it was doing. And I honestly was there and I was like, "But why aren't? I don't get it."

Sara Hendren:

Mimi's year of graduate school at the ITP program at NYU turned into another year there as a researcher where Mimi continued thinking and making her way through all those anthropological questions about how tech shows up in our lives. It was, as she said, slow going and bumpy. But then in that second year something changed.

What was the aha moment where you made a thing, you understood the artfulness of it, why it wasn't a kind of a gadget, it was doing something cultural? What was the moment either that year or after where you thought, "I made this thing and I know I have some sense of why it matters?"

Mimi Onuoha:

So I stayed on as a researcher after I graduated and I did this project or something, I call it now an intervention. And I think it really, it was the turning point, this particular thing I did. Which I will say I was already starting to be interested in this space that I thought programming could give me, a kind of distance that I found really useful. And this project really typifies that. So what happened was that I was in New York and living in Brooklyn and I was getting cat called a lot and I wanted a response, but I didn't want to say anything, which is I guess the difference between me now and then. I didn't want to have to respond to somebody in person, but I wanted to have some kind of response, something that could ameliorate the feelings I would have after somebody cat called me and I would feel kind of weird, but then they would feel fine and I didn't think that was fair.

So I did this thing, which now is just like, "Cool, you made a bot." But again, at the time was very different. For that summer, anytime somebody cat called me, I would give them this piece of paper and add a phone number on it. They thought it was my phone number. If they tried to call it, you couldn't. But if you texted it, it would go through. And I had it set up to the server so that if you texted it, you would get one of a string of pre-program messages. So people, this would happen all summer, someone would cat call me, I would just come up to them, give them this piece of paper, it had this phone number, then they would text it, they would try to talk to me. And then instead of me getting it, it would go to the server and it would be like, "Oh, I wish you understood how this made me feel, or why are you reaching out to me this way," or whatever.

I had all these different messages, they were very overwrought I would say. So I did this whole thing and what happened was that at the end of that summer I realized I had inadvertently created a database of all of my cat caller's, phone numbers, and it was one that they had opted into because they had texted me. And I said it, it was in that moment I finally understood some of the things I had been hearing people when they were talking about data collection and everything involved in it. And it also just became really clear to me that there was this relationship that had happened between me and them. And I had written this code and set this whole thing up so that I could have this distance, but it still was very intimate. And I also realized that when I would talk to people about it, the thing that everyone was focused on was that artifact of the phone numbers, the phone numbers from the cat callers.

And that was interesting. But to me, what was much more interesting was the process I brought that into being and what it felt like to have to walk up to people and give them this piece of paper and then be pulled into this strange dynamic with them. And all of that I realized was lost in just looking at the artifact. It was like, "Oh yeah, look at these cat callers." And it just felt completely disconnected from everything that brought it into being. And it was in that moment, it is so rare to have one moment that was so many realizations where I was like, "Wow, there is something really powerful happening in this act of data collection, but what is powerful about it is the way that it manages to be divorced from its context." And two, "I can learn something about myself and about the world through these art pieces."

Sara Hendren:

It sounds like that you were kind of in the middle of this second year of just deep immersion of making things. You had this whole anthropological training and so there you were in the medium of material digital culture again, but the art sort of frame for it arrived in this sense that you weren't making a product for sale, you weren't trying to solve a problem, exactly. You were trying to build into questions and to let them live as such. And like you said, you created a database, but even the database, which is interesting, was much more interesting in its big anthropological context.

And what else is that, but a work of art around a big frame of those interactions, those choices that those folks made, the resulting database, but also the messages back and then just the duration of all that stuff together. That is, what we'd call now and was starting to be called then maybe is a social practice that has technology as it's medium and in some ways at its heart. But really it's about how irreducibly complex a technology arrives and as an exchange in a set of lives. Is that right?

Mimi Onuoha:

Yeah, that's it. And I think I had gone into a lot of these spaces not really understanding what these... I was like, "What is this? Why the art, the portfolio? I don't... Why, why all these things?" And it felt like in that moment the questions were answered and in this very surprising way, which is how all of the best projects like this, the best inquiries, they surprise you.

Sara Hendren:

So that's a kind of aha moment. And you have built a body of work in the intervening years on just kind of endless variations on this very thing where the technology... tell me if this is right, where technology is both medium and question and answer and also barrier and hindrance, and also realm of possibility. And you've woven it into a whole bunch of different social and political matters, some of which are at the scale of one person, individuals. I'm thinking about broadcasting your heartbeat publicly to a whole room of gallery goers, and some at the much more systemic scale, thinking about racial politics and so on. Some about artificial intelligence, some about data. Just give us a little tour of the kinds, a range of things that you've done as art projects that contain and use the medium of tech.

Mimi Onuoha:

So some of my work, let me see, I've had this piece called the Library of Missing Data Sets, which really took that question, what does it mean to turn the world into data? And then was like, "Well, what about things that can't be turned into data? What about things that are missing, things that can't be collected or people who want to make sure that they avoid that process or who don't want to make sure that they do, but nevertheless that happens? What does that mean?" And so that one was this whole research project which was thinking about all of these data sets that weren't being collected and why they weren't. But really it turned into this inquiry into those patterns of absence, which I think become the point at which you can see something happening in these large sociotechnical systems, you'll have this absence and it reveals something more. And that whole project was about that.

And so that has so many different forms. One of the art forms is this output, this Library of Missing Data Sets, which is this filing cabinet that has all these missing data sets in them in folders that have the title of the data set at the top, but then there's nothing in the folder. And I have different iterations on this depending on where it's shown. But all of it gets at that question of what is missing? What does it mean for something to be missing right now in this time? And then what's that pattern behind those things? So I'll have the library missing data sets, version one, then version two, then version three. And each one is kind of different and it highlights a different aspect and gives me a chance to play around a bit more in something else.

And so I've done the same thing with this piece, Us Aggregated has multiple. Oh, and I'll say, the other reason I like to multiple versions is because I said before, I'm Nigerian, I'm from a group called the Ibo. And historically, traditionally, there are no museums in our culture because it wouldn't make sense to have a piece of art that just stays the way it is and it's just collected. And actually the history of art making in our culture or in some parts of our culture has been one of creating things and letting them disappear, letting them be destroyed. Because the point is the process of making it, not just having it. And I obviously love that.

And so I think coming up with different versions is speaking to both of those traditions. And so I have this piece Us Aggregated, which takes photos from my family's collection that have never been online and feeds them into Google's reverse image search algorithm, which then returns photos of people or things that are seen as similar. And I have multiple versions of this. And the whole point is this idea of what does it mean to be grouped and be seen as similar to someone else?

Sara Hendren:

Yeah. And I think people listening to this who may be unfamiliar with contemporary art, you can think of all the mediums that you're using as an extended form of what would've been in studio practice, paint or ceramics or any other kind of material that we think of as being made for stuff that we're used to

contemplating in the gallery. But you're taking this other kind of substrate of our lives now, which is all this stuff. Sometimes it's zeros and ones and sometimes it's the hardware that is the packaging for that. But it's representing it in the way that the arts have always done, that they do this estrangement work, they defamiliarize us from what we think we know about it. So all of that playing with what's being collected as data in the background all the time of our lives, what's also not being collected.

So looking at in that kind of reverse photograph, negative, what's present, what's absent? And doing all that same familiarizing work, but with these brand new materials that have a way of settling into our lives as though they were inevitable, even though they're emergent. It's so wild. I think too, I can imagine any number of people hearing this thinking engineering and technology is for problem solving. And everybody knows the arts are for problem finding or asking questions or whatever. And what I love about your work is that you're deep in the realm of the technology, which right, is supposed to be in that solution space. And you're conforming it to the asking of questions. You're having that same medium do that question asking work and people expect that you're going to have it in paint or in poetry or in these other forms, but you're just really contorting the normative functions of technology to do something else. And I think that's what makes it so powerful, one of many things.

Mimi Onuoha:

One of the interesting pushbacks that I get sometimes when I apply for a grant or talk to somebody about a project, they're like, "But can you do that? Is that art? Does that count?" And I think that this is so very contemporary art. But shifting and being like, "Look," getting you to see this a little bit differently, that is part of it. That's part of the art, is this putting together these things that seem like they don't go together. But then allowing, you see, well maybe they do. And that does something different, doesn't it? But I understand, it's an ask in the way that at least with painting, there's a kind of familiarity. You know what you're looking at and you know what to look for. And there's something destabilizing, I think for a lot of folks in these emergent forms because it's not just the painting that's different, it's like the frame is different too. And now you have to consider it all.

Sara Hendren:

Mimi, I love hearing about the encounters that you had when you were a student, but this series, as you know, is about engineering education and particularly the site of the classroom and what it does or doesn't do to alter the kind of status quo of technology and engineering practice. And so I wonder if you could take us then into the classroom, because I know then you've gone from student to professor and I know that you've taught students some of whom their home disciplines are very much on the technical side and engineering. And sometimes you've taught in context where students are coming from a more liberal arts background or maybe even in art making practice.

Mimi Onuoha:

In the best spaces, it's like you want to find a way to show how these political considerations are wrapped up in these technical considerations, which are wrapped up in these ecological considerations, which are now wrapped up in these social ones and they're all connected. And you can choose to focus on one little piece of it, sure. That means you do have your little microscope trained. So what we're trying to do is say, "All right, let's look at the whole thing," which is a difficult task. And I have found that some subjects really lend themselves to this really nicely. And this is why I love teaching mapping classes. I love it so much because I think maps are all of those things at once, particularly when you're thinking about digital mapping.

Digital mapping, there's a whole aspect of it that has to do with just even coding really. And really some forms of just, again, scientific and geographic knowledge. But then there's also this question that's about aesthetics. What does a map look like? And then there's this question of what does it do? How does it function? Who is it for? How has it changed? And with digital mapping in particular, you have this issue where you're trying to take a mostly spherical globe or world and you're trying to flatten it and put it on a 2D Cartesian plane. So what that means is that you have to choose, some area is not going to be represented well, so you have to choose where. And just this is it. This decision is one that gets made every time we use it. A choice has to be made, but it's not just a spurious choice. It's a choice that now we are going to live with and then build on top of and it's going to do something. But we are going to have to make a choice.

And I think that this is part of why I love mapping is that, it gets at this, you have to make the choice in a technical way, but you also are making it in a political way. And then you have to make it in an aesthetic way. And each of these things are going to influence how people are able to just navigate space. And even that idea of navigating space then becomes something you can interrogate. We're learning about emerging technologies, but in shifting it so that the tools were the point, but they weren't on a pedestal because anybody could use any format. It felt wonderful. Yes, it seems you know what it is.

I think what I started to realize in teaching all these different classes is that it can be tricky. Because of these cultural hierarchies, sometimes the students will become fixated on, what can you do? What are you able to do? What do you know how to do? But what I want them to think about is what do you choose to do in this moment? And that's a different question because that one, it matters what you know, but that's not the end all be all. It's what you apply in a particular moment, which means you have to think about the context from an audience and the place where it is and who you're talking to and why. You have to just deal with so much more that it doesn't become this simple optimization of one variable. Instead, it's like you're going to juggle, you got to juggle it all, which is life.

Sara Hendren:

Yes.

Mimi Onuoha:

But I'm interested in what you think, as someone who's been teaching through a lot of this time, now, all of a sudden tech criticism is a field. Like tech companies. There was a point where support for the tech industry was bipartisan and now regulation of it is bipartisan. We're in a very different moment. And I will wonder what it has been like for you if you notice anything different in teaching as someone who is also in between a lot of these spaces now that it feels to me like something in the ground has shifted.

Sara Hendren:

Yeah, well I think you're absolutely right about that. And I've certainly seen just in the last couple of years, students reach what feels to me like an unsatisfying kind of bottleneck. So I think in my own context, students with a lot of technical skills who've been reading enough worrisome headlines about AI, for example, that they at certain points just choose not to build anything. The idea that there would be something buildable from which they could shield any harms whatsoever felt impossible. And so the choice was sort of shutting down. And I think we could imagine, I've certainly, one of my colleagues, [inaudible 00:32:51] has shepherded its students through design refusal and we're going to talk about that on this series. So I think there is a moment for sure where refusal is an important part of a learning process and indeed is appropriate, in industry and beyond.

We want that possibility, the possibility of refusal, of stopping a project to be alive for students. Nonetheless, I worry a little bit about just the calcification of their capacity to do that good tinkering and prototyping. I already said I've noticed among liberal arts students, a kind of reticence that I have really tried to encourage, that builder's agency. Be brave with all your wits intact. But in the prototyping and experimental spirit and just what you said so beautifully about software, understanding that if you pilot things and try them out modestly, you can reverse course and you can alter as you go.

But I do want a generation of students who do feel the best that engineering offers, which is that agency of the proposition, the proposal, the what if question in stuff. And so I am a little bit worried not about the... I welcome of course a whole discourse of ethics and tech. It's more the kind of binaries and black and white thinking, morally speaking that comes with some of that discourse, such that people want to rush to be sure that they're on the right side. And the right side often feels like throwing rocks in the discourse. And I think yes, we need that, but we do need people also to be the builders. And so I regret sometimes that the temperature of it and the moral valence of it. But tell me what you think.

Mimi Onuoha:

Oh, I completely agree with you. I think this is something I've noticed as well is that it's this almost like a purity problem.

Sara Hendren:

Yep.

Mimi Onuoha:

It's when people I think come to this conclusion, which is not inaccurate, where they say, "I can't build anything that won't be criticized or I can't build anything that won't do something that I might not like. I can't build anything that won't X, Y, Z." And there are a number of different paths to go from there. And I agree with you, it's very different than thinking about refusal or indifference, the way that those have been leveraged by different groups in particular moments in context. I think that often the place where a lot of students go is, "So I won't build anything at all." When where I'd love for them to go is, "So I will build again and again with different people and in different ways and over and over again." And the process of doing this, we will have to just switch and find an answer and find multiple answer and it will not be enough, so we'll find another one.

Sara Hendren:

You put that so well, I was just nodding my head enthusiastically. I think that that is the beauty of a prototyping disposition. It's prototyping as almost like an ethics, where you're committed to staying in there. And it requires, I think a kind of generosity among all parties. I was just talking to people as well about this just today trying to say, the way I think of it is like can we make room for modes of critique and modes of repair? And both of those we could have endless debates about. But can we nonetheless say there's room in a big building house for both of those and for technology to do some of the reparative work and also some of the critical work. And for the art practices of our lives to do, yes, it's a familiar thing of critical work, but also to be useful and reparative.

And can we say, "Wow, sometimes I'm looking for a cultural artifact and sometimes I'm looking for a better mouse trap." And so there's a lot of building involved in both of those things. And I could bring all my critical wits about me to both enterprises, but they do different stuff. And we need culture and we need practical tools. And that's different, I think, than saying, "Can't we all get along?" I think there is

just being specific about the mission that we're on and being generous enough to see that other people's contributions are just on a different project. Does that sound right to you?

Mimi Onuoha:

It sounds very right to me. I remember really clearly talking years ago about a project, I think it was maybe this Library of Missing Data Sets, and the way that it was construed by the group I was talking to, they were like, "Wow, really great to see this activism project." And then few years later talking about it and having a different group say, "Wow, really great to see this project of tech criticism." And it was just interesting because I thought, I haven't described myself as any of these things in these settings. I think our job is to hold all of it. That's the work. It's this question of fluidity, to switch depending on where we are and what needs to be done and that's okay. It doesn't have to be just the one, like you said, the binary, the this, the that, the I am this, this, this.

I understand being on the side sometimes, particularly the... I'm framing this in the language of being a critic, because I think it's just something that at least I see kind of alluded to a lot. And I think a lot of the students I've worked with say this. And coming from that position of criticism, it's a little safe sometimes because you can be on the outside and like you said, throw the rocks. And that's safer. But it comes back to this class I used to teach on mapping. The thing that I love about maps is that you have to take a stand, you have to make a decision. If you're going to use it, you have to and your decision is going to have a result. And the answer isn't to just not use the map. The answer is we have 5 million different projections and you... Making anything is so, so hard and so endlessly worthwhile, you have to, you have to do it.

You have to switch and use different ones and know why you're using it and be accountable to that, but also be willing to use a different one. I think that's the task. That is the task I see for a lot of students today, one of them, one of many.

Sara Hendren:

Talking with Mimi reminded me once again how many pathways there are into technology and how many opportunities there are from making the technology laboratory or classroom into a truly lively place. One that's replete with play and surprise and that's awake to questions that can gather a whole community of people. In practice like Mimi said, it's important that we build things together. In engineering that's called prototyping, tinkering, testing, building things to learn. And I wanted to hear more about that and this time from the more traditional tech side. So I asked my colleague at Olin College, Amon Millner, about his own training in computer science and about how he makes prototyping into a joyful exploratory practice with his undergraduate students, but also with young children.

Amon Millner:

I tried to introduce opportunities in under-resourced areas that may have had schools that might not have had the computer labs because the potential is great. The only thing that is lacking for these young people could just be one opportunity.

Sara Hendren:

That's on episode five of Sketch model and I hope you'll join us. Sketch Model is a production of Olin College of Engineering, a four year undergraduate engineering college outside Boston, Massachusetts. Sketch Model is an ongoing investigation into the substantive engagement between the arts and humanistic disciplines in engineering education. And it's been supported by the Mellon Foundation. We

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spent the last four years running programs at our institution, bringing more robust arts and humanities to our campus in the form of residencies, some are fellowships for students and collaborations for faculty and staff. You can read all about these programs and ideas on our website, olin.edu/sketchmodel. That's O-L-I-N.edu/sketchmodel. Sketch Model team members are Sharon Breitbart, Kristin Casasanto, Jonathan Adler, Deb Chachra, and Benjamin Linder. I'm Sarah Hendren. Thanks for listening.