

## **SIGGRAPH Spotlight: Live From SIGGRAPH 2024: Interactive Media Outside the Screen**

### **Voiceover**

Welcome back to SIGGRAPH Spotlight. Tune into an episode recorded live from SIGGRAPH 2024 in Denver, where SIGGRAPH 2024 Labs Chair, Jonah Brucker-Cohen, invites four SIGGRAPH 2024 Labs contributors to discuss their projects and how we use hardware to shift our perceptions of how interactive media functions and lives outside of the screen. Take it away, Jonah.

### **Jonah Brucker-Cohen**

Hello and welcome to SIGGRAPH Spotlight. I'm Jonah Brucker-Cohen, SIGGRAPH 2024 Labs Chair. Outside of SIGGRAPH, I'm an associate professor of digital media at Lehman College, City University of New York, in the Bronx. My guests and I are recording live from SIGGRAPH 2024 here in Denver. At the time of our recording, we're about to kick off the first day of the conference, which is very exciting. So it's great to be here. It's my pleasure to sit down, live and in person today with four SIGGRAPH 2024 Labs contributors. We have Brandon Ables, Julia Daser, Pepi, and Jeremiah Teipen. We're going to hear more about what they're presenting in Labs this week, as well as show how we use hardware to shift our perception about how interactive media can function and live outside of the screen, and not only on the screen. So I want to welcome Brandon, Julia, Pepi, and Jeremiah.

Before we start our discussion, tell each of our listeners a little bit about yourself, who you are, what you do, how you got your start in computer graphics. So we'll start with Brandon.

### **Brandon Ables**

Hi, thanks for having me. I'm an artist from Baltimore, Maryland. I got my start really doing music, and that led into performance art. And I really do more interaction methods, interaction techniques, and computer graphics stuff. I'm a Ph.D. student in human centered computing at the University of Maryland Baltimore County. I'm here presenting Chin Interfaces for Peripheral Interaction, so ways of hands free engagement with peripheral media, for subliminal priming, for just affective experience enhancement, and for different ways of interacting with text, whether text input or for reading.

### **Jeremiah Teipen**

Hi, thanks Jonah for having us. Pleasure to be here. This is Jeremiah Teipen. I'm a visual artist and educator. I'm Professor of Computer Arts at Hudson County Community College in Jersey City, New Jersey, right across the river from Manhattan, and my first sort of entre into computer graphics, using as a media for art was, you know, years ago, I was using all types of different media, experimenting with anything I could get my hands on, ultimately, just led to using graphics and interactions to make, you know, my paintings move and make my sculptures react to the viewers that are seeing them. So that's really the spark that sort of started me down this path many years

ago.

### **Jonah Brucker-Cohen**

Cool. Thanks so much.

### **Julia Daser**

My name is Julia, and I'm an artist based in New York, and I'm currently doing an undergrad at Parsons School of Design. In my own personal work, I really love to make data more interesting by making it physical and interactive, so that people can really see the meaning of data in a visual way. And I also have a YouTube channel with Pepi called Wormi Collective, where we post a lot of DIY hardware tutorials. And this year at SIGGRAPH, we are teaching one of our most recent projects, which is called Build Your Own DIY Love Messengers in the Labs section.

### **Yi Qing Ng (Pepi)**

Thank you, Jonah, for having us. I'm Pepi, a creative technologist from Singapore, studying in New York with Julia as well at Parsons School of Design. And I also work on a lot of interactive projects with Yulia. And outside of creative tech, actually in my creative tech projects as well, I like to explore gender, global politics, and culture. Thank you for having us.

### **Jonah Brucker-Cohen**

We're just wondering maybe you can tell us a little bit more about different aspects of your project. So what risks, for instance, does your project address? What is your ideal audience? How do you see your project ending up outside of SIGGRAPH, for instance, or outside of a conference? Where would your ideal situation be for this, and where would you want to take it in the future?

### **Brandon Ables**

I think generally, my project and my work address risk, hedonic adaptation, like I really think we mindlessly interact with our computers and everything we do every day, and I think we lose a lot of the initial enjoyment of those things. We lose a lot of that phenomenological freshness, and we just fall into sort of an automatic routine. So I think that is especially true for prescribed interaction. Methods for text and reading. We don't need to hold a book or swipe a screen. We don't need to be crouched over our keyboards or typing with our thumbs to be expressive now, and I think a lot of the message of my work is trying to show people that you can do this stuff easily with free software and using computer mice and stuff from Amazon that are real cheap. You don't need to be sophisticated with switches or electronics or anything to be able to just change the way that you interact with information or type or express yourself. And I think in the future, I'm interested in ways you can pair this stuff with education so metaphorically, connecting a gesture activity with specific content, which is sort of what the chin interfaces gets at here, eating a piece of beef jerky, hearing a Western soundtrack, right, or hearing or reading about the history of cowboys in Denver, peripherally, while you're chewing something like that, tying location to content, like I had a Denver omelet for breakfast, right? And it was especially better because I ate it in the city. So things like that.

### **Jeremiah Teipen**

I guess risks. I think we all know that good design that implements technology well can solve issues and do really amazing things. But I think there's also the risk that as we try to solve problems with design and technology, we just create more problems. And it's kind of a cyclical thing there. And also often the newest technology is kind of just slapped on products and services as a way to gain interest in

that. And it's really, you know, when we look at it abstractly, it's kind of absurd, and it really doesn't function well. So to illustrate that, here at SIGGRAPH, I am creating, I have workshop where the participants will create an electronic sandwich. So this is something that I did in my studio years ago, where I took two pieces of actual bread and made a sandwich out of them. But rather than the typical ingredients, I put electronic components and LED matrix to be able to create a display that's visible through the bread. So this is the first time that I'll open that project up to other participants and see what they bring to it. So that's really exciting for me to kind of see how other people inject their own ideas onto this sort of blank canvas of a sandwich. I hope that in the future, I can keep doing projects that really open it up to others.

### **Pepi**

Julia and my project is called Build Your Own DIY Love Messengers. And this project doesn't require any prior skills or experience. It's open to everyone, and it's for everyone, so everyone also gets to take home their own love messengers. And love messengers are basically these two really cute devices with hearts on them, and they're 3D printed, and they can communicate with each other no matter the distance. So it's great for loved ones of long distance relationships or long distance friendships, and when one person presses the button on one love messenger, both of them will light up, and vice versa. So this project will explore how microcontrollers interact with real time databases and how real time databases can be made accessible for anyone, even beginners.

### **Jonah Brucker-Cohen**

Great. Good to know all of those details. And one thing I like about the projects too is that they kind of show how we can shift away from the screen into physical things and kind of manipulate objects and interactivity through physical computing methodology. So I was wondering why that's so important in your work, getting outside of the screen, and what you could actually talk to a bit about that. So we can start with, I guess Jeremiah.

### **Jeremiah Teipen**

I think there are very few places or activities where we can escape from the sort of bombardment of media and alerts and notifications that information that's augmenting our experiences and kind of interrupting our peace and autonomy. So to use technology do something different than that, right to sort of separate us from all of that, sort of things that are fighting for our retention economy, or things that are surveilling us, or whatever, I think is important so we can kind of recenter our consciousness back into ourselves, and not have it be split into all these other spaces. I think the way that technology has sort of crept up into all of our different aspects of our lives, and it's gone at such a slow pace that we've just adapted to it as it comes. And there's probably good things and bad. I'm sure there's both good and bad things of that process and this sort of condition that we live in, but to sort of use technology in a different way, maybe in a more absurd way, that's more humorous, that allows us to think in new ways and just reevaluate what we're doing here.

### **Jonah Brucker-Cohen**

Julia and Pepi, how did Love Messengers address this idea of taking out of the screen.

### **Julia Daser**

So Pepi and I are actually both international students, which means that our loved ones and our families are super far away in different countries. And when we arrived in New York, we learned a lot about hardware and code and all of these things, and the love messenger idea sprang from us wanting to share. Share our knowledge with our family back home in Singapore and Switzerland, but also not only the technology, but a meaning to that technology and sort of a love message to our loved ones. So the first love messenger that we made actually went to my mom to Switzerland, and since about one year, my part of the love messenger stands on my desk, and every now and then I see it light up, and at that precise moment, I know that six hours in a different time zone, my mom is clicking the button in that exact moment. And I think the feeling of this small gesture of love is actually quite different than what it feels like if someone texts you because your phone is so connected to so many different services. You use it for work, to take pictures, for emails, but that love messenger is entirely dedicated to your relationship with one special person. So yeah, I think that was the idea of removing all unnecessary things from phones and focusing on the relationship instead

### **Jonah Brucker-Cohen**

Brandon, some thoughts on this area?

### **Brandon Ables**

I think a lot of my work deals with like, our everyday activities, everyday gestures. And I really have a thing about like I feel like we're missing a chance to enhance our learning ability, our experience of everyday life, because we're not using these times as interaction methods, like putting on our shoes or like, I know I have an elaborate choreography for like, toweling off after the shower, right? It's the same sort of thing. But what if I was typing out something about how clean I am, or how attractive I am, or something like that, right? These small moments throughout the day to just boost your experience a little bit, I think, subliminally showing yourself text. I mean, I'm a certified hypnotist, so I specialize in active, alert hypnosis techniques where you go into this sort of automatic state, usually through repetitive motions or through repetitive behaviors. You show yourself certain texts can prime your experience to become better, to learn more things and to make your trip to the fridge that you take what 510, 15 times a day more meaningful, right? Clipping your nails or brushing your teeth. These are moments when you can be setting yourself up to have a better reality, or shape your own reality for the way you want it to be.

### **Jonah Brucker-Cohen**

To follow up on a lot of these. I think the projects where we see the technology slip into the background, and it's not in the forefront, like phones and screens and things that are kind of always blasting in our face. Those types of connections are definitely the more meaningful ones. They kind of melt into our everyday lives that we don't have to like put a lot of our attention on them. So that's kind of one thing that I like about the angle that you're going into there. So another question that's come up here is we're looking at, we're in the Labs section. It is not the Art Gallery, but I would say a lot of the work that is shown could be in the Art Gallery. So getting into the technical side of the projects, I was hoping that you guys could expand a little bit about how your projects work, maybe a little bit about what you're using in there. We can start with Brandon again.

### **Jonah Brucker-Cohen**

So chin interfaces for peripheral interaction uses sensors and software to capture predictable and unpredictable movements. So how does it interpret these movements and translate them into commands for peripheral screens? Originally like, I do a lot of accessibility research, and there are, like, chin switches in the accessibility community, but they're really, you know, not propped up, not for everyday use. They sort of just sit against your chest, right? And you need to clip down at them. So I started iterating methods of getting that higher up. So I put it on, like a posture harness thing, and just zip tied like a wireless mouse to that, and did that. And then that became something that I 3D printed out and designed, and for bringing them over here, made a modular so that the legs would come off so they wouldn't crush. But basically, now it's using a 3D printed frame micro switches that just run through, like a quarter inch guitar outlet, and then just using mono cables. Usually I do, because I am a musician. I have a lot of MIDI equipment, so I usually turn the signals into MIDI that max MSP or that BOEM MIDI translator can do. So it's really programming light stuff, and most of the programs are free. And then through those techniques, you control interaction with the computer. So I do a lot of stuff where it's controlling the mouse movement over on screen keyboard for key selection to type out things, or just really turning the chin presses into left or right or space buttons playing through slideshows of rapid serial visual presentation text, which is, you know, one word at a time that you can control the speed and playback for however conscious you want to be of the material

### **Jonah Brucker-Cohen**

Julia and Pepi, Love Messengers is DIY. It's beginner friendly, as you mentioned. But wondering why you chose that route, how does a playful introduction to the Internet of Things? Basic code, C++ other code, a lot. Electronics, fabrication techniques, how does that demystify and enrich a participant's experience with these concepts?

### **Pepi**

Thank you for the question. Not too long time ago, right before we started our undergrad degree, Julia and I were also beginners in tech, and we know that there are a lot of people attending this conference who are also beginner in tech, but are very interested in finding out more about the tech that is, every time we go to a hands on workshop, we love it when we get to make something and get to bring it home with us like a souvenir, especially if we make it from scratch. So we want to offer the same thing to other participants who are here, who might not have too much skills, but want to create something for themselves and for their loved ones as well. So we want these love messengers to be for everyone, so that everyone can give signals of love to anyone around the world. And we hope that our project also offers a nice break from the more tech heavy projects offered in this conference.

### **Jonah Brucker-Cohen**

Great. And finally, Jeremiah, we're looking at bread as a circuit board. So I'm wondering what electronic circuit prototyping techniques are used in your workshop? The real breadboard? How does this blend humor and experimentation? How does that blend of those two help a participant understand or even critique technology or learn more about it or be more interested in it?

### **Jeremiah Teipen**

So, as you said, on the bottom piece of bread, there is a circuit diagram, which is laser engraved into it and on the top piece of bread, the participants will be able to choose an image or drawing that they can have that will interact with the LED matrix, which they'll be able to put program an animation or text readout. That's what's kind of interesting about this project, is saying what people will bring to it. There's also capacitive touch pins on the microcontroller add some interactivity to it. For example, my son and I played pong on a sandwich. I think we might be the first two people to ever do that the other day. So I'm really excited to see how that will play out with all the participants. Regarding humor, I think it's just really a great way to open ourselves up and each other up be playful and experimental, but such a vital part of the human experience. And as we grow, sometimes we forget that. You know, making mistakes, having fun, making mistakes and not getting it right is, you know, is how we learn being able to laugh at ourselves and give us freedom to be more creative. So we often become so serious with all the vast potential of technology and what we can do with it, and we forget to just allow ourselves to be a little bit more playful through humor, which I think that allows us to be, you know, more critical and analytical, actually, if we are able to step back in humor and see everything from a new light.

### **Jonah Brucker-Cohen**

Yeah, totally great points. I think humor is the perfect icebreaker to any technological experiment, workshop project, people just understand it immediately. Good intro there. So the last couple questions are about kind of the interaction techniques and things that you're playing around with. In my own work, I've done a lot of work with metaphors, and how we can bring like metaphors of interaction, thought process, or even just how we interact with each other and objects into kind of physical, aspect. So I wanted to kind of go through and see if you guys have any types of metaphorical connections to your work, or if you can think of ways that it could interact that way.

### **Julia Daser**

I don't think that we're using a very direct metaphor, but if we had to describe the essence of our project, it would probably be all about straightforwardness of human connections. The project is built up super easily. You can build it easily, use it easily. So I think a metaphor could be to kind of break down the hyper complex world that we live in into the more foundational building blocks of human connection. Perhaps. I wish I had a more fun answer,

### **Jeremiah Teipen**

Yeah. So the obvious metaphor is consumption of nutrients for our body, consumption of information for our brains, and you are what you eat. Well, maybe you are, so you are what you consume, as far as what information you consume, you know, garbage in, garbage out. So we have to be, you know, pay attention to that also. I think the idea of building something, whether you're building something through technology or something physical, and just like the other day, process you might go through of building a sandwich really has endless variables, right? Any of us could think right now of a sandwich that no one else has ever thought of before. I think there's this idea of it being a blank canvas or an open ended project that people can really just bring anything to. So I think that this will be, hopefully an inexhaustible, sort of wait for the participants to project their own ideas onto.

### **Jonah Brucker-Cohen**

Yeah, it brings me to sort of what Brandon was talking about. I love you to talk about this, but like, it's an open system, right? And so Brandon, you're using switches, right? That's what a lot of people start off with. So how do you add a whole kind of technological framework or other framework around us?

### **Brandon Ables**

Yeah, I mean, I like a lot of tactile interaction stuff, right? So knowing when you're triggering something, right? To be able to control. Way back of stuff. So instead of, like using a connect or using simple webcam, even if I'm using those, I'm having some sort of audio trigger, so you know when you're hitting the hot spot or something like that. But I think pairing, it's really important for me, like pairing the activity with the content. And I think that I do a lot of metaphorical connection there. I do a lot of research, of metaphor based embodied interaction. So stuff like Alyssa Antle is doing, she had a balance scale thing, and that you're learning about, like the balances of justice historically as you're like, balancing with your body and things like that where and I'm being playful with it and taking more, whether they're more platitudes and metaphor or something like that? But like, this idea of chewing it over, like, that's one of my tables, is chewing it over where you're considering some sort of idea that you have or that you've been thinking about, and chewing some gum, right? And typing out something as you're doing it, or tweeting out something as you're chewing over an issue. But yeah, I think a lot of it has to do with keeping that metaphor alive and active, and activating different levels of consciousness for learning or for experience.

### **Jonah Brucker-Cohen**

Two more questions. One looking beyond SIGGRAPH, maybe even beyond the technological environment we're in. What do you see your project's impact on daily life, how people interact with technology in general?

### **Pepi**

Sure. I mean, it's pretty simple. I just hope people can contemplate their experiences and interactions from a fresh point of view and use that to experiment and come up with new creative concepts. Basically, our project, as mentioned, it's supposed to allow everyone to have access to this type of technology, especially since IoT or Internet of Things, devices are becoming more and more prevalent in our everyday lives, we have smart fridges, smart lights, smart everything, smart homes. And it makes it seem as if this technology is very out of reach or it's very mysterious and a lot of people might not know. So I think our project aims to allow participants to understand this technology and at the same time also deconstruct the hierarchies that are related to big tech right now and allow participants to realize that they can create their own IoT devices on their own and communicate with each other everywhere in any part of the world, and They do not have to rely on a big tech corporation to give them this device. And we also want them to start their journey of personalizing and customizing these love messages for themselves in the future as well.

### **Brandon Ables**

Part of my research I'm building up for my dissertation is really I do a lot of autoethnography, so just tracking my own experiences using these technologies that I make I think it's got me thinking about really tracking, like the speed of thought, and like tracking thought as it occurs, and this live reflection idea, live autoethnography, so as you're eating, you're recording your thought as you're eating, that sort

of thing. I think users' daily life can really be affected by that idea of slow technology, you know, which has been around for what, like 25 years now. But I love the idea of, like, engaging with content over longer periods of time, like they have in that paper, something about ringing doorbells, and your doorbell would play back three or four notes of a song, right? Every time it's rang, so you have months until the whole song is completed, right? Where does that sit on your level of consciousness throughout that time? Right? Is it something positive, like, how beautiful is that? So ways of engaging with text input and with reading that aren't like labor based right, that aren't hyper efficient, that are more based on like ideas, with technology as experience rather than technology as completing this task as quickly as I possibly can, I think, slowing that down, introducing hesitation, introducing elements of mindfulness, bringing people out of automaticity, I think, is how this stuff can affect the user's life.

### **Jonah Brucker-Cohen**

So that brings us to our last question, kind of, looking past the conference into the future, any new projects in the works, things that you're building that may be connected to things you're showing here at SIGGRAPH, or maybe something new?

### **Julia Daser**

I'm about to graduate from my undergraduate program, and that obviously involves writing a thesis, and I'm very interested in making my thesis about real time data visualization. And clearly this is a technology we're using at SIGGRAPH right now. So in that project, I'm definitely thinking of further developing the tools we've developed for now, and, yeah, seeing how far we can take it.

### **Pepi**

Thank you. Also entering my thesis year. So I think this SIGGRAPH opportunity is a good way for me to understand the pitfalls as well as the good sides of using a real time database for projects. And in the future, I would like to explore using qualitative data instead of just quantitative data. And. For different ways, or meet different mediums to impart messages.

### **Jeremiah Teipen**

So yeah, I'm excited to see how participants here at SIGGRAPH will inject their concepts into this format, and I hope to make more projects in the future that kind of open up to this kind of collaboration. Outside of this project, I'm working on a immersive installation that will be shown in September at Governors Island. So if in New York, if anyone's around, some people on this table or come by, I don't know the exact dates yet, but it will be in the Taiwanese American arts council house in the Nolan Park area of the island. So I'm excited to see how that comes together.

### **Brandon Ables**

I got a lot of stuff going on, but yeah, this summer, I'm learning stenography, right? So I can track actually, that's as like close to the speed of thought as you can actually type. So I'm interested in developing chorded text entry methods for the body, so like embodied stenography type of stuff. I'm also really interested right now in screenless text entry like I've written a melody that I can hum where I know where I am on the keyboard, and I pair that with some sort of steady signals, if I'm walking, or a heart rate or blink that drives the melody forward, so I can know where I am on the keyboard and sort of



press so sort of engaging with the material in the slow technology way I was talking about. I'm trying to get that together for TEI.

**Jonah Brucker-Cohen**

Or maybe the next SIGGRAPH, yeah. All right, so Brandon, Julia, Pepi and Jeremiah, thank you guys for joining us today. We hope you have a great SIGGRAPH 2024.

**Voiceover**

Thanks for joining us for another episode of SIGGRAPH Spotlight. We're already looking forward to SIGGRAPH 2025 taking place August 10 through 14, 2025, in Vancouver. Until next time.