Ubermorgen meets *Halt and Catch Fire* 2016-07-19

Media Hacktivism/Activism in art and culture with Hans Bernhard and lixvlx of the artist duo *Ubermorgen*, and Chris Cantwell and Chris Rogers, creators and producers of the television series, *Halt and Catch Fire*.
LACMA Art + Technology Lab
July 19, 2016

Joel Ferree: Hello. Welcome to the Art and Technology lab. I'm Joel Ferree, LACMA Art + Tech Lab Program Director, and tonight we are thrilled to have Hans and lizvlx from *Ubermorgen* in conversation with Chris Rogers and Chris Cantwell of *Halt and Catch Fire.* Our Advisor Peggy Weil will make a more lengthy introduction, but first, I'll give you quick overview of the Art + Tech Lab. We provide in-kind and financial support to artists' projects that engage emerging technology. We're in our third year, we just announced our third year grant recipients and have already kicked off the program for the third year. We're going to be doing our first talk with our third year grant recipient Michael Mandiberg in September, and August 27th and August 28th, Gabriel Barcia-Colombo, second-year grant recipient, will be doing a performance on the digital afterlife, titled *The Hereafter Institute*. It should be online in the next week or so. If you want to join the conversation tonight, we're going to be broadcasting on Facebook Live. If you're going to be using Twitter, Instagram, or other social media, please use our #Art+Tech, we really appreciate it. I should also mention our website. LACMA.org/lab. You can also email us at lab@lacma.org. I'd like to introduce Peggy Weil, and also give a quick plug. She has a public artwork up in Los Angeles, part of the CURRENT:LA Water art biennale that's happening here in this city - check it out at UnderLAWater.com. Check it out. Okay, so without further ado, Peggy.

Peggy Weil: Thank you Joel and thank you all for being here. I'll begin with very brief introduction, *Ubermorgen* will show a brief introduction to their work followed by

another brief introduction to *Halt and Catch Fire*, and then we'll get into the conversation. Towards the end, we'll open it up for questions. Tonight *Ubermorgen* meets *Halt and Catch Fire* for a conversation on *Media Hactivism*: Activism both in practice and as depicted in popular culture. *Ubermorgen*, the Swiss/Austrian-American Artist duo, lizvlx (or you can call her liz) and Hans Bernhard, who live and work in Vienna, are visiting Los Angeles, so we're really lucky to have them here. And that is, by the way, thanks to a tip from our previous speaker, Kathy Ray Hoffman, who is sitting right over there.

Inspired by the Viennese actionist movement, Ubermorgen's video, code and online performances take place at the intersection of global, financial and gaming structures. Chris Cantwell and Chris Rogers are each Creator, Executive Producer and Writer on the television drama *Halt and Catch Fire*. They both have extensive individual careers in writing, journalism, and writing for both film and television. The show follows early 1980's hacker culture and Silicon Prairie - that would be Texas at the dawn of the PC revolution – with an ensemble of characters who, in their own description, are "unreasonable people making the world fit us." The Chrisses (as they are known) and *Ubermorgen* are here together tonight because I saw a certain convergence or confluence between these artists and writers. *Ubermorgen's* projects, *GWEI (Google Will Eat Itself)* and *[V]ote Auction.net are* works that reflect deeper societal structures and portray trends in digital culture. Their brand of activism connects in my mind to the kind of characters that would risk everything to reverse-engineer an IBM PC in the early 80's.

Ubermorgen's projects are provocative and fearless, and while the *Halt and Catch Fire* characters are perhaps more entrepreneurial than political, their inventions are no less provocative, and if not fearless, perhaps reckless. So let's get started.

Hans Bernhard: Yes, we just arrived from a road trip and we did bring some bottles of *Trump Water*. We stayed at the Trump Hotel in Las Vegas for the last three days, which was awesome. And we drank this water, including our kids here, Lola and Pilli in the back. And now we just refilled it with really bad Las Vegas water. And that's very similar to Donald Trump. We could talk hours about the hotel, and him, and how they're similar, but we don't have time at the moment.

First of all, I would really like to thank you Peggy, and Kathy for making this possible. It's fantastic. It's a great honor to be with legends of television. I'm such a fan of television in general and of the show. Also, I want to thank the Swiss Funding Agency Pro Helvetica and the Austrian Government, and Swiss Ex from San Francisco for making this trip possible for us. We are doing a round-trip in the US at the moment. On Thursday and on Saturday, we're going to do an event at The Machine Project in Echo Park. Just go to their website and you can see what we do there.

I'm doing this little presentation because I'm not so good in a conversation. Just to make clear that it's not this macho thing, and liz will follow in conversation. As you mentioned already, we are really interested in the exploitation of system weaknesses. We call this, we called it, and still call it Media Hacking. This is one of the focuses in the beginning, and still is, is because we're very much influenced by Viennese Actionism, an art movement of the 60's and 70's, from Vienna. We re-branded that, and call it *online activism.* Then later on, in the mid 2000's we started to do more conceptual digital art, and then moved onto research-based art. In the 90's we were really doing net art, avant-garde digital art. And then in the 2000's, we were more interested to get out of this ghetto and trying to go into the general art field, or the fine art field. Now it's not a topic anymore because it has all changed. But at this time it was important.

So today we do a mix of videos, installations, digital work, net-based work, and actions. But now, coming to this mentioned *[V]oteAuction.net* project, from 2000; Here you can

see the seal of the auction. It was an internet platform for buying and selling of election votes in the US during the presidential election George W. Bush vs. Al Gore. The claim was that we were bringing Democracy and Capitalism closer together. That was the whole thing. And it was an affirmative thing. There is no argument against it here. Everybody's for democracy, everybody's for capitalism. It was hugely featured in the news - all over the globe interestingly. About 3,500 news features. There was a 30-minute CNN video, a CNN show, *Burden of Proof,* with Greta Van Susteren. And we reached about 500 million people with the project. On the other side there was the legal aspect. We had 13 state attorneys investigating, and charges issuing injunctions against us. We received about 1,500 pounds of legal material by FedEx and DHL, so it was a lot of pressure. Janet Reno, the federal attorney was pushing.

lizvlx: Yeah, and it was like, Missouri sued us for consumer fraud. Like we're not delivering our product. And Illinois sued us for voter fraud, so we were really caught in between them. So just figured we'd keep on doing it.

Hans Bernhard: So here you can see the website. It was a complete fake but we pretended to be Bulgarian and business people trying to exploit the American Electoral Market. Just looking at it from a business aspect, which drove them crazy. So the FBI was involved, the NSA was involved, our servers were hacked several times. And then it all stopped on November 7th. Every one of you, I think are old enough to know what happened November 7th. It all stopped, and in Florida people started to look at individual ballots, and it all went crazy. And then Bush stole the election. So, that was that. And we were robbed. Free again.

So the next project - this is just a quick look – this is how we turn it around - is an exhibition in London at our gallery. These are the 1,500 pounds of legal documents. And the seal. And here you can see one of the documents, and here you can see the video. We're not going to show you the video but you can see it on *vimeo.com/ubermorgen,*

there's this 27-minute CNN piece - it's very very entertaining. And also we show it a lot in shows. At the moment it's really popular. A lot of shows actually, at the moment.

lizvlx: Yeah, we don't know why.

Hans Bernhard: No. So, next project is *Google Will Eat Itself*. That was 2005. This is a more digital concept art piece. Google was very popular at the time among artists. A lot of artists were doing *Google Poet* - search engine poetry, and really really horrible things.

lizvlx: It was not good to watch. It was distressing. Yeah.

Hans Bernhard: It wasn't good. And we were thinking, what is Google actually? It's a business. And what do they want? They want to make money. How did they make it? With advertisements. So we started to go in there, zoom in, and we subscribed to their ad service, or their ad business, and we created hundreds of websites with little Google advertisements on it. We created an army of little bots – robot-like scripts, who would go to this site and click them. Each click generates revenue. Little little revenue but overall it would be more. So on a monthly basis it would be transferred to our Swiss bank account and there, it would automatically buy Google shares.

Hence, the name *Google Will Eat Itself*, an auto-cannibalistic process. Here, this is the seal of the action, and this is the diagram so you understand. Now here you can very easily understand how it works technically. And that's one of the exhibition features. That’s in Israel, in a bunker - air bunker. The problem is, where it gets conceptual because we actually did this, so it's really practical, but conceptually, it would have taken us 200 million years to buy the whole corporation. But we made almost a million dollars with this. So now you can understand, at the time it was unbelievable. It was valued more than all banks together.

The next project we'd like to show you is called *ForkBomb*. Actually it's called, *The Project Formally Known as ForkBomb.*

lizvlx: Yeah, we collaborated with somebody on this project, and then it didn't turn out so well so it's a different name, but the same now.

Hans Bernhard: It's a cluster of robots again. It's an engine that collects commands from Youtube Videos, so you just enter a video that you're interested in. It'll go and get all the commands. It's sometimes - it's hundred of thousands of commands.

lizvlx: It's just, I scripted it and you were explaining it - that's always so cute.

Hans Bernhard: Yeah, I know. I know, you tell me I'm - I know I'm cute.

lizvlx: Go on.

Hans Bernhard: I don't feel it. But I know. So, now you've got me off-track. Let's see.

lizvlx: Did I?

Hans Bernhard: Yeah you did. So it generates books. It's like theater plays. It's really really nice to read. It's totally absurd and it ranges from super melancholic to super aggressive. And it reads really well, and the books are really nice. But don't get me wrong, we're talking about 10,000 – 100,000 books per day. And now we would automatically upload them into the Kindle Store. The idea was, the intention was to create a mono-culture of *ForkBomb* books. And to erase all other books.

lizvlx: Not mature at all, right?

Hans Bernhard: Yeah. It never worked. But, many fights were fought and it was really an uphill battle. So they would take the books out. Next days there would be 100,000 back in. It would go on and back and on. But what I'm much prouder of actually, is this installation. So this was in Ahus in the Künstlerhaus, it's a large museum, it was a group show, and we did this room installation. So on this side, are two tons of Youtube Comments. And then this is a printing press diagram, which is adapted to the system that we created. And then in the back these red books, these are the final books. So that's how it worked. Here are a few shots of this installation. I think this is also a good visualization of the transformation of the very technical, and very digital art into a physical installation that is actually just vinyl and paper, which I really like and I'm proud of it.

The last project we want to explain because it's quite a recent project, it's called *Do You Think That's Funny? [The Snowden Files].*

lizvlx: It's called, *Do You Think That's Funny* because I remember we did another project in 2001, it was about Nazis, and this reporter called me, and he was actually kind of a friend and an acquaintance, and he asked me, “Do you think that's funny?” And it was a question that's obviously not to be answered. And I liked that question ever since. From an artist's point of view, because obviously it's not about fun, it's about art. But is it funny, I mean, I don't know. That's why we try to re-use these things that come up.

Hans Bernhard: So we met Snowden in Vienna at the airport when the Bolivian president, Evo Morales was grounded because of American pressure onto Spain, Italy, France, all the countries he had to fly over. So he was grounded, and Snowden was in the plane. So we had the brief meeting with him. We knew someone at the airport. And

actually we just talked about it. There was this dialogue with Edward Snowden in a gallery. This is from the gallery show in Carol Fletcher Gallery in London. They represent us. And you can find it online, it's also in the publication. What you see here is one side - there are two of these systems, so it's a redundant system. These are beagle bones which are basically small computers. Edward Snowden sent us some encrypted files, like these - the leaked documents. He sent them to different people. But they were encrypted so we couldn't read them.

So we put them on these beagle bones - actually we didn't put them on them, so we created protocol. And I really like the idea because I think it's something that is going to happen in the future. It's not stored on the computers, but is actually physically, literally physically, stored in the cable. So the data is in the cable, moving in the cable. Maybe you can, maybe we can think of it like a ping-pong thing or something like that. It just touches but it never gets saved on the other side. It just puts it back and forth. If you manipulate it in any way, it'll just evaporate. The data will be gone.

Because we actually were interested in Scotland Yard or PC HQ coming by. We had a lot of security cameras to cover everything because we could have done another artwork out of it, but they never came. Yeah, so that's that. Lastly, I would like to show you just one minute so you have some idea because it is audio visual material. So we're just going to give you one minute of a game we did for the Whitney, commissioned to work for the Whitney. Is there audio?

Chris Rogers: Well that is the definition of a hard act to follow. That was amazing.

Chris Cantwell: Yeah, I would say so.

Chris Rogers: And we'll make this fast because I'm very excited to talk to you guys about these projects. This is fascinating stuff. Just to set up *Halt and Catch Fire* really

quickly, I think it'll be a little easier to grasp in short period of time. This is a TV show on AMC, now in its third season, and I'd say if it's preoccupied with anything, it's the question of technology; how did we get to our current technological state of co-dependence? Is technology bringing us closer together or driving us farther apart? And how do people who create the things inevitably bake themselves into the things they create? So with that very high level rushed overview, we're going to show you the trailer for the first season, plus a little bit of the second season just to orient you. And this is the show we'll be using as frame of reference to talk about these pieces of art. So just sit back and enjoy these YouTube clips.

[Trailer Season 1 plays]

Chris Rogers: So that was the first season. The first season really was structured around reverse-engineering of the IBM PC by these main characters that we meet. In Season 0ne, a bunch of stuff happens. I'll just say that. And in Season Two, we're going to be following a start-up company run by one of the characters that's being run out of the living room of her house essentially. And that's where Season Two takes place, this clip, is from the opener of Season 2.

[Trailer Season 2 plays]

Chris Rogers: All right. So that's Season Two. So we're moving into Season Three now, it's going to premiere next month. In Season Two, I'll just say, another bunch of things happen. These characters and their start-up, they do pretty well and in Season 3 the characters will actually move out of Texas and they'll be headed to Silicon Valley in California. And we'll see - these two that are on screen right now - that's Cameron. And then behind her is Donna. And now it's time to put up or shut up in Silicon Valley. So I guess this scene we have for you next is a scene that nobody's seen from Season Three.

Peggy Weil: Exclusive Preview.

Chris Rogers: Yeah, then no one's seen this yet. Definitely a different energy from where we started in the living room….

Chris Cantwell: Yeah, so the first season is about the development of a personal computer, the second season is about the development of an online network. And in the third season, they're trying to decide what the killer application of this network will be. Why will people get together online, and what will they do together? And they think they've come up with the idea, but this is a scene about these two trying to figure out if this is the right idea that's going to carry them to success in Silicon Valley.

[Season 3 clip plays]

Chris Cantwell: All right. So there you have it. Yeah, so that's the TV show we made.

Peggy Weil: I think both of you, as artists and writers, are creating a story about a group of people who are seeing patterns in the tech industry and portraying in it in a dramatic narrative. You're drawing from the present but have mined the past, the early days of tech development to create this story. Do you feel any overlap with Ubermorgen in these stories?

Chris Rogers: I would offer this as a frame. I think it's very interesting in your work that you're using existing technologies for purposes they were certainly not meant for by the people who created them, whether that is Google or even the American Electoral System. And I think that's really fascinating, and it feels like at the root of that is some kind of discontent with things as they are. Maybe that's the closest to capitalism and

democracy in the first instance or maybe just the fact that Google is become so omnipresent, and controlling what we have access to. Do you want to talk about why you think it's important that the medium be the actual thing that you're usually commenting on? Why is that important to you two?

lizvlx: Well, almost from the beginning when we started, working with all this stuff in '95, there were so many people around when it came to the net and the web who were extremely positive about everything. Like, "this is going to make yellow more yellow, and America greater," I don't know what. And we never had that idea, or maybe we didn't feel the need of a remedy for the status quo. But - so in the end - also for me, from a technical, nerdy perspective, any kind of code, any kind of technical equipment is just another kitchen appliance. It's just something you use. It's nothing super special, it's nothing that's going to change the world. It's just an item.

But it gets fun when you use it the wrong way around. You always say, look at the children just experimenting with stuff. But you don't need to be a child to do that. It's just a regular way, it's just like in your show when you try to rebuild a computer. You want to take stuff apart, and you want to play around with it, you want to fool around with it. And of course it's easy to be discontent with the American Electoral System. That's not that hard, from any kind of viewpoint, obviously. In general, it's a feeling for human beings to be discontented, and it's easy to criticize. We try not to criticize but just take it a step further and say, "Let's just do it, let's take it as far as humanly possible." And if it turns out to be absurd in the end, that's fine. But sometimes it's not even absurd.

When it comes to *Google Will Eat Itself*, on one hand it's obvious really, it shouldn't be possible to buy out a company with its own money. And we could've done it faster if we had done more websites, etc, but that was not interesting to us. It should be absurd, but it's not absurd to us. And why is it not absurd to us? Because it's not money. This is not real money we're talking about; this is not real worth we're talking about. I have a

background in economics so this stuff does bother me sometimes. Because you can't just change the meaning of money and never mention it. But then, of course you can, so that's kind of stuff that gets us started. But we never want to make it good because we're not missionaries. And we don't know how to make it good.

Chris Rogers: What do you mean make it good? Do you mean, because it seems like you get a lot of joy out of taking things apart, right? That seems, and I think our characters at least start from that place, and they definitely get lost along the way over and over again because the economics of it all, the capitalism and all keeps pulling on them. But you guys live entirely in that world of the first part. Of deconstructing it and pulling it apart and going as far as you can with it. Is that, to you, where you find the joy in the code? Or?

lizvlx: Yeah, I notice that also. And in the third clip, I'm also going, Yeah, I know that feeling. I know that feeling when they go, “Yeah but is this it now? And it's getting real now, and we can't just fool around anymore, this is - we're serious.” Yeah, I guess, we're trying to go back and forth. Sometimes we do these projects like the *[V]ote-Auction* project that are big, and there are others that are just not that big or are more, locally big. But you get a lot of negative feedback obviously. And it gets quite intense sometimes. And it's not so visible to the outside world, it's not like shitstorm on Twitter. But it's in your inbox. So we try to do stuff like that, and then go to the other side and do something that's like a real art show.

We tried to do an art show last year, having to do with the topics of psychopathy and narcicism. Hence the Trump Water. Research. And it was just a regular art show. It was not really online, it was some stuff that was featured online on the website, and it was really just photography and the video and stuff like that. We got into huge trouble. So we found out over the years it does not matter; whatever we do, we always get into trouble. And from my point of view, it was always that way as well. When I was Lola's age right

there, I would always be the one who got into trouble. And that's true for you (Hans) too. And so we just figured it doesn't matter anyway. So maybe we're not fearless, we're just idiots, you know?

Chris Rogers: That seems to be a common theme and, I guess in technological development too, is that it's usually people who are playing out of bounds and pushing things, and using them wrong, that are pushing the edge of where technology wants to go. I think maybe the unfortunate thing, and something we talk about a lot in our writer's room is that the profit motive goes so far in determining who we remember. But often the people who make the money and the people who go down in history for creating these things aren't the ones who actually made the innovation. It's that the money is all stemming from the funded projects. So do you guys find that unless there's an aspect of danger, unless there's an aspect of doing something wrong, it's not worth doing? I mean, is that some of the juice? You know you found the right project when you say, "Ooh with this we could be in some big trouble here." How much of a guiding principle is that for you? In picking your next thing?

lizvlx: Well, sometimes obviously it's fun. But often we have these situations where people come up to us and say like, You want to do something with us? And we're, "Can you do something that would upset like, these people?" And, sometimes we go, "Yeah, sure." Because it's a very clear thing and you know that we're going to be really awesome partners in this. But actually most of the time, it's a situation where people come up and say, "Yeah, let's do it something together," or "Let's feature you on this," and we go, "You know we can do this but we'll probably start some kind of trouble – not because we're going for it, but it will happen." And they're like, "Yeah, no problem." And we know, yeah, there will be a problem. Like the piece with the Whitney; Big Problem. Because it contained words like terrorism and Muslim, and stuff like that.

It was just backdrops, it was screenshots of other stuff that we just remixed with other projects and so on for this. I mean, it was just a stupid java script game for Christ sake. And then we started having these big meetings online about words we can't use and what not. And I'm thinking, I just sit there and go, “What is happening?” I'm not talking about, Oh my God, censorship. I don't care about that, you know? People get killed, why should I have a problem with censorship? What's worse? But the conversation is awkward. And I always feel like saying, “Let's just not use the word and stop this stupid conversation.” Because I just want to go outside and have a smoke. This is too stupid, you know?

But of course you can't do that, because that doesn't work. So then I'm becoming this kind of expert on this kind of trouble solving. Because, I'm not that much into the conflict. Not that much. I'm not avoiding it, but, I mean, this contest we just agreed on, I said, “Well, can we just use a word, different versions of the censored word instead of these other words.” And they were like, “Yeah, sure. Sure, okay.” And, so we're really not jumping for it. It always kicks at us. And we're really trying, and especially you (Hans), he really tries to avoid conflict. He hates it. He's really bad at avoiding it I think.

Chris Rogers: But it seems like in some ways that's the point, though right? To start an uncomfortable conversation about the way we use these terms or to ask people why they feel uncomfortable and to interrogate it; what's behind that is a conversation that needs to be had, and we have to drag these things into the light. So maybe to your earlier comment about not wanting to make enough websites to make a ton of money, but the point was, I think, just to show that this existed and it was absurd versus following it to its natural conclusion. So maybe it's okay to walk outside for a smoke once that conversation starts.

lizvlx: Yeah. I do that. I remember I once fell asleep during an important dinner in Berlin once, at the table. So I didn't notice but -

Chris Rogers: Well wait, that's -

lizvlx: Seriously. But I find it interesting, getting back to you now, with the third season and they're suddenly sitting together being really serious, and also, I mean it didn't seem to me like they were trying to be serious, but it was the kind of feeling that knowing that right now, whatever they're going to be doing is going to be just - that sounds stupid but - because it's not about their personal life. Then you really know, "Okay I'm going to marry this guy or not," but this was a professional thing. And they were feeling it but not so much knowing it, and –

Chris Rogers: Yeah, I think for us, like when it comes to the show and the characters in the show, I think something that we're interested in and that we talk a lot about in the writer's room is that in Season One we have two characters, we have Joe and Gordon, who come in and they take over a company, right? And they decide they're going to take down IBM, the big bad blue bad guy. And they're going to reverse engineer the product, and it's when, by the end of the season that those two characters become the old guard, that the other characters Cameron and Donna, they become the rebellious ones and they create a start-up, and they call it Mutiny, and they're running it out of their house, and we see over Season Two, them trying to survive, and they do so well that they go Silicon Valley, and now there's a real anxiety in them too, like they're worried about staying relevant, they're worried about making it.

And I think that there's this specious intersection between commerce and the art. And I think that's definitely true in our business, and the actual process of making a television show. But also in technology, it seems there seems to be a parallel there, and what you're talking about, the more people pay attention to the project you guys are doing, the more people want to pull you into the room and say, Hey, this is a great project but you can't use this word and you can't do that, and we want to change this over here and

actually make it fit to our sensibility. And it feels like, our characters definitely go through that too, in their type of insurgent activity where it's like, once it becomes popular, then all of a sudden you have all these responsibilities that you suddenly didn't ask for. And it becomes boring and becomes conflict-laden, and it becomes something that feels completely alien to the intention that it started from.

I feel like you guys definitely exist squarely in that place of, ‘This is what we're doing and it is the reason for going in and pulling it apart and demonstrating the absurdity or wherever the nth degree that you can take something goes.’ That's where it exists but I think that, at least for our characters in the larger world of technology, they think that they're doing one thing, they think they're changing the world, and they think they're just having fun but then it turns into this real job. Where you have to all of a sudden deal with that. And I think Chris and I experienced that as two guys who sat huddled in an office at another job, and wrote the pilot for this in our secret time, when our bosses didn't know, like we're writing our Computer Show. Now we run the Computer Show, and it's the Computer Show, we've got go to work at the Computer Show. Is the Computer Show over yet? Is Season Three done? Are we done with Post?

And it's funny how you graduate from one thing to the other, and it seems almost inevitable at a certain point. But I think that, something that was interesting, to go back to something you said earlier, which was this idea of, even in ‘95, when everyone was going, “Ah, the world wide web.” And you guys were saying, “Nah, hold on.” I think that's really interesting, how did you guys perceive it? How did you guys perceive the things that were changing in technology even back then, and when everything started to really explode? How did it feel different for you guys?

lizvlx: Before you say something I should say something quickly. I know one thing that changed was that you could see the source code. Everybody could just see the source code. And it was clear you could just copy/paste, and that acted as an

equalizer. It's just that, I wouldn't have known, but you just had access. That access is pretty much gone now, but it was there at the time, and that was important.

Chris Cantwell: Is that because of HTML? Is that because of just the simplicity of the way the web was put together?

lizvlx: Yeah, and also of course because I grew up with this amount of HTML text and it became more and more and more, it was not the new episode of Miranda Sings coming out that was cool. What was cool was, there was a new tag coming out. And you could just experiment with this new tag the next day and see what you could do with it, What can I do with it now? And that was cool. So it was communication via code, and it was very, accessible. That was great. But I would have not thought about it on a bigger scale as unifying us now. Because why should it? People don't want to be unified, people are stubborn.

Hans Bernhard: Even I was coding at the time. And I can't code. But it was fun, because you just copy/paste. My favorite tag is the blank tag. It was awesome. Yeah, we confronted it, it was really interesting, Casey can maybe tell it from the American perspective because we were, as Europeans in the early days, there were maybe 30, maybe 40, maybe 50 people worldwide doing art stuff in like 95 with HTML, with the web, the browser. And I think there were not a lot of Americans, there were actually a lot of Russian guys, like Alexi Shulgin and others. People like from Eastern Europe. And I mean, they have a different mentality. Like from Vienna, we're also Eastern Europe, very morbid, it's all negative and fuck it, and ahh.

And then this was completely clashing then in like '96, '97, '98 with this California ideology, which was, when I was there in 1997, 1998, I was there with *Etoy,* and we came to San Francisco, and it was fucking crazy. There were hippie millionaires or billionaires living with fiber-optic on some house boats on LSD 24/7, and they were just like tripping, like, "Oh yeah, fuck man, it's going to be like Leary and everything,

everybody's going to be liberated." And we were just like "Eh, fucking idiots." Because we knew it's not going to happen, yeah. But at the same time we were using what Liz was describing, again, affirmation as technology. Yeah, we're not super fucked up Eastern Europeans, we were just still saying, "We're not saying No to Everything, we're just saying Yes to certain things." Saying, "Yeah we can actually use that." We can look, with *Etoy*, we can actually look the same way like Coca Cola, or Microsoft in 1995 on the web. So we can play around with this. So that was really interesting.

Peggy Weil: Would you describe *Etoy*?

Hans Bernhard: Yeah, super briefly because it's in the past and it's something I'm not allowed to talk about, actually.

lizvlx: Again, legal problems right here.

Hans Bernhard: Legal problems. Yeah it's fucked up. But it's a great thing. It was really great. There was a group of seven middle European, white male, post-puberty guys getting together, forming a cult like Scientology just around the corner. We were a little cult, it was amazing. Actually it was not about actual product but more about the group, but nobody could see it. It was fantastic, there was a book written by a BBC journalist and a Swiss historian. They went in and looked at the group. It's a really nice book. It's called *Leaving Reality Behind,* by Harper Collins. You can read up on it. It would be good for a show.

Chris Rogers: We're already using that houseboat thing. That's -

Hans Bernhard: Go for it, man. And there's so many stories around there it's fantastic stuff. So what we did is, we were really early. We were in 1995, we were doing the web stuff together, and we were a Corporation. We saw each other as a Corp, we

saw, we founded, we created the CI, we were wearing like these fascist dresses, like bomber jackets and jumper suits, stuff like that. All in orange, all bald, all sunglasses - pilot sunglasses, stuff like that.

lizvlx: You've got to imagine they would come in to the computer lab at the University and it was just like a few people there, a few graphic designers and some coders, and these fifteen computers, then these four other guys come in all in their orange jackets. And these, what they called tanks, but like metal boxes they would carry around with their documents, right, and all the people who came in are like, "I'm leaving."

Hans Bernhard: So basically the idea was to leave reality behind, and actually, we succeeded. Because we used technology and drugs, and combined them, and that's what I truly can say it was avant-garde, because nobody did before because it wasn't possible before. So that was fantastic, and it fucked me up. Yeah, it actually did. I went to a psychiatric ward for -

lizvlx: You weren't the only one in the group, though.

Hans Bernhard: I wasn't the only one. It was really hard core. But we made some real progress in terms of aesthetic development. We used a lot of sponsorships.

lizvlx: And you hijacked the Google thing, that was also good. Because the age is - the digital hijack and - because at the time, they already could, because of these tag words. And the point of this trip was always to - we're using it big time - the porn listing was always going to be up there and *Etoy* was just basically just using their methodology. At the time you could just repeat the same word again and again and again and again, and you didn't have to be like specific about it. And they just turned it on in the evening, and the next few hours later the search engines were just full of *Etoy*

results, the first ten results would all be *Etoy Etoy Etoy*. That was really great. That worked really well. People were really pissed. Yeah.

Hans Bernhard: It was called *The Digital Hijack*. So we did a couple of projects, but that was, for me, over in 1999 in San Francisco when we went there and we were there in the middle of this super-bubble - the internet bubble, which burst in 2001, 2002. And again, to come back to your question. That was this conflict between the European standpoint of kind of a Alexi-like (*ed. note: Aleix Shulgin*) critical way of looking at things in not such an enthusiastic way. And I would be interested in how, because you did a lot of research, I guess, for the show. So, because I've never done this research, did you come by a lot of, for example, failed figures that were inventing super important stuff? I mean, Xerox Park is super famous but I don't even know any names. I know what they did, and I know basically who took the stuff, and then commercialized it, and then made billions. But did you come across a lot of people, and are you going to build them into the show maybe, some of these characters? Or are you going to use this conflict of -

Chris Cantwell: I'll split that into two parts because you just made me think of something. Something very interesting we encountered in our research of the first online networks, the things that grew into things like America Online, or Prodigy, or these first CompuServe-type things. At the beginning a lot of it came out of the Whole Earth catalogue, or the guys like Timothy Leary who were super interested in this. And there was a moment where I think a lot of people who were approaching it from a less profit driven angle, actually were innovating in this space.

I think the way you get to the San Francisco of your story, is unfortunately, that I think the money was just this river that pulled people along, and I do think there was a very distinctive moment where a lot of people that were more interested in the profit than the kind of discovery did win out in technology. So sometimes we're trying to revisit old arguments about that, about how we're always talking about our company's soul versus

it's financial future and, what do you want your product to be versus what are people telling you your product is? Should the money be the thing that you chase? And deciding what the right answer is. But we definitely look to lesser known stories. Do you want to talk about -

Chris Rogers: Yeah, there are lot of people. I think what we came across in our research is that it's not so clear-cut, and that there's the story that we're all familiar with; it was Bill Gates, and it was Paul Allen, and it was Steve Wozniak, and Steve Jobs in their garages, and their respective garages, and here we are. I think it was really a lot of people who were groping around in the dark at feelings or ideas like, "I think something's coming, I don't exactly know what…" and they just cast a wide net and we try to cast the characters in that same way; they go off of gut instinct and see what happens. But we found out that it's not necessarily the person who has the best version of the idea or the person who gets there first, it almost seems like of the draw sometimes, and what somebody is responding to in that given moment.

There were people that we came across in terms of programmers, video game creators, people like Roberta Williams from Sierra Online. That scene in Season Two where Cameron is on the phone giving advice to a gamer that's playing a game that she created, is something that Roberta Williams used to do for Sierra. They would call up and they would have problems with the MUD that she designed and she would walk them through. She was like the original game counselor. For her own stuff, which is unheard of these days. There were people like the woman who helped create the game *Centipede*, Donna Bailey, who has been largely forgotten in terms of her contributions because they were more on the artful side, and less focused on how do we package this game into a box or into an arcade cabinet and get it into every arcade in a mall in America, or into every video game console that a kid can play in time for Christmas.

And I think that it's stories like that, and people like that, and even people who start that way and then end up with the boat that's running fiber-optics. I think that's an interesting journey for us, and I think that one we love exploring because it's beautiful, but can also be poignant in a way, where someone loses sight of what they're trying to go for. They start at the very beginning, embarking on something in art or in technology, or in storytelling. And they end up on the other side of it, and they don't recognize what they did for themselves. I think that it's a hard story to experience, and I think it's one worth telling because it's not as easy as somebody dumps a pile of money on the table and somebody goes, Oh great, I'll do this now, and just totally go back on all of my ideals. I think it's a slow, incremental process, and one that's very much full of anxiety, like these two at the kitchen table where they're just trying to keep doing what they love doing.

Chris Cantwell: It's very hard to write a dramatic television show from a place of having an agenda or a political point. But to the extent that we do, I think one thing that's become very obvious to us in the research, is that in the United States, women were largely forced out of the technology field by the way computers were marketed, as toys for boys. And this whole thing of hard science and math are for men and the liberal arts are for women. This really got into technology in an insidious way, and that there were more people, more women in graduate programs in computer science and computer fields during the 1980's, than there are even now. I think if there's anything that we try to highlight, it is those stories of the Roberta Williams' or the Donna Baileys' or the unsung women that were actually hugely contributive to this field. We're not activists in a lot of ways, but I think this is the one area where we hope to be. Not only in that, but also in terms of how we kind of represent female characters on this television show. Because I do think that's the way we can use this medium, within the rules of what we're allowed to do on network ad-supported television, to at least improve what people like your kids grow up seeing and thinking is normal on TV.

lizvlx: Yeah, I notice that that's quite sweet, because I told you guys earlier that my mom had already been also a computer programmer in late 60's early 70's, and recently because there's been so much talk about online harassment and Gamergate, and that stuff. And I've been reading stuff like the short history of technical, nerdy-dom or whatever, and people always assume, and even in these certain histories, that we need to get more women into this. And it's just that I know from my mom that it's just not true. There used to be pretty much 50/50, but the moment the big money came in, there went the women. And obviously, of course, it was during a time when women still, stopped working because they took care of the kids, which is just a different thing that adds up to it. But I think that's really great because people take it on sometimes. I read Youtube comments on your stuff - I always read the Youtube comments, I always –

Chris Rogers: I can't read Youtube comments.

lizvlx: I don't read Youtube comments on videos that feature me either, I mean obviously not. Why would I do that?

Chris Rogers: We should go and read your Youtube comments sometime, we should read your comments and you read ours.

Chris Cantwell: Especially because we don't know German.

lizvlx: Yeah exactly, that's how you do it. Yeah, of course. No, but I saw that lots of people like, yeah, that's totally irrelevant, how could two women be there, that's like so weird. Yeah, and it's so..

Chris Rogers: I would say that though for every person that says that, there's someone that comes up to us at a screening like this, and it's a woman who was

there, and says, “That was me. I did that.” And there’s a willful pushing away of that story.

lizvlx: Yeah, and I'm one of these people also on Youtube comments who respond to these people that are online, saying, “Nah, weirdo, you're weird, not me,” you know? So, but that's great. Peggy, you really want to say something.

Peggy Weil: This is a good segue into questions from the audience. It would be helpful, since we're live streaming this, if you came up and spoke to the mic.

Question 1: I just have questions for both of you about research methods and just research, like you seem to mention *Soul, of the New Machine* and *The Computer Boys Take Over.* What are some of the other books, resources, that went into, or development of the show? And then, for Ubermorgen, just general research and influences? Thanks.

Chris Cantwell: Well, a big thing for us, as we try to tell it, as Chris said, we researched the story that's not just about Steve Jobs and Bill Gates in Silicon Valley. We really tried to go to things in hard paper library books, stories that are less known – if you can find it easily online, everybody knows the story – and we wanted to tell you stories you didn't know so we went back and looked at books written in 1989 about what happened to the personal computer under IBM.

Chris Rogers: Which are great because they're like, “IBM won.” There are whole books that are say, “Man IBM did it. Like, they just kind of came in and they just did it: all computers forever will be IBM,” it's all readable.

Chris Cantwell: And the question was, “Is it going to be an Apple or an IBM?” This whole PC thing, it wasn't a foregone conclusion. But I think that's important. I come from

a research background in magazines, and I think that what you were taught still holds, primary sources are still important. And I think the internet, while it has made things available to us, has not changed the need to go get stuff other people can't get because I think that's where the untold stories are.

Chris Rogers: Yeah, I think the personal stories too. I think whomever we can get in front of and talk to is super important to us. We started with my Dad. My Dad worked in computers in Dallas in the early 70's, and so there are lot of stories just from him and the people he knew, and then the other engineers that we've gotten to meet and other people who worked in hardware that we've gotten to talk to. Or other IBM executives, or Control Data executives. There are the stories they have – we don't crib wholesale, but they inform the kind of anecdotal atmosphere of what it's like on the ground where it's not just being written after the fact.

Chris Cantwell: They don't always crib wholesale.

Chris Rogers: We don't always, sometimes we do.

lizvlx: Well I can mention one book that I find really really important, it's by Sadie Plant, *Zeros and Ones.* Anybody, everybody should read that. You really understand a lot more about everything that concerns the web if you read that book. And then I agree with you, when we do research, again, I use Youtube a lot. Because, but already not now because everybody's Periscoping now and stuff. But already it was seven years ago or wherever, we did this project called *Super Enhanced* about Super-Max prisons and enhanced interrogation, and I did most of the research because it's gruesome stuff, and he doesn't like looking at bad pictures, that's what he likes to call it. And I don't care so much about it.

But sometimes Youtube is the best, and I like it because it has some glimpse of like, real. Because videos are there, and then sometimes they disappear, so you really have to focus differently. You can't just say, “Oh I'll read up on this later.” It will disappear, you really have to focus. And I really like that attitude of researching, that's good. And then, it's very often I do look at the comments, and sometimes people really know, and then I try to contact these people, and that kind of just one leads to another leads to another, and then we try to meet people in real life. Like for this project we had a guy who worked in Guantanamo, staying with us for two months. And, yeah, that kind of research helps I guess.

Hans Bernhard: Yeah but, I have a different take on this.

lizvlx: Yeah, you do?

Hans Bernhard: No, because I understand the concept of primary sources, but because I've never worked like that, I'm a very superficial guy in the sense of how I work with information and with stories. Also when we worked with *Etoy,* all this - and you take a lot of drugs, and I used to be an alcoholic, so the 90's aren't very clear to me anymore. So I have to do a different approach, and I really love this approach. I take everything, I think you say in English, at face value? You just, yes, it is what it is, and you tell me something and I don't care if it's true or not true or from him, and/or from a TV show. For me, it's reality. And that's a wonderful way to work as an artist, because you can just create, we call it a mosaic. You just take thousands of information pieces and you just stick them to the other, and that's your work. And that's your piece, and you don't have the responsibility as an artist to be true to any source or anybody. You can lie and do and invent and hallucinate and everything. So I really like this approach, to create and narrate.

Question 2: Hi Guys. I saw your tweet online, and so I figured I'd come down here, and I brought my friend Kevin Brian, who is in the back there. I told him how much I love the show over the years and he's said, “Oh I know that guy, I went to school with him.” So I was like, you should come down there with me.

Chris Rogers: I wrote a play in college where Kevin Brian played a pirate. He was awesome.

Question 2: He is awesome. He's a great guy. But yeah, actually I'm really more here just to thank you guys for making this show because it's fantastic. Yeah, I grew up obsessed with technology as a kid and I was always bummed that I missed out on that era of technology, and so, it's almost like you made the show for me.

Chris Rogers: Well it feels welcomed.

Chris Cantwell: I'm glad. We did. That's a surprise.

Chris Rogers: No I feel the same way though. I was fairly young during that period and I saw largely through my father's eyes, and I think we're probably all in that time – we’re some of the last people who remember what the world was like before this, right? Like right before it changed. And it's not going back. There's no off-switch to the internet. Even if we wanted there to be one, it's not there. So it's a weird place to straddle, I think as a human being and it's definitely one I was, and remain, obsessed with, and it's fun to bring it to the show for sure.

Question 2: Yeah, I run a VR start-up out of my house. And it's very much like Mutiny, and I always say that this show is very accurate to what that life is like. So I guess my question would be, How do you know? Not having run a start-up, how do you, get such a shrew voice to it? Because it's pretty spot on, I would say.

Chris Cantwell: I would not follow our lead on how to run a start-up.

Chris Rogers: We'll immediately change it, if wanted. I don't know, I think it's, if anything, this may sound trite but, with the show, for us ultimately, at the end of the day, it's not about computers, it's about the people, right? And so, anything that we can do that just feels plausible to have people interact with each other when they're super passionate and fully invested and the work they're doing is completely a part of who they are. And everything that goes into that, and that's something that we can speak from. And bring our personal experience to. And I know our writers can as well, and I think that you, I know you guys probably can as well. There's a personal piece of you in certain work you do, and as long as we can be true to that feeling that we definitely know, and that many people know, I think that that's probably what you're feeling, hopefully in that house.

Question 2: Yeah, absolutely.

Chris Rogers: And we'll continue to.

Chris Cantwell: I think that's a great point. I think the central core of the show is always from the people. People can't help but bake themselves in to the things they create – both the good things about themselves and the bad things. So on our show, what usually determines the success or failure of the venture is about the feelings or the successes of those people. And I think this is how other shows like *The Social Network* have chronicled it as well, it's something we believe. I don't know if that's all the time but usually in things we love there's somebody baked in there. That's what I believe. Hopefully your VR start-up will succeed because you too have succeeded.

Question 2: Indeed. No, I get it. For sure. Well, thank you.

Chris Rogers: Thank you.

Question 3: I was wondering about both your thoughts on what the word disrupt means, because I know there's this idea in Silicon Valley of *disruptive technology*, and what it means to disrupt a system. So I'm really curious about your thoughts on that.

lizvlx: Well, it's an interesting question – my association right away is Facebook. I'm not on Facebook anymore because they kicked me out because I used the name lizlvx, right? And they didn't believe that - yeah, I know. I'm not missing it. No. But in the end, people would say, “You know our work is disruptive.” But I think it's not - that's not true. Facebook really is a company, you can't be more disruptive than Facebook. I mean because this kind of disruption that gets kind of unnoticed, is kind of subtle. I don't want to say kind of because it's not subtle at all if you just open your eyes for a moment, you'll totally notice it. But you just censor yourself. In the end, you become the person that's actually disrupting yourself in this auto-censorship.

And that's why I find it so disruptive, because, we know we said we're on double censorship right now, because, you know, Europeans swear a lot more than Americans, and we swear in front of our kids. We say fuck all the time, it doesn't matter, because you know, they don't die from that, it's proven. But you don't say that online because you're like, “Ah, I don't want to get into trouble for that, it's just too weird,” but you're disrupting yourself the whole time, and you'd be better off not - and I'm off Facebook. I noticed it before, but I'm actually, I notice it, it's really a lot better to be off these disruptive networks.

Even when you lose some old friends, because I lost some, obviously, you know? Friends I used to go to school with in middle school in the states wherever, yeah? But that's fine. You don't need to hang on to every single person. If I want to disrupt, I really

want to decide myself when I want to be disrupted, I don't need a Facebook for that. And of course there are other companies that provide the same service. He's got a point?

Chris Cantwell: My understanding as well is that, and I'm going to butcher this but there's also a guy named Christensen, a famous business theorist, who first used that term *disruptive technology* to talk about how cheap boom boxes displaced home stereos. The idea that something fast and cheap came along that suddenly made a superior technology lose in the marketplace. And so I think it's one of those words that came from someplace real, and then Silicon Valley got a hold of it, and it's just splashed on everything.

Chris Cantwell: We were just in Aspen for the Fortune Tech conference. I feel like they just put disruptive whenever they didn't know what other adjective to use. Like, there's a disruptive omelette with your coffee this morning. So I think it is the new, what was the other one? Innovative, "it was an innovation." So it's a holy word that's losing its potency. But I think at one time it was supposed to mean something that completely changed around the marketplace, and changed the way the existing power structures were -

Chris Rogers: I think you have an interesting point about it there too, where it comes full circle where you start with the bullshit disruptive thing where it's like, "We're going to disrupt the culture. I'm going to hire people to wait in line to buy me movie tickets."

Chris Cantwell: You just wanted to curse.

Chris Rogers: Whoa, that's crazy. But then it really becomes disruptive where all of a sudden it's this thing that's just overlaid on top of society and fundamentally

changes the way we interact, whether we like or not. And that's a little scary. I don't know how much it comes through in the show, but I think Chris and I have a lot of ambivalence about this stuff too. In the case of social media, both Chris and I worked in social media for The Walt Disney Company before we created this show. Social media and the Walk Disney Company are two scary things when you put them together. And we felt that for sure. And I think that we try to be careful with that stuff ourselves, and I think that some of that ends up getting reflected in the show, for sure.

Peggy Weil: Any other questions?

Chris Rogers: That's it, it's done.

End of recording.