Computer History Museum

Oral History of Joanna Hoffman, part 3 of 3

Interviewed by:
Marguerite Gong Hancock

Recorded January 22, 2018
Mountain View, CA

CHM Reference number: X8464.2018

Hancock: Joanna, it's a delight to welcome you back to continue and finish your oral history. Today is January 22nd, 2019, and we're here at the Computer History Museum. I'm Marguerite Gong Hancock of the Exponential Center. It's been a remarkable journey that you've taken us on from the very early parts of your life to your work through General Magic. As we last finished, you were talking about your response to what would be one word of advice that you might give to a young innovator or entrepreneur? What was that word? And if you could please tell us, why did you choose it, and perhaps give an example or a story.

Hoffman: Well, the Russian language makes a distinction between a word which is <speaks Russian>, which means "curiosity," a hunger for learning. <Speaks Russian> is actually "knowledge," hunger for knowledge. To know, to become knowledgeable, and <speaks Russian>, which is a curiosity and a nosiness of being interested in things that are none of your business. Unfortunately in the English language, curiosity spans both those meanings. But curiosity in the sense of quest for knowledge and quest for understanding I think is the most important thing.

Because the way a country should work, <laughs> and the way people's lives should work is the way that successful enterprises and entrepreneurial undertakings work, which is that you are constantly assimilating new information, new knowledge, exploring areas that you didn't think you needed to. And making these constant incremental adjustments based on facts, based on knowledge, based on understanding, and based on wisdom that you acquire from assimilating all that knowledge and from understanding how it fits into context and experience. So these incremental adjustments, which sometimes here are called not even incremental but substantial adjustments like pivots. You know that a startup starts in one area and then, based on knowledge and based on facts, they just completely switch directions. This is something that should be part of everyone's lives and part of how a country is run, not just how successful enterprises are run. And so I think that that is what I would urge everyone: to be vigilant and to keep their brain aware and open to try to assimilate information, knowledge and quest for things that are maybe tangential, maybe peripheral, but may turn out to be actually instrumental in your success. Not only as an enterprise but as a human being in your daily life.

And so today, in 2019, I particularly feel this is very important, because I just had somebody say to me, "Oh. But I remember when 10 years ago you expressed an opinion--" X, Y, Z, "--that is quite different from your opinion today." And I said, "Well, I try to change my thinking based on input from the outside world. Based on input <laughs> as from the facts. As facts change, my outlook changes and my approach to reality changes and my opinions change." If I weren't doing that I would be an ossified idealog. So, you know, this person thought that they caught me, because I changed my opinion in 5 to 10 years. How can you not change your opinion? How can you stick to your guns when the facts on the ground change? How is that even possible? And yet we do this all the time in politics, in the things that matter the most for the whole global world. And so this is the thing where I think curiosity is even more important than ever before, because I see so much willful ignorance around me that I think it is catastrophic. It is catastrophic to not be able to change based on facts and not to seek out facts, and not to seek out knowledge and not to seek out experiences that will give you more knowledge. So that's my word.

Hancock: Well, that's a very powerful description of that word. For people like you who it seems to be a part of your DNA and something that you value and foster and live by, what advice do you have for people who don't come to it naturally, who maybe haven't had experiences or the background to realize its importance? Are there things that we as a society or as a museum or as individuals can do so that they can have more of this kind of curiosity, as you've described it?

Hoffman: Well, you know, obviously in education we strive to foster that in students, but I do think that you're right. It's not something that comes to everyone naturally, and part of the problem I think in our educational system has been that people who have been devising programs have always assumed that it's a natural trait. They have not actually gone out of their way to say, "Well, what if the assumption is the opposite? What if not every child wants to learn? What if learning doesn't come naturally to people? How should we foster that?" Because it's critical to the survival <laughs> of the species, right? And, you know, I think that part of the answer to that is actually learning more context and more facts and not less, and education has been going in the opposite direction. It has been going in a direction of, "Well, if you give too many facts to students, they will lose their creativity." Nothing of the sort. The more knowledge you have, the more connections you make, the more creative you become with the knowledge at hand. And where it is true that children seek to have more information, is if you don't give them good poetry, they will memorize trivia and random stuff. They will memorize the names of all the Facebook personalities, because there is this capacity there stored as a species that if you don't accumulate knowledge, you will not survive. I mean, this is the case for a lion as much as it is for us, and even a lowly worm has to learn things and retain certain facts, <laughs> and our educational system has been going in the opposite direction instead of trying to fill that database with knowledge that then you can make interconnection. It's so funny where we're trying to teach A.I. based on data and we're depriving human beings of data. We're seeing <laughs> that even a computer, it turns out, once they have data, they can make connections and became creative, whereas we are saying that if we feed data to humans, they will lose their creativity. How does that make any sense?

<laughter>

Right? I mean, you know, big data, machine learning. What about human learning? Human learning also needs big data. You <laughs> have to give people facts. I have a friend who's teaching Western Civilization and Philosophy, and American History at a private high school. He was in high tech, he was in Silicon Valley. He was at Apple. He was on the Lisa journey, and he decided to give back and become a high school teacher.

Hancock: Wonderful.

Hoffman: And so he's been doing that, and periodically he has his hand slapped, <slaps> because he introduces too many facts into his classes. He's considered to be an anachronism. We don't teach facts, we teach learning skills. You can't have learning skills without <laughs> the facts.

Hancock: <laughs>

Hoffman: It's impossible. So, you know, I think we are in trouble, frankly speaking. I think we are in trouble, and places like museums have this obligation to actually give context to people's lives, to give context to the technology they use. In the case of the Computer History Museum, of your enterprise, of what you're trying to accomplish. Art museums have an obligation to show people the journey that humans have taken in terms of their creativity and how they have gone back, how it's not only an evolution and a revolution, but it's also a circle. You keep going back to human values which are, <laughs> since the time they've been recorded, haven't changed that much. And literature. Literature. You have to have students memorize poetry. It's important. Poetry's important. <laughs> You have reams and reams of beautiful words and beautiful emotions. Poetry's super-conceptual. It goes beyond the concepts into expressing emotions. You can express emotions without hitting somebody or pulling a gun. <laughs> It's called poetry, you know.

Hancock: <laughs>

Hoffman: And so I really do think that we just have to go back to <laughs> actually filling people's minds with context and how they are where they are in the current history of civilization, and I think that all that is important. What I see, which I find very dispiriting, is the fact that education is going in exactly the opposite direction. They have to bring people to museums in order to learn facts, because otherwise it's lacking from their curricula.

Hancock: Well, this call to action, this clarion call that you're making, is so important and resonates, of course, with the mission of the Computer History Museum and our central mission of what we're trying to do here. Can you say more about your own background where you have an unusual combination of what some people call humanities and tech, you know, and what has that meant for you in your own life from archaeology to tech to, you know, social change, government policy, all these different areas? How have you brought STEAM, as I guess is the popular way of talking? How have you brought that together in your own life, and what's your view on what's sometimes been an uneasy relationship between those modes of thought in our society and economy?

Hoffman: Well, you know, I think I was fortunate in that my early education was relatively rigorous when it came to literature, mathematics and sciences. Unfortunately, it wasn't rigorous in the social sciences and in history, because it was all through a single ideological prism, because my early schooling was in the Soviet bloc. So I was very eager, and many of my cohort there were very eager to be learning more, to know more about the reality of what is happening in the world and what has happened in the world and the history through a lens other than how it naturally leads to communism. <laughs> And so we were always listening to Radio Free Europe or Voice of America, even though it was, of course, very dangerous to do so, because we were very eager to assimilate all that knowledge, which we were deprived of. So when I came to the United States, I just delved into all this forbidden knowledge. I really wanted to know it, to have access to it. How that has influenced my life and my actual performance at work, I suppose it was always as a subtext. It's not something that you are conscious of. You don't say, "Oh. You know, because I've read Aristotle, therefore I know," you know <laughter> how the Macintosh user interface is going to affect human beings. <laughs> That is not quite it, but it does give you a certain wisdom where you can see some of the follies, you know, that, "Well, maybe we're too quick to jump into

this, or maybe we should be modifying things so it's more acceptable to human beings. Maybe too radical a technological change will be very disruptive to the natural human assimilation of novelty." So I would say that it mostly was more subtextual than something that I can pick out and say, "Oh, okay. Because of this, therefore that."

But I can tell you one thing, that most of the people that I worked with were exceptionally broad-minded and also very multidisciplinary in their thinking. I still take walks with Andy Hertzfeld and we still talk about the literature that engages us and we still share our thoughts on things other than technology. If you look at somebody like Bud Tribble, who was critical also to the beginnings of the Macintosh. Well, Bud is a phenomenal musician and on top of that he was also <laughs> a PhD and an MD. Brian Howard, who's a completely unsung hero of the Macintosh, was an unbelievable human being who started out in documentation, ended up in hardware, was a musician, was amazingly literate, was a great hardware code designer. You know, an incredible, humble soul who was so multifaceted and that we always knew that we could rely on him without even fully acknowledging that we're relying on him.

So there were these individuals that were very multifaceted in the group that Steve assembled, and I don't know if it was conscious. I do believe that he gravitated to people who had a broader perspective. He himself, you know, admired mysticism quite a bit and spirituality, and so he liked that transcendent quality in people, and transcendence can be achieved through <laughs> many means. For me, my favorite way is through the arts. The arts are transporting, and, you know, other people do it through drugs. That's not my thing, but I do believe that there is a certain craving for spirituality that is not uncommon among people who are also very intelligent and want to advance technology. It's interesting. Those things are not contradictory. I don't mean religiosity, by the way. I just mean an attainment of an enlightenment that it is beyond reason into the spiritual realm.

Hancock: You've described unusual people who have these multidisciplinary areas of interest and ability, and you've had a chance to work or be a part of, contribute to, exceptional teams, not only with the early Macintosh but later with General Magic. What can you say about the nature of teams that are high performing teams? What makes them come together and coalesce? What makes them, from your experience, work well together or not work together?

Hoffman: Well, <laughs> very much like a solar system or a stellar system, I should say, in order for the planets to fall into orbit and to circle in a certain predictable fashion, you need a pretty bright star, and that bright star generally helps the planets align and go around. To the point where many of the planets start thinking that they are a star because they are reflecting that light. But then when that light is gone, all of a sudden they are left high and dry. <laughs> You know, it turns out, "Boy, I was not a star." <laughs> "I was just reflecting."

<laughter>

Hoffman: But I think that that is very important, and in that case, in the case of Apple, it was Steve unquestionably. That was the sun that pulled all the planets to align. In the case of General Magic, it was the threesome of Marc Porat and Andy Hertzfeld and Bill Atkinson, and that was an unstable, unstable

system. That was an unstable system. So there was too much wobble and— <laughs> you know. So I would say that in order for even the most talented group to be able to produce something significant and lasting, you do need the leadership of somebody, and leadership sounds so much less than what is required, actually. It's not just being a leader, it's also being an inspirer. It's also being a part of the family. Somebody almost patriarchal and matriarchal that can bring this all together. My dad is a filmmaker, and a director always has to bring a new team of people together and relatively quickly make everybody productive. I often spoke to people that worked for him and they always said that they liked working for him because he could make them do so much more than they ever thought they were capable of. I felt the same way when I was working with Steve, and all of us felt that we actually were pushed to do so much more than we ever dreamed we could do. So I think that's what it takes. Can a team work without a <speaks Russian>? You know, can they work without a conductor?

Hancock: What do you think?

Hoffman: I think there are orchestras that have tried that, and it does work. But why it works is because there's a score. But when there is no score and you are writing the score as you go along, I think that's very difficult. It's almost impossible. So it depends what you're trying to accomplish, but I do think that what happens in a team where you have very, very bright people, they're all going to go their own way, to some extent, unless they have someone who can bring them back to focus and they respect so much that they are willing to say, "I will not pursue all these other great ideas that I have, but will focus on what this person is asking me to do because I respect them." And so that's a very difficult thing to do and that's why it doesn't succeed so often, right?

Hancock: It's rare. Mm-hm.

Hoffman: It's rare. It's very rare. But I do think that's a key ingredient.

Hancock: Speaking of films, and looking at your earlier interview, you mentioned that there were some inaccuracies in the Steve Jobs film that was made a few years ago in the way that Steve was portrayed and also how you were portrayed. If you were given the director role for a film about your story and how it fit into the larger story, how would you tell it and what would be the emphasis that you would give for your character?

Hoffman: Well, you know, I don't fault them for making inaccuracies in my character because they really made a composite.

Hancock: Was a composite, right?

Hoffman: It was a composite of many different personalities. Women, actually. Many different women that they mixed up in this one persona and gave that person my name. So it wasn't so much that I felt like I was not portrayed properly, because it wasn't me. I'm not sure that I would ever put myself in a situation of making— I'm not a memoirist. You know, I'm not one, because I really appreciate how unreliable memory is and how we, every time we tell it, we actually alter it. So much that upon each

telling it is further and further from the truth. So how I would emphasize my own self, given my today's perspective, not necessarily the truth, you know, <laughs> but from my own perspective? I think what I didn't appreciate at the time is that I was more of a risk taker than I thought at the time that I was. I didn't think I was taking risks, you know.

Hancock: They didn't seem impossible or monumental at the time?

Hoffman: No, none of it. I would now only characterize myself as actually having taken a risk. You know what I mean? Only because when I look back and all the people who I tried to hire who didn't come, for example, to Apple because they thought it was too risky, or they didn't want to do something, very legitimately, because they did them and they failed. <laughs> But I enjoyed that, the risk. I enjoyed the knowledge that came with it, you know, more than I enjoyed the end result. More than I enjoyed having success. So the experience was really key to me. I would say that's maybe the only thing that I would emphasize more than actual facts and outcomes is the fact that what counted for me always was the experience.

Hancock: Is that the sort of message or takeaway that you would want the audience to receive from that story of your life?

Hoffman: Uh-huh. <laughs> Hm. Let me just think. I've never thought of imparting wisdom to others, because every journey's so individual. I mean, it sounds cliché, but it is, and so I always hesitate to say, "Well, because I did it this way, you should also try to do it this way." I would say this. I had a revelation once, and maybe I've already told you this. I don't remember. When I was working for Apple, actually, I was going into management. At the time, Apple's human resources was trying to get these young people to be better managers.

So they would send us to workshops of time management and how to manage people and so on, and I have to admit that I was skeptical about all that stuff. I would sit there thinking, "Ah, we're inventing all this stuff as we go along. What do you know about it?" You know, this person standing there and giving us advice. But there was one moment where all of a sudden it hit me when the person said, "At some point you have to let go of your weaknesses and focus on your strength," and it seems so obvious, right. But it's not obvious. I think what we do is we spend a lot of time trying to correct our foibles, and unless our foibles are catastrophic, you know, we should just say, "Okay. This is not what I know how to do well," and be honest about it. "I don't know how to do this, but I know how to do this and this and this and this. How can I use that?"

And this is where some of the advice, especially given to women now, is like, "Well, even if you don't know how to do it and if you have never done it before, go for it." Yes, knowing your limitations, and that's the critical thing. You cannot go against your own nature. If you think you can correct certain foibles, that's fine. But if you have reached the age of 30 and you haven't been able to correct those foibles before, it's unlikely that you'd be able to do them now. So the thing to do is just to cultivate your strengths and work on your strengths and make sure that you can use them to their best benefit. So that would be the advice I would give rather than anything specific about me having done this or that and

therefore it translates. Take risk; it's not for everybody. I know a lot of people who have been extremely productive and very satisfied being in large organizations and working in a system and that's great too; that's also very satisfying. I just could never do that myself. I've had an allergy to authority all my life and so I could not really bring myself to work in a structured environment. I consider that to be sort of a weakness rather than a strength, but knowing that, I never did it. So I think you have to go from your strengths, understanding yourself enough and having a good and solid appraisal of yourself and not one which says, "I can do anything if I so desire," or "If I have the self-esteem I can do anything." No. There are very few people who can do anything no matter what self-esteem they have and actually the more self-esteem you have the less likely you are to want to learn new things because you think you're already great. So I would not say that you can do anything and I would not say take risks and I would say do a very sober evaluation of what you're good at and build on that.

Hancock: Thank you for laying out those insights. You mentioned some of the advice being given to women and you had the role, something maybe you didn't choose but in fact it was the case, that you were part of a group of women who were pioneers in the technology field here in the valley. Can you describe sort of the environment at the time for you as a woman during that time working in the field and then compare or contrast where we are today? There's a lot of discussion about bro culture and unhealthy and unequal opportunities for women, recognition historically as well as today, and how would you describe your own experience early and then where we are today here in the valley?

Hoffman: You know what? I've been thinking about this because I now talked to women that I worked with at the time and I think all of us are a little bit incredulous at what has transpired because this is not the conversation we were expecting to have in the twenty-first century <laughs> and practically at the end of the second decade of the twentieth century. So I've been thinking as to what exactly has precipitated all the discontent that I hear now.

Hancock: How did it get here?

Hoffman: How did it get here? Because my generation of women in this valley and the people I worked with-- so I won't constrain the data set, right. I don't want to say that I have more knowledge than I do. The people I worked with and the women that I associated with, I don't remember the feeling that "Oh, this is something exceptional; we're women in this situation and therefore we should be on our guard because nobody appreciates us". There wasn't that feeling. We were all part of teams. We were part of teams with men, we were part of teams with people of different cultures and backgrounds and language groups and orientations of political as well as personal and sexual and we were all part of a team, and I don't think anybody stopped to really say, "Okay. Well, because I'm a woman therefore blah blah blah," right. The first task was, "I am here as an engineer, I'm here as a designer, I'm here as a—" whatever you were there for. And I don't think there was anything really that came along, at least not in my experience, that undermined that, that said, "No, you are not what you ought to be on this team because you're a woman or any less of what you should be because you're a woman." And as I said, that small data set that I have from the people I worked with and the women I've known, this was not something that we experienced or dwelled on and certainly didn't expect it to come back like this. Now where I did feel it outside of my little world in Silicon Valley was when I had to do dealings with other countries and other

cultures and other corporations in the United States. So when I was working for General Magic I definitely got the feeling that being a woman was a disadvantage working with some of those large companies.

Hancock: How is that manifest?

Hoffman: Oh, these gray-haired men sitting in a room and ignoring what I was saying or trying to teach me things. I was tempted several times to say, "Excuse me. You have half my IQ. Will you shut up for a minute?" Seriously. I mean I don't mean to brag but it's true; they were just not that bright. What can I say? And yet because they had seniority and they had grown through these corporations through levels of incompetence up, being bumped up, they thought they had authority. Thank God I didn't work for them and thank God I didn't have to follow their advice or they couldn't pull rank on me or authority or anything like that. So I thought, "I don't care what you say or do, you're not part of my universe." <laughs> But it happened to me when I worked in Italy for example, it was a very kind of _____ to cultural difference. And it'll change, it has actually changed.

So in analyzing what has happened, I think high tech has become so successful that it has attracted people into it that were not naturally inclined to be in it in the old days so to speak. And this was a culture that was built by engineers. The semiconductor people started that world; they were mostly engineers, right; the computer people were engineers; the software people were engineers. They became business savvy as they went along, but whether it was the VCs who were former engineers <laughs> or whether it was the predominant culture it was an engineering can-do culture, right.

Somebody told me once, I was talking to them and they said, "Well, how was it to work with all these frat boys?" and I said, "I never worked with frat boys. I don't think I ever met a frat boy when I was in high tech in my entire career. These were not frat boys; they were engineers who had not come from fraternities. There was no bro culture. These were lone designers, and this was a different set of people. What happened with success is it started attracting individuals who came from very different backgrounds and those people came with a different culture, financial culture or marketing culture or what have you. So it wasn't based on what is it that you can accomplish, and what is it that you can do for me. It was more based on their previous experiences from whatever—I don't know—I'm assuming from their fraternity experience or whatever it was that was so different from the people who were not frat boys. You know what I mean?

Hancock: Sure.

Hoffman: And Andy Grove—I don't know if he was a part of a fraternity, I doubt it—was not a frat boy. These were not people who came from that culture, and now Silicon Valley has attracted people who do come from all those different cultures. Do I have a better explanation? I have no idea; I don't know. I don't understand what has happened because I don't understand why it should be the way it is now.

Hancock: Values and culture are powerful; they're what people do when nobody else is looking, right. It's the invisible sort of glue about how people perceive and interact with each other. And who would have guessed that we would be where we are, because there's been this, on the one hand, continuation of

people and companies who have those original, if you want to call them, values. And in places where there's a very strong culture, when there's an influx of new people they usually adjust to the culture rather than the larger body of people taking on the newer entrants and it's a puzzle for sure. Do you have any particular prescriptions or ideas about what might help us turn this culture around to what's more productive for diversity not just of gender but other areas which have really been part of the valley's success and creativity, this openness and acceptance of a wider range of people and ideas?

Hoffman: Well, <laughs> I don't know that I have any prescriptions other than if you have a common goal and you want to accomplish something and you're not focused on yourself. It takes two to tango and so I do not want to say that the women are the victims, right. I do not compete in victimhood Olympics; I'm sorry. <laughs> If I failed it was my fault. If I made bad choices it was me that made them. I am no one's victim and that's one of the things that I would love to emphasize. I have never either failed or succeeded because of someone else, it was always me, and I think it's very important to take on the responsibility of succeeding but it's also important to take on the responsibility of making other people succeed. So this whole blaming and constantly putting yourself in a position of a victim, it's the flip side of self-esteem. You know what I mean? On one hand, you have all this self-esteem that you can do anything; on the other hand you are so easily victimized.

Hancock: Somehow powerless.

Hoffman: Somehow powerless, yes. So there has to be <laughs> a middle ground somewhere where you are you, you have your dignity and your power of your choices, and you know what you're good at and what you're not good at, and if you're not appreciated, walk. You know what I mean? So that's on one side. On the other side, I can't even pretend to understand the people on the other side, right. Who are these people? Do they really exist or have we just mushed them all together into some kind of a blob of opposition? If you go one by one and you look at particular managers and particular colleagues and so on are there really so many of them that stand in the way of their colleagues and actively block them from success? Is this what's happening? I don't understand the sociological dynamic frankly speaking. I don't understand what is going on. I mean are there individuals that are just making it their purpose to hamper other people's success? I just don't get it. Or have we made them into this abstract opposition that doesn't really exist?

Hancock: It's important to look at that data. That's outside of the scope of today's conversation--

Hoffman: I know that there is a lot of data that's coming in that says that there's hidden prejudice, that you do not look at the people the same way based on their gender for example, that if you change the name on a resume; it's what people take in as qualities of that human being are different for a man and a woman. So I know there is all that data that's out there, but how does it express itself in the workplace exactly? And we have to try and understand what are the bigger battles. One of the best ways to alienate people is through language; language is the most powerful political tool. And revolutions have started from the fact that people were told that they can't speak their own language or that they should change how they express themselves. If you look at what happened in the Ukraine for example, once they declared that Ukrainian was the official language of Ukraine and all these minorities that lived in Ukraine

who spoke Russian—they weren't all Russians by the way, but that was their lingua franca—were to learn Ukrainian. They couldn't express themselves; you had a revolution. And so when it comes to the most profound characteristics of humans, which is the language, you have to be very careful how you dictate to people what they can and cannot say. And if you are constantly telling people they can say this but not that, they should say this and not that, people start harboring enormous resentment, right, because expressing yourself is so fundamental. And to say that you cannot express yourself, you cannot say this; you have to say, "Why can't you say this?" And you have to pick and choose what you tell people and you don't tell people, "You cannot do this" or "You cannot say this." You have to have a very profound and deep reason for it. You can't just say, "Because oh, it makes me feel uncomfortable." Everything that's unfamiliar makes you feel uncomfortable; it doesn't necessarily mean that it's ill intended or that it's bad, right. Being uncomfortable is not a reason; "it's actually a major obstacle in what I'm trying to accomplish and do my job" is a reason. So you have to pick and choose your battles but it's not like there was this homogeneous group of people and all of a sudden there was an influx. This valley has been changing profoundly for a long time.

Hancock: Generation after generation.

Hoffman: Generation after generation and the fact that we had no diversity is ludicrous. If you just look at all the names of people and the number of languages that were spoken in this valley since forever, <laughs> practically, right, okay, since the '50s and the '60s people coming from all corners of the world, how many people have accents? It's just incredible, right. So we have made this false construct that there was somehow this homogeneous group of white males that couldn't take an influx of other people. That is not true; that's just patently false. There were engineers from every corner of the world coming to this valley and working on things and they were embraced with open arms as long as they could accomplish what they said they could accomplish. So the fact that you have a bigger influx of women right now, who is it intimidating exactly? I don't know. Is there a homogeneous group of white males that are being intimidated? What percentage of engineers are actually white males? You know <laughs> what I mean? You have to be more concrete than that because making up this drama just leads you into blind corners and you accomplish nothing. You have to understand what is it that is causing the problem. If you pretend that it's something that it isn't then you're not ever going to be able to solve it.

Hancock: One of the threads that creates continuity but also changes the relationship of mentors and the people that are influenced by them, and then how that goes from one generation to the next. As you think about the people that were influential for you, who were the ones that were besides your family? You've talked about your early years with them. Who were some of the mentors that were particularly important for you, mentors or colleagues, and then in turn have you chosen to play that role or be active in others' lives?

Hoffman: So I have to say that this is one of my weaknesses in that I have always said, "Neither a leader nor a follower be." I am for myself. I am who I am. I am not mentored by anybody. Who has had the most influence on my career, on my professional life is Steve Jobs, unquestionably, right. Was he a mentor? No, he wasn't a mentor; he was just a great leader and inspirational person with all his strengths and weaknesses. He didn't particularly take me under his wing; he never took anybody under his wing. He

always had demands and you either met them or you didn't meet them. So I would say that that is the one person who has had the most influence on how I look at the world professionally. I also would never presume to mentor anybody. I have too many weaknesses to be able to say that I know how you should perform in your professional life.

What I did do as a manager is I considered it my responsibility to protect my people, my group, so they could do their jobs free from distractions, from accusations, from whatever. The buck stops right here, right. If there is anybody in my group that has not performed it's my fault; it is not their fault. Anybody who would come to me and start ragging on someone who worked for me I would say, "No, it's me. I'm responsible and that's it." And then I can turn around and work with this person to either get better or to say, "Well, you are just not up to the task," so that's my responsibility. That's the best I can advise.

I don't understand mentoring; I don't understand it because it works for some people. I know that my son, who runs Make School and has brought in a lot of students from underprivileged backgrounds. He is actually offering a two-year bachelor's in applied computer science and is placing these kids in amazing jobs and is really helping them get out of a situation that has been perpetuated for generations. He always argues with me about mentoring because he says it's very, very important and it's important because he has seen it. He finds mentors for his students to make them succeed. Outside of his educational establishment, he goes into the industry and actively seeks out people who can mentor some of his students so that they can be successful and it works; it really works.

What I have to say is that I can't do it myself; I don't know how to do it. If I'm managing people I know how to manage them well more or less; <laughs> I know how to help them go on to do bigger and better things. Many people who have worked for me went on to become CEOs of their own companies, but I don't know how to translate that into something more than that. So I'm probably not the right person to ask about mentoring. As I said, my son knows a lot more about it than I do and he arranges these relationships so that his students can succeed.

Hancock: I appreciate your sharing your views. Let's talk a little bit about technology returning to roots. You in your earlier interview described yourself as the queen of failure, which is an interesting description, and the failure came not because of lack of effort or competence but because of the unknown of the technology and the timing and all these things. Can you say more about the challenges that you felt of those times? "Failure" is a hard word in a sense that it's declaring something difficult and there are people that try to understand these dark moments, how do we face, take accountability of these dark moments or failure? And then what enables us to get up again, to go beyond or around or on top of these failures? What can you say about your experience in failures and what enabled you to move forward beyond them?

Hoffman: Well, when it happens you just feel so let down, right. Generally you don't feel failure unless you've put a huge amount of effort into it and your effort came to nothing. That's the definition of failure, right. So it's natural to be completely down, to feel humbled and to feel this profound sense of, can I even try to do anything again as opposed to this same thing? You start evaluating the rest of your life and thinking what else have I done wrong; where else have I fallen short? The key I think is to look back and

think why did I do it? And for me each time I had to come back because I loved it, because I loved doing it, and the moments where I was doing it were of profound gratification to me. And so it's not a market success; it's not a technological success; somebody else has come up with something better.

I loved doing what I was doing. I was learning the whole time. I had the curiosity that was propelling me. I had the luxury of being curious and the luxury of learning and doing this. Then you say, "Okay. I would love to do it again because I enjoyed, I loved the actual doing of it." So if you focus only on the results sometimes you have to just face the facts. <laughs> It didn't work, it just didn't work. And I can understand that if it didn't work and you're destitute it's really difficult to say, "Oh, I'm going to do it all over again." But if it failed and you can still make ends meet by doing something else or doing an interim thing that is paying the bills, but that you know that you can maybe look forward to having that experience again, it's worth having. Because if you loved it you should do it again as long as you know you have the luxury of doing it again. And I felt like I did partly because even the failures in this valley still pay a salary <laughs> where you can still kind of get by on.

Hancock: What came next for you after General Magic? The company ended. The band, that incredible constellation of people, disbanded and went on to other things. What was next for you in terms of what you focused? What have you focused your time and energy on since then?

Hoffman: It's interesting because now there is a film called "General Magic" and it was made by Sarah Kerruish and Matt Maude. They've done an amazing job. And when I looked at that film and I looked at myself in that film when they interviewed me I thought, "Oh, my God, I've aged so much." That experience just really left me quite exhausted. Yes, I loved what I was doing, and the advice I just gave is wonderful when you have the energy.

After General Magic, I felt like I just didn't have the stamina to pull it all together and to do it again. And partly it was my age, partly it was having had two kids, and parenthood is not the same for everybody. I have to say that for me it was the hardest thing I've ever done. I'm being very open and candid right now and maybe a little bit too personal but it was difficult. Not because my kids were difficult—my kids were great. It's because I am that kind of parent. I'm a perpetual worrywart and it just took a big toll on me.

So between that and the General Magic failure I had to take some time to reorient myself and say, "Okay. What did I enjoy and what can I bring to the world now that would be meaningful to the future generations?" And so I started getting more engaged in nonprofits that have to do with education and with climate. So I've worked on several nonprofits including one that was also closed down because it also did not manage to raise money, but Redefining Progress, which was instrumental in passing some of the laws for mitigating climate change in California. So specifically when Arnold Schwarzenegger was governor that particular nonprofit actually worked both on the side of the legislature and the governor to put together something that they could agree on and made significant progress because it was a policy think tank.

And then educationally trying to see how you can give the underprivileged access to better education and that is an intractable problem in the United States for some reason. I mean even Bill Gates I think

practically gave up on it because it's a huge hill to climb; I don't know why. There are several things in the United States that are just extremely difficult to budge and one of them is education. We just don't seem to know how to make a quality education accessible to all people. I'm not talking about equal outcomes; I'm talking about equal access, right.

So as I said my son is now trying and he's been actually better at it than I have been because he's very much a doer; he doesn't open to it as a ideological or philosophical problem. He says, "Okay. What can I do about it right now?" and that's how his enterprise was born. He's been at it for a while and he's been doing quite well in actually educating people for careers that are needed in Silicon Valley. But those have been my interests. I've also been working on one of the visiting committees at MIT and my alma mater that I have to say always amazes me, and the kinds of things they do and they aspire to do.

Hancock: It's remarkable.

Hoffman: It's a remarkable place.

Hancock: --used to be.

Hoffman: Yeah. It's just amazing.

Hancock: What's the focus on your work there?

Hoffman: It's the humanities actually, the humanities committee. The humanities at MIT are very robust and trying to <laughs> actually keep them that way. And introducing any improvements that we can on an ongoing basis is what I've been more involved with, but again it's even being close to institutions like that that make you feel like there is hope for the world. So that's been mostly my focus but I have to say that none of it has been the same level of intense participation as I did in all my startups one after another after another. I've been more dispersed and maybe less effective—I don't know—as a result. But I'm interested and want to support it and I want to do what I can given my weaknesses. <laughs>

Hancock: Well, your efforts I'm sure are appreciated for all those fronts. I'd like to pull the lens back a little bit and ask you to answer from your point of view one of the most common questions that visitors to the museum ask. They say, "So when we look at the genesis and evolution of Silicon Valley, what really accounts for the secret sauce, the DNA? What has made this place what it is?" How would you answer that from your own experience?

Hoffman: <laughs>

Hancock: It's a hard question.

Hoffman: What is the secret sauce? Well, in comparing the two coasts, when I came here compared to the East Coast there was a lot more of the entrepreneurial spirit here. Somehow it was okay to endeavor to do crazy things and there was funding for it; continuously there has been funding. I know that there

have been people who have tried and have not succeeded in getting funding, but by and large if you look at the curve, the VC culture here has been much more supportive of crazy ideas and people—crazy people, I mean young people coming in and saying, "I want to do this. Give me money." Why is that? Why is it here and not over there? And it's funny because many of the VCs over there opened offices here so that they could participate in this culture but is it the West, more of the pioneering West? I don't know why but people tend to feel like they can take more risk here.

Oh, one other thing I should mention, which is probably not the most ideological and idealistic of reasons: There is a fundamental sobriety about business here. I don't know how to put it. Even the engineers have a business mentality. They want to succeed on a large scale and they want to make a difference in society and in the adoption of the technology. So it's interesting that the engineers, the marketers, the VCs, even the lawyers have a more business mind and business in a sense of pragmatism. "Let's be pragmatic, let's bring it into the market." And this is the thing actually that's interesting about the Computer History Museum. I wonder how much of their legal culture is reflected in the museum's archives and collections because the lawyers here are different from the lawyers elsewhere.

Hancock: Absolutely. Do you know that's one of the things we've been focusing on?

Hoffman: Oh, really.

Hancock: We've been adding what we call the sort of ecosystem view and added now the largest collection of oral histories of venture capitalists. We started on lawyers and we're even going to talk to people who others may not think about, accountants, prototyping and designer marketing; we've added some marketing real estate. You can think of a few people in each of those areas that have had significant impact in supporting new technologies or companies and they did it in a different way--

Hoffman: Yes,

Hancock: —very different from other places in the country.

Hoffman: If you look for example in New York, right, the financial establishment really thrives, the whole financial industry is very strong, and all the supportive industries around it are very focused on that. They work around the clock; they are there at the wee hours of the day to support financial transactions around the globe. By the way, I'm now looking at it about 30 years ago, right, because now things have changed there too because they have all their high-tech industries there as well. But here you would have that same commitment and more so for high tech. You have to put the contract together and so on, but people at most _____ city were up all night and doing it, right, and they produce something the next day. And not only that. I'm not singling them out in particular but there were a few firms like that who were on the boards. Gallo was on the board and at General Magic we had Mike Stern who had a business orientation—a pragmatic orientation, I should say; maybe "business" isn't the right word for it—a pragmatic orientation: "We are going to go at it from the positive, from assuming success, from assuming good partnerships, from assuming win-win." Not from "Oh, let's go and noodle on everything that could be a gotcha, right, which is what you think of from the point of view of lawyers. So it's very different. It was I

think a different approach in that we want the relationships to work, we want the contracts to work, and we are not going to dwell on the negatives but emphasize the positives. So I think that's an important aspect of how that came about, how was it that you had those kinds of people in so many different areas who all came together.

Probably we have to go back to the semiconductor people who gave birth to it all, right. I don't know exactly but all I know is by the time I came along in the '70s that structure was very well established and much entrenched; the whole infrastructure of making entrepreneurship possible, viable and successful was already there. So I would say that it's not just great engineers but it's also the ecosystem, as you said, somehow evolved pretty early on and kept going.

Hancock: Thank you. The companies and teams that you worked with were really on the front end of technologies that ended up changing people's lives all around the world, not just a million but now billions; we can count them. Can you say a little bit about comparing what you envisioned with the team when you started for Macintosh for example or General Magic of how the technology might unfold, and did you project the way that it unfolded and the fruition of what that original vision was? Or have you been surprised? How would you trace the impact?

Hoffman: No. I think in general I just talked about pragmatism but I'm going to also say there is quite a bit of idealism in this valley with a healthy dose of pragmatism. But the idealism comes from the fact that most people think that they are doing something that's going to really help people, that it's going to be your assistant, it's going to augment you in all these positive ways whether it's the computer or the software that you're working on or what have you. What I don't think anybody could have envisioned is the fact that we've created a weapon of mass destruction, which who would have thought, right. Social media came out of the noblest feelings for connecting people and we imagined all these global villages of support systems and people being able to help each other and knowledge at your fingertips, expertise at your fingertips, all of which has happened, all the positives have come true.

But is it a testament to human nature that the negatives have taken over, right. You give them a tool and they turn it into a weapon of mass destruction and it's human beings that have done that; it's the users and of course the companies who all of a sudden realized that they could make money off that. I'm sure the social media companies didn't start by saying, "We're creating a weapon of mass destruction." But now that they've created it it's making too much money for them to pull back, so they're lying; they're dissimilating; they're trying to hide it; they pretend that it's not happening. It's horrendous. No. This kind of dystopia? No, we didn't envision that at all, never could we even predict that, and part of it is human nature, right.

We knew all about all different kinds of addictions. We knew about alcohol; we knew about tobacco; we knew about drugs and so on. What we didn't understand is the immense addictive power of rage and rage is addictive, it's unbelievably addictive. And so once you saw the rage, you saw the seeds of rage, you make a lot of money by perpetuating it and of righteous indignation, right. Everybody falls prey to it; it's not just the naïve or the people who don't know how to use the media or whatever. Once you get righteously indignant it feeds on itself. <laughs> Exhibit one: I get enraged and that rage just builds and

builds and feeds on itself and feeds on itself and that is the addiction we're feeding now with social media. And so at this point I think it requires psychiatric intervention; it requires some research on the part of neurophysiologists and psychiatrists and psychopharmacologists and all these people to try to understand the actual biomechanics of what's going on with this incredibly addictive behavior. And it's not a substance that's fueling it obviously; it's just words and thoughts. And so I think how we fell into has to do profoundly with human nature, and certainly the dark side of human nature. So no, this was not predicted.

Hancock: Well, who could have anticipated that these, as you say, tools within weapons would become weapons in these ways? You've talked about some of the darker side of dystopian views of your concern. I don't know if there's anything else that you would like as we think about technology and humanity as we close. I think those are elements of your life and your perceptive insights that you share today. Any other concerns, and also are there things on the horizon that give you hope as you think about, what might be a call to action that the next generation might create or focus on?

Hoffman: Every time I've thought of the next generation as being the ones that are going to save us I thought it's shrugging responsibility to some extent, right. When I look at my sons' generation, both my sons, those kids are amazing. They are altruistic; they are wonderful; they're multifaceted; they are well meaning; they've been very well educated, those that have had the access to education. On the other hand, old fogies like human scum like Mitch McConnell are going to live forever because of intelligent, brilliant people who are prolonging their lives, right. So the bastardly generation is also living a long time and is it going to give the opportunity to these young people to change the world? As you can see it play out, you can see that they're trying to smother-- they're trying to breathe the air so that these kids have no air left, that they tried to use all the resources so these kids have nothing left for them. It's just plain viciousness. It's the generation right before me, it's my generation, the generation right after me, and so will they give room to the younger generation to actually do positive things? Because I think they could if they were given a chance. So my optimism would be with those young people; that would be number one.

The other thing is, as I said, in working with MIT, at Stanford and the University of California Berkeley and other universities, you see these amazingly brilliant people that are doing such incredible work way out there at the frontier, whether it's health or whether it's understanding the cosmos. It's just incredible.

I can't help but think that the distance between me and those people is like the distance between an orangutan and me. You know what I mean? These people are just brilliant and are doing these amazing things. Unfortunately, we have all these human orangutans that outnumber them and so I don't know. In the end, the only thing I think that can save the human species is if we change us very much at the biological level. Just like we have eliminated certain diseases by making the body more resilient, we have to eliminate the diseases of the mind by making the mind more resilient and capable to discern. And I don't know; that is a very hard task but maybe it can be done <laughs> because I really have to stop and think if it's possible given the limitations of human species and the distribution of evil, this incredible distribution of evil through all the sectors of society that it's able to take the best inventions and turn them towards something horrendous. That has to be changed if we are to persist as human species, right. I

can't think of anything else. I just have to rely on these brilliant people to come up with something that will fundamentally alter the human psyche.

Hancock: Well, Joanna, it's been a great privilege and a pleasure to interview you and add your experiences, your insights, your provocative questions and challenges to the museum's collection. As we close today, is there anything else that you would like to add to the record? Have we missed anything or any closing thoughts that you would like to share?

Hoffman: Well, I just feel a little bit apologetic for being so dark but it is 2019; the government has been shut down for many, many days and it's just difficult to be optimistic. But I do want to say that there are people <laughs> including my own progeny who are working on making the world a better place and this valley continues to work on making the world a better place. And so I just think that, as you say, with all the ecosystem here to give fruit to wonderful, beautiful new things that it's still there, that ecosystem and the drive on the part of people who come here to do something meaningful. And ultimately it will have to be the people in these corporations and these companies that say, "We choose to do the good thing." And I don't think anybody ever chose to do the bad thing; it's just you have to do course corrections. As I mentioned before to you, not reacting to the reality out there is a prescription for disaster so we can't just be saying, "We are ideologically pure. We did it only for the good and now it's not our fault." We did it for the good and now we have to change it so it continues to be for the good. We have to make these incremental changes based on the facts and the reality out there. So curiosity and responding <laughs> with knowledge to the problems, I think that's the key to us continuing to have a Silicon Valley that thrives.

Hancock: Wise words for us all. On behalf of the Computer History Museum, thank you, Joanna.

Hoffman: Thank you. <laughs>

END OF THE INTERVIEW