>> Bob Smith: From WXXI News, it's 1370 Connection. I'm Bob Smith, and you are about to enter a realm where the digital becomes in our, in life, more tangible. That is the objective of the MIT Media Lab and Hiroshi Ishii, who's the latest speaker in the Gannett Lecture Series at Rochester Institute of Technology. He's going to be speaking at 8:00 at Web Auditorium in the RIT campus. And he's joining me now in studio as we present you all the speakers in the Gannett series. Dr. Ishii, thank you very much for joining us today. We appreciate it.

>> Dr. Ishii: My pleasure.

>> Bob Smith: Now in the digital world, most of what we see most of the time, and I'm dealing with this myself, either gets printed out of an inkjet printer or laserjet printer onto a piece of paper. Or get displayed on a flat screen.

>> Dr. Ishii:

>> Bob Smith: Either way it moves in two dimensions like a television show or a magazine page. Is there inherently something not necessarily wrong with it, but kind of limiting in all of that, looking at life digitally flat?

>> Dr. Ishii: I think you ask excellent questions. Because digital is so popular if you are possibly sitting on a couch watching TV, then all the photos, digital representation, is the best way to absorb, receive information. Because so much photo is hitting the retinas in the eyes. But many of you guys, also people logistats [assumed spelling], created a new idea. Creator or innovator have to express their ideas. They have to excise the idea. To do so they have to use their hands or sheet of the papers or Styrofoam or create [assumed spelling] to represent ideas. So digital is great. Screens are good. Print is great. But you cannot really manipulate, create, express new ideas. To do so you have to use your hands and the body. So I think the balance between receiving information possibly, so the digital media, both actively expressing and presenting the ideas to share with people is a very important point.

>> Bob Smith: I wonder in a sense if, if you lose something just by looking at things in two dimensions compared to looking at it in three dimensions. For example, when you and I are looking at each other right now and we gesture toward each other.

>> Dr. Ishii: Yes.

>> Bob Smith: To make points or make emphasis as we speak.

>> Dr. Ishii: Yes.

>> Bob Smith: It comes out in three dimensions. You move your hand toward me to make a point. I do the same thing to emphasize or punctuate a question.

>> Dr. Ishii: Yes.

>> Bob Smith: You're going to miss that if you're watching it on a screen or looking at it in a still image in a, in a screen shot or a photograph.

>> Dr. Ishii: I see.

>> Bob Smith: So in a way are we looking, first of all, at getting beyond that to get the full nuance of experiencing life in three dimensions as we do in real life?

>> Dr. Ishii: I think you mentioned about limitation of 2D. Then all the rest about the potential of 3D. What I try to explain is maybe 2D and 3D is a bit different. But as far as both are just pix, pixels or visual representation. Three you cannot really manipulate. Only you view, see, from a different point of view. So for me difference between 2D and 3D might be not so critical. More important difference is how you can go beyond the visual to what's tangible. So that you can also manipulate the representations, not on the screen but in [inaudible] using your two hands. Then deform or transform or manipulate. So that seems to be much more important. I have a Kindle eBook reader here. It's great 2D all the pages. But if I want to like my memo or sketches, to do so a sheet of paper is much better. Only if you're imitating [assumed spelling] information through the photons, that's a serious limitation.

>> Bob Smith: So in a, in a way it's almost like do we need to go back to the future and, and, and start learning how to write again perhaps? Or, or, or learn how to sculpt again if we're artists? So basically are sometimes some of the older forms, the less high-tech, better, more expressive better ways to communicate?

>> Dr. Ishii: I agree. That is becoming more to do. Because people spend so much time in front of a screen. Screens are great to display, delete or see the information. But those we have to like. We have to express. To do so like sketching is so important. But the sketching needs a pen and a paper still. Whereas computer really sucks. Computer cannot really provide any of these really, so there's gap. So viewing, reading, computers are getting closer. Like in technology inventing the MITs now are everywhere in, in Amazon Kindle, also Sony eBook readers. However, if we want to quickly sketch or instead a flipchart on nice color markers. Or sheet of a paper and this fountain pen is much more natural and appropriate. So I think the gap of expressing into the computer plus out of the computer is becoming bigger and bigger. So that is some concerns I try to tackle.

>> Bob Smith: Now I noticed that you have on your Kindle right now.

>> Dr. Ishii: Yes.

>> Bob Smith: It looks like a screen shot or a photograph of Virginia Woolf, the British novelist.

>> Dr. Ishii: Yes.

>> Bob Smith: Which is. Which is an interesting in and of, in and of itself. Are, are you reading her now?

>> Dr. Ishii: No. This just a screensaver that Amazon put as a default. Maybe one dozen famous writers appears every time this goes to sleep. I'm reading the New York Times. Also Business Week, Time magazine and Newsweek magazines.

>> Bob Smith: Basically doing a lot of, a lot of the things that I, I guess we all have a tendency to do whenever we power up our computers whatever, whatever they may be.

>> Dr. Ishii: Yes.

>> Bob Smith: Doing a lot of Web browsing in other words.

>> Dr. Ishii: That's true. That's true. But I think one of the important points is people browse a lot of the Web page. But also we want to send out our own message. Editing the materials which we picked up from the New York Times. So clipping of information is very important. So how to change possibly reading or consuming the content. Plus actively [inaudible] the structure, then send out to the rest of the world is one of the important changes and we'll see more.

>> Bob Smith: Yeah, this, this is a continuation of a dialogue that, that I sense is almost certainly as old as the internet and, and the Web. Of course we tend to forget that's 20 years now.

>> Dr. Ishii: Yeah.

>> Bob Smith: It seems like yesterday when we started to go online. But, but there it is. I remember everybody thought, like in the mid-90s, that the way we were going to do that was by creating programs. I, I had some people I knew out on the West Coast who were doing this at the time. They were basically creating serial dramas and comedies, and having people write in and suggest plot changes.

>> Dr. Ishii: Oh, yeah. Exactly.

>> Bob Smith: And react to what the old webesodic.

>> Dr. Ishii: Yes.

>> Bob Smith: The.

>> Dr. Ishii: Yes.

>> Bob Smith: The drama and comedy. They were doing some of the early ones. It flopped because they couldn't figure out how to sell advertising on it.

>> Dr. Ishii: Yeah.

>> Bob Smith: But it was, it was a great idea. Everybody got involved in it, but they all went bust trying it. But, and so it died for a while. Is it time for us to look at it a different way and maybe get involved as participants once again in a way that maybe doesn't require as big a budget? But somehow or other gets us all involved as sort of co-creators?

>> Dr. Ishii: I think in part especially interactive storytelling or creations with a crowd is not happening in many, in many different ways. Are you Tweet?

>> Bob Smith: You know, here's the strange thing. I don't.

>> Dr. Ishii: Yes?

>> Bob Smith: I don't. I, I'm kind of old school in a way. I go on a lot of message boards and, and I go on some of the old school '90s and early 2000's way of doing things. But Twitter hasn't been my thing yet. I got to admit.

>> Dr. Ishii: I see.

>> Bob Smith: I will get to it. I promise I will get to it sooner or later. And yes, we do have an interactive program here, which of course you can call in at 263-WXXI. Or write to us in-studio email at asktalk@wxxi.org and you could be a part of. But no, Twitter has escaped me so far and it probably shouldn't.

>> Dr. Ishii: Yes. But I think Twitter is one of the great examples of people starting, started telling a story in a very interesting collaborative way. For example in Japan, I'm Japanese, and in Japan there's a very short concise form of poem called Haiku or Tanka. So using certified characters you can represent a lot. So people who start posting the poem, very concise, Twitter gives only 140 characters which is good. Then people get the inspiration then start creating a new poem which follows the previous poem. So it's like all like the cities of sequence of the story which is called a linked poem. That's an old practice in Japan. Also some people try to bring like a Star Wars movie to the Tweet Desk. Then motivators, orchestrate all the story. Of course a lot of [inaudible] happens, but also all the characters like Darth Vader. All the characters, all the [inaudible], they speak. But also participants from the rest of the world join. And so that is something very interesting experiments, extending storytelling to the much more dynamic Google-like context.

>> Bob Smith: And that accelerates the pace of it. Because 15 years ago, when people were first being presented these webesodics and reacting to it with their posts and their emails and, and things like that. The, the feedback, when it happened, if you changed the storyline any or got people to respond to it, you'd end up waiting a day for the next episode to come in.

>> Dr. Ishii: Uh-huh.

>> Bob Smith: And, and we thought that was great at the time because Lord knows, no television show would change and, and flip plotlines and, and change characters from day to day like that. Not even the soap operas that aired every day. We thought we had power, and we thought we had instantaneous activity. But now you're talking about basically post-columned response almost instantaneous, almost immediate.

>> Dr. Ishii: Yes. But also this has some kind of plot. All of the major characters are there. And there are certain stories already written. But some deviation from the main stories responding to the participants really gives a sense of the engagement. But still try to not to deviate. Delay, delay from the main, main story. So that's an interesting balance. But some of the earlier experts were very successful with moderating, to engaging people's famous characters and also responding to the tweet of ordinary people. But still the stories keep going. So they are, they're here. Like they're on the same train, but the train is moving to the destination. But they also participate.

>> Bob Smith: It's almost like real life.

>> Dr. Ishii: Oh!

>> Bob Smith: Talking about it. It is real. That sounds like real life.

>> Dr. Ishii: Yes. I think ultimate reality is a big boom in the past five or six years. People heard about the ultimate realities through the big promotions of movies or TV shows. But it's not only TV or a movie. But also there's a website or a blog site. Also tweet. Tweeters are used simultaneously. Then running the boundary between fiction and realities, many people really get excited. They know it's a fake, but still they can prey on the participant.

>> Bob Smith: Kind of like Second Life or something like that.

>> Dr. Ishii: Second Life. But it's happening in the real, real world with some accident, so like some crime is committed. Then you receive some FedEx packet actually. Or you receive a fax. Or then people really get together in a certain city to do the hunt for the secret, for example. So it's not a pure bottom story, but those are concurrent activities happening in the real world.

>> Bob Smith: This is almost like bringing in the experience of Dungeons and Dragons to the experience of real life to the experience of the blogs to the experience of the webesodics.

>> Dr. Ishii: Exactly.

>> Bob Smith: And almost marrying them all together at a, at a united art form.

>> Dr. Ishii: Exactly. Yeah. That's a very exciting new form of storytelling. Engaging a quite large number of the people. But also making a quite serious impact.

>> Bob Smith: The interesting thing about that though is even the person who started the story and created the initial characters will end up having no idea how this story is going to turn out. Or if it's going to end, much less when and how it's going to end. So you, you could end up conceivably with an ongoing, I don't want to call it serial drama, but maybe it is a serial drama that never ends. Never gets canceled.

>> Dr. Ishii: Oh, yeah. I think that's one of the beauties. Never-ending. It keeps going. Recently I listened to the talk by the TV producers in Hollywood. They started a bunch a Bachelor's [assumed spelling], a hypothetical school in the East Coast. Then, then did all the admissions. The many people participated in the school, but a lot of strange incidents happened. So this TV drama ended, but still communities keep blogging and talking and putting in as if they are the students still studying in this school. So it's never-ending, once you started the story.

>> Bob Smith: It just keeps going on.

>> Dr. Ishii: Yes.

>> Bob Smith: And it never gets canceled.

>> Dr. Ishii: Exactly. And they are looking for the new TV stats in the same, using the same schools. But people who once get excited never stop.

>> Bob Smith: What gets to the, to the interesting crux of all of this is, how do we figure out how to marry the collectivity of everybody? And everybody who's got a device that can input into whatever creation, whatever community you build. How do we marry all that together with the folks who are in the traditional creative locuses, whether it's television networks or the movie studios. Or theatrical producers or major actors, directors, writers, whatever. You have some interesting possibilities for marrying all these genres and all these individuals together into one, and bringing in the rest of us.

>> Dr. Ishii: Yes.

>> Bob Smith: Which could either create, I guess, total chaos. Or absolute brilliance or both all at once.

>> Dr. Ishii: I think I'll use the term chaos. But the most important thing is how to create controlled chaos. So there must be always the balance. But it's totally different with the movie or TV forums. You can't have certain controls. But say you can have certain controls, but those are unexpected incidents or participation with a lot of people. Some kind of deviation from the many stories gives a much more strong sense of the realities and the engagement. So it's a participatory storytelling. So I think that controls the chaos which didn't exist in the traditional media. So if directors, appreciate, enjoy some kind of being on the edge, it will be a very exciting new, like a trend.

>> Bob Smith: Which in a way as well kind of brings in the creative chaos of improvisational comedy.

>> Dr. Ishii: Yes.

>> Bob Smith: And improv theater.

>> Dr. Ishii: Yes.

>> Bob Smith: I mean it's kind of like bringing in Second City.

>> Dr. Ishii: Exactly.

>> Bob Smith: And the next thing you know we'll all be a gasket away to be I guess online wired versions of Dan Aykroyd and Chevy Chase and John Belushi and the rest of those folks who made improv comedy possible. So we got to do, we got to try to do that if we choose to join in.

>> Dr. Ishii: Yes. I think I often attend conferences. In the conference there's a panel discussion. But usually the success of the panel discussion is how the audience really gets excited and they start talking. And those opinions from the floor change the discourse or even belief of the panelists that really give a greater satisfaction and excitement. So maybe in school, like today I'm fortunate to give a talk in the Rochester Institute of Technology. But in the class the professor may teach one point of view. But always a different point of view. So if [inaudible] research of our students can have a really debate or discussion from different points of view. But also like students can join from the audience or also from the internet they can join. Also they can also do panelist sessions with tweeting in, in part of the panelist sessions. So that might be a quite interesting and engaging way to educate or have a productive discourse.

>> Bob Smith: And if you don't take part, if you're just sitting back and watching it all, you're kind of missing out.

>> Dr. Ishii: Exactly.

>> Bob Smith: Well, don't miss out troops, 263-WXXI is your way to be a part of the conversation. Where are we going in the digital world in the future? Are we going to take part to make it tangible? To make it three-dimensional. To make it multi-dimensional. Let's, well, our guest of the hour Hiroshi Ishii of MIT's Media Lab is here with us to ask us to explore. He's going to be speaking tonight at RIT. He's talking with us right now on 1370 Connection from WXXI-AM and FM HD-2. Write in asktalk@wxxi.org is our in-studio email address. And anything you write to us will be immediately put on the table. Or call in, 263-WXXI, 263-9994. Where should we go with this? If you're tired of the old forms of literary, artistic, intellectual expression, and you're looking for something new and fully three-dimensional, or dare I say, multi-dimensional, out of the digital age and opening up other possibilities, this hour is for you. And your ideas are definitely what we're looking to hear. 263-WXXI, 263-9994. Explore along with us. We'd love to hear what you have to say. The thing that, that it is interesting too, when we talk about multi-dimensional I think a lot of us.

>> Dr. Ishii: Yes.

>> Bob Smith: First think of literal experience of a 3D image.

>> Dr. Ishii: Yes.

>> Bob Smith: Which they're beginning to advertise as possible in broadcast television.

>> Dr. Ishii: Oh, yeah. TV, movies [inaudible].

>> Bob Smith: I mean and, and I don't know. I, I can't see myself just putting on those glasses like a 1950s movie that they used to have. But I guess, I guess that's part of it. And there's some other television company that says it's added in yellows to the red, green and blue phosphorus to make a better, more crisp three-dimensional looking picture and all that. But that's the kind of technology. Is that sort of beside the point, or peripheral, or secondary to what you're talking about here? A nice little adjunct, but not really essential to the process of, of engaging people?

>> Dr. Ishii: For me evolution from 2D plus 3D is peripheral. As far as everything is about the pixels. For me the most important thing is 3D, but real, physical, manipulable. For example, I have a paper cup with water in front of me, so this is something I can grab. I can drink. I can consume. I can enjoy H20. So it's real. So seeing 3D fake imagery through a 2D screen or a special eyeglass does not give any sense of the engagement. So we talk about participatory design. But here I can direct and manipulate, feel, and even drink. So these situations [assumed spelling] is all about interactions. So my [inaudible] remains human computer interactions. But the problem of today's 2D or 3D is basically one way. Emitting photons you can see it. But if you want to change the content or course of a story, you have no means because a pixel does not provide any handle. But this cup provides me the way to drink the water. So

how can, how we can make information tangible? Then let people use their hands to manipulate is a key idea [inaudible].

>> Bob Smith: Now of course, in Star Trek, the Next Generation, every once in a while you used to visit the Holodeck where you could experience and interact with three-dimensional appearing, and even touchable characters that were just holograms. Digital manipulations.

>> Dr. Ishii: Yes.

>> Bob Smith: And creations out of the computer. And you saw Captain Picard. Well, Patrick Stewart actually, playing a character within the play, calling himself Dixon Ward, the, the detective in the film noir. Kind of, kind of like a character that Humphrey Bogart used to the play in the '40s with the fedora and the whole bit. And solving mysteries and doing it that way. Well, we're, we're probably hundreds of years away from that, or are we?

>> Dr. Ishii: Yeah. Yeah.

>> Bob Smith: But is, is that one of the many possibilities we'd like to try to get to becoming, if you will, participants in our own tangible looking and feeling dramas? Even if it's computer generated and holographic?

>> Dr. Ishii: For me of course the people in multiple space can really meet and even physically touch each other. It's an interesting possibility. But my focus is now to represent information, data in a tangible form so that people can really express, edit, manipulate that information. Not the people. Because humi, humiliation is simply much more complex as a very, yeah.

>> Bob Smith: Of course.

>> Dr. Ishii: So for me like a landscape designer who manipulates with landscape information. Or an architect uses a lot of the computer edit design files or data. But how to really give physical form to those information so that people can directly use sense of a touch. Then manipulating physical representation, it's much more easy to manipulate. But also it's much easier to communicate with colleagues in the same room around a table for example. So my focus is not human-human. But human information interactions in which I want to make information tangible, beyond visual.

>> Bob Smith: I'm imagining how this might be done in certain industries.

>> Dr. Ishii: Yes.

>> Bob Smith: And how it might affect industrial design. I want to talk about that in just a moment, but I have to take a short break as we hit the mid-point of the program. But we will return with more of our conversation with Hiroshi Ishii of MIT in just a moment. I'm Bob Smith. You've got 1370 Connection. Be a part of it. Dial 263-WXXI, 263-9994 as we continue in a moment on WXXI-AM 1370 and FM HD-2.

[Music]

>> Narrator: There are many ways to support your favorite programs on WXXI. One way is by making a donation to the annual auction. Your contribution of goods,

services, art or antiques goes directly towards supporting the television and radio programs you turn to each day. It's also a great cost-effective way to gain exposure for your business and increase traffic to your website. Please make your donation by calling WXXI's Auction Hotline at 258-0344. Or go public at wxxi.org/auction.

>> Bob Smith: 1370 Connection continuing at WXXI-AM 1370 and FM HD-2. I'm Bob Smith. We are talking with Hiroshi Ishii of the MIT Media Lab. He's here in Rochester to speak this evening, tonight at 8:00 at the Webb Auditorium at RIT as a part of Rochester Institute and Technology's Gannett Lecture Series. Taking us into the frontier of how digital technology is going to be able to enable us to create and interact with things on a tangible basis. And with ideas, with concepts, and with others among us too. 263-WXXI, 263-9994. We talked a little bit about how this might play a role in the entertainment realm.

>> Dr. Ishii: Yes.

>> Bob Smith: And, and in getting people involved with, say, crafting and taking part in everything from blogging to serial dramas or comedies or, or whatever. We want to probably look as well, when you talk about three-dimensional objects at how this is going to enable us to maybe take a step forward in designing the next generation of products we're going to have.

>> Dr. Ishii: Yeah.

>> Bob Smith: What came to mind is automobile design. Because it's the biggest industry we have still. It's also the one in which design, the look and feel of something, is so crucial.

>> Dr. Ishii: Yes.

>> Bob Smith: To its, its acceptance by the public. They have for probably 80 years or more styled cars by essentially taking two-dimensional drawings, and then transferring that to a three-dimensional clay or plastic model and seeing how it looks before then creating a prototype in steel that ran. Are we going to go. I don't know how far we've gone already in this. I suspect not a whole long distance. Are we going to go to a time when we can have a stylist sit down at a screen, craft a design that won't need to go to paper? But will go directly from a computer-generated image to a three-dimensional clay or plastic styling prototype that lets you see exactly in the flesh, in light, in three dimensions how the thing's going to look before you go ahead and build it?

>> Dr. Ishii: Yes, exactly. That's a, that's a dream we have. But also you mentioned from computer screen to the other physical clay models. But also we are talking about other directional, from clay model to this style computer-generated model. So there's two-directional connections. So when computers optimize or any changes, then immediately these changes should be also reflected on the physical clay models. So I don't think that if a designer didn't like the [inaudible] cuff the computer automatically generated, then if he pushes something like a flexible cuff or some material to deform the shape, then immediately this creates and senses any deformation. Then send back the data to the computer. So the key idea is computer shown models and physical models should be in sync in real time. So that's opened up the amazing possibilities of the design.

>> Bob Smith: I could imagine, and this might be crude. But I could imagine let's say a modeling shop that took to that computer. Getting the input from a designer who doesn't like the design or thinks we ought to change the fender line a little bit.

>> Dr. Ishii: Yes.

>> Bob Smith: Some, some device coming down and automatically obeying the computer commands. Just shaving a little bit off the top of the fender line. Or creating a crease where none existed before. Some kind of a character line. Or even piling on a little additional clay or plastic and putting a tailfin there if somebody decides I think I want this to look like a '59 Cadillac. And, and it would do it, and then you'd see well, now I know how it looks if we do that.

>> Dr. Ishii: Yes. I think that's exactly the scenario we envisioned. Maybe some machine makes the shape or adds some clays on top of that interesting clay model. Or clays themselves are made of the molecular level of the configure [assumed spelling] of a tiny robot which senses the pressures or understands the intention of the designer then deform itself. So today, tonight we'll show certain like [inaudible] robotics research. But deformations of the material itself is another very interesting, exciting domain. But as you stress these physical models are real 3D, so in the same body space. Not behind a computer to the screen. So because body space you can move around, you can look around. You can move in the head. So you can fully understand the physicality and the 3D-ness in your body space. That means a lot.

>> Bob Smith: This is actually almost doable now, isn't it? If we really wanted to spend the time and the money to make this happen it's doable, isn't it?

>> Dr. Ishii: I hope it's close to doable. But there's still a lot of particular challenges. But the more, more important thing is even if the model is a car, you may want to change you, change the form a little bit. Then you can apply some pressure. That's pretty straightforward. That's something we can implement today. But if we want to send some other sort of command, why don't you change the ratio of a certain component from 2.00 to 3.50 for example, but upright like 100 components, that's something more abstract. You cannot directly instruct to the models. So you have to use a more abstract gesture interface. So how you design the language to communicate these physical clay models without using a mouse click or hundreds menu is important to these questions we are now walking on.

>> Bob Smith: So what we've got to do is make it quicker, more responsive then. And, and make it more precise?

>> Dr. Ishii: Precise, yes. And also expressive.

>> Bob Smith: So you couldn't just say um, cut the rear deck of this car by a couple of inches. Shorten it up. Stretch the hood by so on, and usually. I'm using the car model.

>> Dr. Ishii: Yes.

>> Bob Smith: But it comes to mind immediately. Stretch the hood a little bit. Make it more like a '65 Mustang. Long, long hood, short rear deck. Make, make

those proportions and, and do it. That would be a pretty complex instruction to give it, right?

>> Dr. Ishii: Yes. So if you just make it bigger or smaller, or shorter or higher, it's okay. But if you want to ask the computer to make it more like '60ish or '70ish, the computer must have the knowledge models upright. Several versions very quickly. They ask the designer to choose it. That, that's not what we call direct touching to the [inaudible]. But more simple language. So today I'm going to show the new research about the Shorito [assumed spelling], for instance. Have you seen the movie Minority Report?

>> Bob Smith: I know of it. I have never seen it. I've seen previews of it and I know, I know about it.

>> Dr. Ishii: Good. The language is exactly what you saw in the Minority Report. The reason is my first PhD student, Dr. John Underkoffler, graduated MIT. But he went to Hollywood so he was, he became a science and technology advisor for Steven Spielberg. Then he designed a whole new gesture language. In MIT I use my students to demo our systems. But John Underkoffler used Tom Cruise to demonstrate his gesture language in the movie. But now a fully-functioning system called G-Speak is working in MIT because Dr. John Underkoffler started his own company, Oblong. So now fully-functioning systems using whole body gestures on the larger screen is working. So that becomes one platform to, for a designer to convey his or her intention to the dynamic clay model.

>> Bob Smith: So he can actually give instructions any way he wants to, to shorten the deck, stretch the hood, move the wheel base. Do anything. Tighten it, lower it. Do anything he wants to.

>> Dr. Ishii: Yes.

>> Bob Smith: To make it work.

>> Dr. Ishii: Yes.

>> Bob Smith: And at the same time of course that, that's before the engineers get into and say no, you can't do that because there's no room for the engine the way, the way you've built this. I got, I got to try to get an overhead CAM V-8 in here somewhere. Tell me how we're going to fit that. Now you're, you're going get that too. They've always got to resolve those arguments. But nonetheless, while they're having those arguments you've got a nice obedient piece of technology that's translating the ideas in.

>> Dr. Ishii: Yes.

>> Bob Smith: Into something tangible.

>> Dr. Ishii: Yes. I think key is we, we always talk about innovations. How to use technology to accelerate the process of innovations. For me rapid acceleration of the idea is so important, or ideations. I use a flipchart a lot for my meetings. I never use PowerPoint slides because it's too slow and too formal, too rigid. But with a flipchart I can use all my body and I sketch very quickly because I'm a visual thinker. So speed of visualizing my ideas on the sheet of the paper, the students start putting their comments in the Post-It Notes, then adding on the sheet. Then capture using a Web camera. Then

immediately send it to the servers. Then through lifting back to other service in which I keep drawing and we create this.

>> Bob Smith: You know what you just said though, that almost is going to be sounding revolutionary for people who are immersed in digital technology and the digital realm and using it all the time. That sometimes digital technology, electronics aren't always the best way to get something done.

>> Dr. Ishii: Exactly. That's the whole point. Storing a huge amount of the information, or such [inaudible] indexing, a computer's great. But in all these stages of ideation, you have to excise your idea. You have to express. To express for me you are thinking, sketching is so important. But unfortunately computers in particular technology is still so behind, so that it cannot afford my expressions or freedom or speed. So still a flip, flipchart and beautiful color markers is much better. One of the reasons is if you a computer, then if you see the screen projections, projection on a computer is separated. But if I'm in front of the flipchart I'm drawing directly, so people's attention come to me and my body and my ideas. So I don't use. If you use a PowerPoint slide in the big auditorium you are decoupled from the presentation. People only see the screen. For me ideation is also communication. How to use full body interactions and the ideas. Then grabbing the attention of all the people you see is so important.

>> Bob Smith: So do it live in front of everybody by hand. And if you've got to make a record of it to transmit elsewhere, you can always use a camera and a mike.

>> Dr. Ishii: Exactly. One of the good news is long ago many companies tried to make just a whiteboard. And but it didn't take off because [inaudible] of the whiteboard or flipchart is much better. But now we have a camera. Also Optical Character Recognition, OCR, is very advanced. So for example, I have a camera here made by Canon. But also I have a special card called Eye-Fi card. So Eye-Fi card allowed me to send the picture I just showed immediately to the server. Then if I choose the certain server like EverNote, they have a character recognition engine. So the beauty is if I get some nice poster or drawing, then after five seconds on the Web, Web page EverNote. Then after a few minutes we're already character recognized so it's become searchable. Then projecting this image back to the large conference rooms. Then keep drawing on top of the projection using a physical color marker is a practice we are doing everywhere. So bridging between that and the physical, taking a best part of the digital part but also physical part, seems to be a way to use technology for innovation.

>> Bob Smith: So you don't always have to be a slave to the technology. You can integrate it in and just use it for what it's good for.

>> Dr. Ishii: Exactly. Many people believe that all the data [inaudible] must be machine readable. Means typing is good at. If you type from the keyboard, all the characters are recognized. If you draw the line the character software computer understands. But I. It's not necessary everything is computer readable, because human is internet. If human readable that's good enough. So we should use a media which is human readable, but the most natural and appropriate for rapid ideas, ideations. But letting the computer do storing with reading, then remembering.

>> Bob Smith: Thank you for getting people back into the equation a little bit more, by the way. Because I think a lot of people are afraid that they're going to become superfluous if, if we keep doing more and more transmission, storage, rearranging, editing, reconfiguring of information totally in a machine. They get afraid of being reduced to ones and zeroes. Thanks for putting us back in the mix, by the way. That, that's. That's certainly going to, going to help us all. And, and I guess we, we should be in the mix a lot more.

>> Dr. Ishii: Of course.

>> Bob Smith: The, the other thing though is, do we need to change just day-to-day the way we all work with this technology? Because most of us and, and I do this too. When I am preparing notes for a program, it ends up in type, in Times New Roman 12 point.

>> Dr. Ishii: Oh, I see.

>> Bob Smith: On a sheet of paper that I wrote up in, in a particular word processing program. The one that's probably used by 90% of the people. And on a Windows compatible computer.

>> Dr. Ishii: I see.

>> Bob Smith: And, and so I'm working with that right now and every. And every once in a while I've got to scribble some things and take off some points I've made or questions I have. Or make some, some notes here. But one thing in particular that, that I think I've been thinking about quite a bit, is the way that gets done. I'm sitting at a typewriter-type keyboard, looking at a little screen.

>> Dr. Ishii: Yes.

>> Bob Smith: That flipped out from that keyboard under which all the guts of the computer is located. It's a little laptop, about five pounds heavy with about a 14 or 15-inch screen in front of me. And I'm typing away as if it might as well be a 1938 Royal typewriter. Only I'm not putting it directly on the paper, a single copy, the way I would be on a typewriter. It's going into the machine, going up on the screen. And then as soon as I finished what I want to do I've got to hit another button or, or make another pointer click. And then it's going to go into a printer. And then eventually it's going to spit that out a few seconds later in nice, crisp inkjet script.

>> Dr. Ishii: Yes.

>> Bob Smith: That's an awful lot of technology to do what I probably could have done on a simple $30 machine in 1938.

>> Dr. Ishii: That's true.

>> Bob Smith: Assuming, of course, that I typed it correctly and didn't make a whole lot of mistakes that I can't just go easily back and electronically edit to cover up my sins. Which I often do because I'm a terrible typist. I admit it, okay. But you'd never know that just looking at the copy. It looks perfect. Looks justified. Looks true. It looks like it's got a quality that I never could have given it if I had typed it live.

>> Dr. Ishii: That's a danger. For example, to come up with a final form of the manuscript you are comfortable to let all the people read takes a lot of time process. You have to really struggle to come up with the words. So the danger is computer immediately prints as if it's a final, beautiful, formal form with a beautiful, perfect font. But if you do the handwriting, you still note that it's a draft. You keep writing, erasing. All the process is captured. But in word processors usually you only have a final form. You don't know where you are. What the stage of the document is.

>> Bob Smith: And it could be absolutely garbage.

>> Dr. Ishii: It could be. [Inaudible].

>> Bob Smith: It could make no sense at all.

>> Dr. Ishii: But [inaudible] you because.

>> Bob Smith: But it looks great.

>> Dr. Ishii: But interesting, you mentioned about the example of Tickist [assumed spelling] typewriter. Tickist is much more nice [inaudible] matching the computer. But these are my memos of the sketches. So my, my thinking is all about the sketching. So here I must sketch, I did in the airframe but like basically a lot of the icons. People drinking water. These sketches can never be captured using any computer technology in a reasonable way.

>> Bob Smith: Well, it does make sense as a process flowchart if I'm looking at it because right there it makes sense.

>> Dr. Ishii: Exactly. For, for us.

>> Bob Smith: Yeah.

>> Dr. Ishii: But unfortunately there's no simple [inaudible]. Keyboard is a great tailor for the Tickist, but not for this kind of free drawing. Also use a fountain pen. A fountain pen here shows the difference of the darkness of the ink, depending on the beginning or ending. Also if I run out of the ink I usually dip it in the water, then keep drawing. But that also gives change of the color. All this texture is so important. And if I use soy sauce. Also soy sauce captured on a piece of paper, that also becomes an important index for my memory. So I think this kind of visual thinking or drawing or sketching is so important for creative thinking, especially for designers. But unfortunately this technology is diffused. If you try to use computer [inaudible], you have to follow very rigid cattleish like a prod bar, which really cues the speed or freedom of the thinking.

>> Bob Smith: And if I'm even using a computer drawing program that lets me take a pointer. And if I, if I don't press down too hard and damage, and damage the writing surface, I can create a sketch, a reasonable sketch of what I'm trying to draw. Nevertheless, it's, it's really not real. I've got to. I've got to go back and put it on a scanner.

>> Dr. Ishii: Exactly.

>> Bob Smith: It just so happens I do have a scanner function in my printer.

>> Dr. Ishii: That's great.

>> Bob Smith: But it's not easy. It's not easy to access. I've got to go through a bunch of steps instead of just drawing something on the next piece of paper that I've got. So in a way we've traded a lot of ease for all this technical precision, haven't we?

>> Dr. Ishii: Yes. I think the good news is a computer is definitely good to store or remember or share or send. And the paper is really great to capture the ideas or our scribblings. But now there's a lot of new technology. Imagine which bleach the best part of the paper and [inaudible]. For example, I'm using a scanner made by one of the Japanese companies called a ScanSmart which is very easy. Because I'm not using this system notebook because this is a ring binder. So each, each page can be easily detached. And then over there I scanned all the stuff to the, using this scanner and they become a PDF. But the next is. There's a software called EverNote. EverNote is an infinite repository in the Cloud computers. So you can applaud [assumed spelling] all these scanned images. Then it does character recognition. Also it can put some type of title. Then it becomes very easy to search ev, everywhere from the Web, Web interface or notebook computer. Or even from an iPhone, because everything is synced automatically. So now we have our infinite repositories which capture all the scanned information, what type of information. Also encrypting from any Web page. So EverNote and this scanner, they can automatically change. Also this camera with Eye-Fi.

>> Bob Smith: Which all tells you one thing. We're kind of cutting a paradox here. We're finding out so much we can do to extend our capabilities used as technology.

>> Dr. Ishii: Yes.

>> Bob Smith: But we're running up against an awful lot of limits at the same time that maybe we didn't even expect to hit. We thought we'd probably be able to do everything digitally by now, and you can't do it yet. There's a lot of stuff you can't do as well and can't communicate as well if you're just using ones and zeros and typing it out in perfect script. We've got to have the raw product too and, and it can't be raw.

>> Dr. Ishii: I think you made a very important point. Forcing everything to go to digital is completely wrong because we are [inaudible] beings. We walk and eat. And physically write on pieces of paper, tactile feeling. Unfortunately, computers never reach these levels. Reading the New York Times through the Kindle is okay. It's just reading. But once you try to really express, like a friend with a [inaudible]. If, if I'm a choreographer to design a dance, I have to use my own body to dance move. If I'm a musician, a composer, I have to play a piano to compose. So those are important fundamental activities. So a good part with digital and a very critical part of the physical got to be combined using a new technology. So think there must be a much better balance than today's IT-centric like a paradigm.

>> Bob Smith: I wonder if it also has a tendency to shorten our attention span too.

>> Dr. Ishii: Oh, yeah.

>> Bob Smith: Because I, I have a feeling that what happens is we have, we have a tendency. I don't, I don't know if this is just my own idiosyncratic reaction or not. But we have a tendency to have a very short attention span when we're jumping from page to page to page on a Web display on a computer.

>> Dr. Ishii: Exactly.

>> Bob Smith: But you know? I found out again this weekend as I was reading Jules Feiffer's memoir. I had a chance, I had the privilege of talking with him during the previous hour. And, and you know what? I found that I could sit hour after hour and read that hard copy and be drawn right into it and imagine what his life was like and, and experience it. I could, I could be a fly on the wall of his life.

>> Dr. Ishii: I see.

>> Bob Smith: And have a lot of fun with it because it's a very interesting life too. But I found that reading it in hard copy made a big difference. It was inviting.

>> Dr. Ishii: Yeah.

>> Bob Smith: And I didn't want to leave.

>> Dr. Ishii: I think you made a very important point of the distractions. Attention is the most cancerous [assumed spelling] today because our attention is now fragmented because of interruptions and also multitasking. So a computer is very dangerous because it's connected to thousands of sources of the information like a Twitter or blog or SMS or a Web page or Google. You are tempted to jump from one thing to the other stuff, then you forget which address. You can't really concentrate on one thing. So how to many attention to have quality time is such an important thing. Even in the office. When people say I can't work in my office. So much interruption, meetings. So only I can do the work in Starbucks or home [inaudible]. But from a concentration point of view book is better, because book is the event. Not connected to the internet, nor Google nor Twitter. Book is just book. You have to focus on that. That helps you to focus. But if you have a computer it's so tempting to jump around.

>> Bob Smith: Yeah. A book is the next best thing to a live conversation. A live conversation pulls you in and you keep going and you explore, however you can, as we're doing right now. A book is the next best thing.

>> Dr. Ishii: I see. I agree. But also we have a lot of discussion, what could be even more interesting because now you're reading a book? But imagine in one hundred years, if a book is one hundred years old millions of people have read, might have underlined or discussed about something.

>> Bob Smith: Right.

>> Dr. Ishii: If we can see all the half translucent, like a conversation or earmarking or I don't know, sorry, underlining or comments through the book, that's very exciting. Also you find a very interesting phrase, you want to tell your friends immediately to, or take a note, there is no way to clip from. You

cannot copy and paste this information to anywhere. So, so there. There must be some way to go beyond this book while still taking advantage of the beauty of the book as you mentioned.

>> Bob Smith: Which really I guess gets to how do we marry all of these experiences together in a good, constructive way? And of course, if the author is still around contact him and find out what he was thinking about things. Well, in this job I get to do that a lot and I did get to do it last hour.

>> Dr. Ishii: Yeah.

>> Bob Smith: And, but not everybody gets a chance to do it. Maybe it would be nice if we got, if we all got a chance to do it. But the same, the same opportunity that my job gives me.

>> Dr. Ishii: Yeah. I think you're doing such an important job, because you're talking about the world through your [inaudible], your views, your relating all the information. Then creating a new value, then sharing with your audience. But the book reader cannot do that. Just consuming. Even if they have great comments there's no immediate way to copy and paste then Tweet.

>> Bob Smith: Yeah. We ought to be able to be. We ought to be able to do that. Technologically in terms of possibilities we can do that. Are we going to get to the point where we can easily access that kind of capability? Are we there already, if we just know which kind of software and which kind of hardware to buy? And take our time to set it up right?

>> Dr. Ishii: I think it's coming soon. Also copyright is a big stumbling block. Many people don't want to let people edit or make a copy or mush up or mimic. But the concept is now a computer that makes the editing and the using, [inaudible] operating. But the transitional moderator of the computer authorship is something very complex like.

>> Bob Smith: Yeah. Authors like having their work sampled even less than recording artists do I guess.

>> Dr. Ishii: Yeah.

>> Bob Smith: Yeah. But that's another issue for another time.

>> Dr. Ishii: Yes.

>> Bob Smith: And I wish we had time to talk about that, because I think we could have a, a whole other hour to talk about it. Unfortunately, all we have time to do is to say thank you to Hiroshi Ishii of the MIT Media Lab who's going to be speaking this evening at 8:00 at Webb Auditorium in the RIT campus as part of the Caroline Werner Gannett Lecture Series. And our thanks to all of you for listening in on this, our 1370 Connection here at WXXI-AM and FM HD-2 Rochester. For David Campo, our technical director, I'm Bob Smith. It's been a pleasure.

[Music]