

Intro

- Robyn Schwartz: Five years from now you will be able to touch through your phone.
- 0:00:02.5 John Smith: Computers will be able to not only look at images, but understand them.
- 0:00:06.0 Hendrik Hamann: Computers will have a sense of smell.
- 0:00:08.8 Lav Varshney: A computer system will know what I like to eat better than I do.
- 0:00:12.1 Dimitri Kanevsky: Computers will hear what matters.
- 0:00:24.6 Paul Bloom: With all due respect to current technology, our computers today are just large calculators. They calculate very fast and they calculate lots and lots of data but they really don't think.
- 0:00:39.4 Katherine Frase: So I think that cognitive computing is in its simplest form how do we get computers to behave and think and interact the way humans do.
- 0:00:51.4 Bernie Meyerson: If a cognitive computer can experience its environment, by definition, it can act upon it to improve it. And that's a unique capability compared to what we have today.
- 0:01:02.3 Paul Bloom: In today's world we always provide imperfect answers because we don't have all the information. What cognitive systems allow us to do is to be able to collect that information from what is seen, from is heard, from what is

felt and use that information to provide a more accurate answer to the problem at hand.

[End of recording]

Touch

Robyn Schwartz

Associate Director

Retail Analytics, IBM

Robyn Schwartz: Five years from now you will be able to touch through your phone. How can we make technology make us more aware? How can we use technology to make touch come to life? Within the next 5 years, the phone will be such a ubiquitous part of our everyday experience of understanding our world, that we will be able to completely understand the sensation of touch through our phone. The phone will be able to help you to feel fabric, you'll be able to share the texture of a basket woven by a woman in a remote village halfway across the globe. So if you think about buying a shirt online, we can use different technologies like vibration, like being able to manage vibration through an understood lexicon of texture, to be able to use vibration to translate burlap versus linen versus silk and how heavy or rough is the texture, the vibration. And as you stroke your finger across the face of the phone, the device becomes just as intuitive as we understand touch in any other form today.

[End of recording]

Sight

Dr. John Smith

Research Manager, IBM

John Smith: In 5 years computers will be able to not only look at images, but understand them. In cognitive computing, a

0:00:12.5 computer is basically taught to understand photos by being given examples and it basically learns to detect the patterns that matter. So it's basically the computer that's learning to make this discrimination. It's learning what the boundaries are, it's learning what matters most. So it could be for a beach scene, the color is very important. However, for another kind of scene, like a downtown city scene, well

0:00:34.8 perhaps it's edge information, something completely different. Pictures and video have a lot of use in safety and security applications. So when an event may occur, it may be a severe storm, people can acquire photos today and share those in real time and then this can be useful for raising alerts, it can help to guide emergency personnel, it can be very useful for sharing experiences that others can

0:01:01.8 benefit from. In the future the computer will be enormously powerful in fields like medicine. If we consider one case of dermatology, for example, and skin

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cancer, often it's too late when a patient will show up and already there's a melanoma. By having images, however, of patients which are scanned over time, a computer then could start to look for patterns, early predictors, situations where sometimes there's something which is pre-cancerous but a good indicator that something is likely to happen. Computers are a great tool and with cognitive computing they can understand contents in a way that will go beyond human capacity.

[End of recording]

Hearing

Dimitri Kanevsky

Master Inventor, IBM

Dimitri Kanevsky: Five years from now computers will hear what matters. I'm Dimitri

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Kanevsky. Today I would like to talk to you
about cognitive computing and the sense of hearing.

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Many years ago, when I had my first child, I was
frustrated. I often did not understand what he wants, why
he's crying. In five years, we expect such application
that when baby will start to talk to us, we'll have system
that understands what baby are saying and tells this to

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parents or to doctors. Cognitive computing when it talk
about application means that it tries to imitate how brain
work. In create much better system that has much better
results. As example, the big problem in Brazil, slides,
flooding. So one solution for IBM labs to solve this to
put sensors that hear sound so they can hear some
movement in mountains. It can predict that maybe flood
is coming. This is example how hearing sensors can help
to prevent catastrophes. So this is just one of application
for hearing. In five years, you come here and I'll show
you this.

[End of recording]

Taste

Dr. Lav Varshney

Researcher, IBM

Lav Varshney: In 5 years a computer system will know what I like to eat better than I do.

The way humans taste things, they perceive flavor as very chemical and then neural, right, so

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have something on our tongue and then our nose and we perceive the flavor by how the chemicals react with our neural system. In the future, a computer will be able to

access larger repositories of data that tell us about the

chemical structure of various ingredients. It'll be able to tell us about what humans really perceive in terms of the

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flavors and then be creative and actually put everything together. And so what we want to do is actually figure out human, what's good for humans let's say, right, and develop machines that can actually help us achieve that.

And so what we've been looking is actually designing things, say recipes or other things, that taste good to

humans so people will want to eat it but it's also healthy for them. So if you go to like a middle school, right, you'll see

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these kids, they got the lunch from in school, it's meant to be meeting the nutrition standards. But they often just like

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eat the brownie and throw the rest away. And so what we want to do is actually make the whole meal very flavorful so he'll be achieving the nutritional objectives. In the future you might have a web application that knows not only your personalized medical characteristics, but also your personalized taste. To take an example, a diabetic can't eat sugar but in the future we might be able to model what it is that satisfies their sweet tooth and actually develop flavors and recipes that can, that'll be healthy for them. So in 5 years the best recipes will start with the right molecules.

[End of recording]

Smell

Dr. Hendrik Hamann

Research Manager, IBM

Hendrik Hamann: In 5 years computers will have a sense of smell. To smell a good wine, it is very interesting scientific question to actually do understand what is it you smell with your nose.

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A cognitive computing system will try to do a similar thing as your brain. It will try to combine the information of the smell with all the other information you have. In the future, it is conceivable that a doctor will be able to diagnose a whole set of diseases based on your smell. An area which will be emerging will be home health care. Smelling diseases remotely and then communicating with the doctor will be one of the techniques which will promise to reduce cost in the health care sector. For example, your phone would know where you are, it could smell things around

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you, maybe your breath. Your phone might know that you have a cold before you do.

[End of recording]