A Conversation with the CHCCS 2017 Achievement Award Winner

Kori Inkpen
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ABSTRACT

Dr. Kori Inkpen is the CHCCS Achievement Award winner for 2017. For the past 25 years, she has worked in the field of Human-Computer Interaction (HCI), including ten years as a faculty member, first at Simon Fraser University and then at Dalhousie University, followed by another ten years in industry at Microsoft Research. Her research has focused on supporting collaboration in a variety of domains.

For the invited publication by the award winner that CHCCS includes in the proceedings, again this year we are experimenting with an interview format rather than a formal paper. This permits a casual discussion of the research area(s), insights, and contributions of the award winner. What follows is an edited transcript of a conversation between Kori Inkpen and Kellogg Booth that took place on April 13, 2017, via Skype.

THE INTERVIEW

CHCCS: Congratulations, Kori. You have been selected as the 2017 CHCCS Achievement Award winner.

KORI: Hi, and thank you! It's an honour to receive this year's award.

CHCCS: Although you started out as an academic at Simon Fraser University and then Dalhousie University, you are now an industrial researcher at Microsoft Research (MSR). You are the first Achievement Award winner to work in industry. All the others worked at a university or a government research lab.

KORI: Wow!

CHCCS: What got you interested in HCI?

KORI: I first got started thanks to Maria Klawe. During my first year in the master's program at UBC (1992), I was having second thoughts about grad school and was not sure that I wanted to continue. Then I met Maria and she was starting the Electronic Games for Education in Math and Science [E-GEMS] project. I

Playing together. Observations of Grade 5-6 children playing computer games were part of Kori's dissertation research. Differences in sharing behavior between girls and boys when pairs played together or in parallel helped spark Kori's interest in how collaboration technology should be designed, and how choices made by designers affect the benefits gained from the technology differently for various user groups.

was excited about the possibility of working on this project and combing my interest in computer science with my love of working with children. The E-GEMS project was looking at how to motivate kids, especially young girls, to learn math and science through computer games. That was my first exposure to HCI.

CHCCS: What attracted you to become a researcher?

KORI: Attending conferences. I first attended OOPSLA '92, because it was in Vancouver so it was cheap and easy to go to. It was fascinating, and got me excited about research and sharing results with others. I started looking at calls for papers for all sorts of conferences, hoping to find a way to publish a paper myself. A couple of years later, I had my first conference paper!

CHCCS: What was the paper about?

KORI: I was first author on a short paper at CHI in 1995 about the "Give-and-Take" protocols we had looked at for kids sharing control of a computer using mice [6]. That same year I was also lead author on a CSCL paper about children playing together on computers [7]. So that was a big year for me. I had co-authored a journal article the year before [10], but the excitement of presenting research at a

conference was a real thrill and convinced me that I wanted to do research.

CHCCS: As first author on three papers, you must have put a lot of work into writing. How did you learn to do that?

KORI: The "Never forgetful flowers" journal paper [10] came out of my first summer of research, when I spent two months at BC Science World watching kids play video games. Rena Upitis, who was in the Faculty of Education at Queens University and part of the research team, helped write that first paper. I wrote the initial draft, which was horrible! I remember sitting in my little basement apartment with Rena beside me as we co-edited the paper. She taught me so much about writing! I am still grateful for what she taught me.

Having a mentor is really important for learning to write research papers. It's an extremely valuable experience for a young graduate student to work side-by-side with a mentor at early stages of a research career. By "side-by-side" I mean literally sitting shoulder-to-shoulder in front of a screen writing and re-writing. I repeated that process with most of my graduate students at least once for each of them. I think [hope] they got as much out of it as I got from my mentors.

CHCCS: Was there anything else that attracted you to computer science research, in particular to HCI?

KORI: Before graduate school, I didn't realize you could combine CS with other areas of interest. I thought it was all just "programming" and learning the technical pieces like computer graphics, databases, and networking that are used in programming. Instead, I found through the E-GEMS project that you can combine CS with anything – healthcare [4, 12], music, sports, education [5, 14] – anything!

Combining CS with something you are passionate about makes the research "real" and gives it a purpose. This is what is so great about HCI. It's highly interdisciplinary and it tackles problems that are important, not just for computer people, but for lots of people.

CHCCS: What problems do you think HCI has been successful at?

KORI: I have witnessed a trend in HCI that it originally was about computers in the workplace. Now it's about computers everywhere, which makes it a much more interesting field for me and for what I am doing now.

CHCCS: What about kids? You seem to do a lot of work that is related to children.

KORI: Working with kids has been a thread that has persisted throughout my career and I am still passionate about it today.

CHCCS: Why is this so attractive to you?

KORI: I love sitting down and watching kids interact with technology we have built. The imagination with which kids approach technology is fascinating. It's especially interesting to put new technology in front of kids to see what they think.

CHCCS: I think at Graphics Interface 2003, in Halifax when you were local arrangements co-chair, Randy Pausch described his experience talking to kids about technology. Randy explained that often children didn't know when a particular technology had been created because it was before they were born, so they were not constrained in their thinking by history. Have you seen this in your work?

KORI: I've witnessed this most in the research we did on video conferencing. We were studying children playing together over a video conference [2, 17]. Kids' mental model of the video conferencing system seemed to be very different from adults. Adults see the video as a window through which they interact with each other, but kids see themselves as being "inside" the screen with their friends. Because of that, you need to design the technology differently to match their mental models.

The other funny thing I noticed with kids early on – before PCs were commonplace in the home – was that young kids could pick up a mouse upside down and use it successfully because they didn't know the "right way" to use it, so they just adapted to how it seemed to work. Most adults have trouble with this because they expect a direct mapping, moving the mouse to the right moves the cursor to the right. Doing it any other way confuses them.

CHCCS: How has this affected your approach to other research projects, not just those with kids?

KORI: When working with kids we often found that our initial assumptions were wrong, so we learned to put our technology in front of people much earlier and gather initial insights on key opportunities and challenges. Today, I start almost every research project with this type of exploratory research to identify opportunities and challenges.

CHCCS: What other special types of users have you and your teams worked with, and how has that affected your approach to research?

KORI: When we started exploring telepresence in the workplace, we found that people were reluctant to change their workflow [1]. When we later shifted to the consumer space [8, 13], people were much more willing to try new technologies because they were highly motivated to connect with their friends and family in new ways.

So, another change in how I approach research is that I often start my early research in the consumer space [11] rather than in the workplace, even if the ultimate target is the workplace.

CHCCS: Looking back on projects you have done, what was the most under-appreciated paper you wrote about your research?

KORI: I have one paper that if I mention it around any of my former graduate students, we all start to laugh. It was nicknamed "display factors" that I worked on with seven of my graduate students. We explored the impact of various characteristics of display environments when supporting collaboration. The number of variables in the problem was too high to do a rigorously controlled experiment, so we did a lot of qualitative observations and tried to draw meaningful conclusions. The paper got rejected everywhere we submitted it. It became a running joke. We just couldn't get it accepted.

CHCCS: Did it ever get published?

KORI: We finally published it as an extended abstract at a conference that was held in Las Vegas in 2005 [9]. One of my graduate students gave the presentation. I still feel like it was a good paper, even though it was rejected from all of the major conferences. I recently looked it up and was surprised to see that it has 60 citations (61 citations counting this one!). I didn't think anyone had read it!
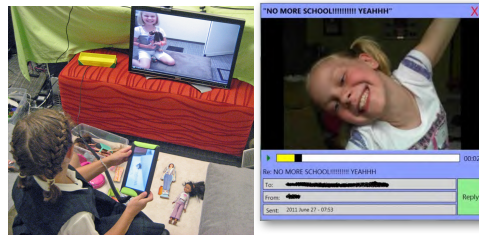
Video playdate. Kori's recent research includes studies of children's use of video conferencing technology and how their mental models of video differ from those of adults.

CHCCS: What was important in that research or for your own career that you think would have been missed had you not managed to eventually publish?

KORI: At the time, HCI seemed to expect rigid, controlled studies which limits the type of research questions you can explore. Today, my research is very exploratory and we run lots of field studies. Fortunately, the field seems to be more accepting of this approach now. It's good to see that the field has evolved because there are a lot of insights that we can gather from more ecologically valid approaches that would not happen using more standard laboratory-quality approaches. The increasing use of "mixed methods" approaches is sometimes very important.

CHCCS: Do you find as a researcher in industry that this approach is more welcome?

KORI: Yes, definitely. One of the first things I learned when I came to Microsoft Research was that teams that build products have to make a decision "today." So even if I do not have rigorous scientific proof, whatever intuition I can bring to their problems is welcome. As a scientist, I was trained to only share opinions when I had strong evidence to support my claims. In industry, it's different. A well-founded hunch is worth a lot.

CHCCS: Did you know this before you went to industry?

KORI: No. Not at all.

CHCCS: Would it have changed how you did research at a university if you had known this before?

KORI: It might not have changed how I did my research, but it definitely would have changed how I disseminated the results of the research.

There are a lot of things we learn doing a project that never make it into a paper, but they can be very valuable for people building products. It would be great if we could find better ways to tap into that knowledge because right now we really are not getting as much benefit from some university research as we might hope.

CHCCS: Granting agencies in Canada encourage researchers to engage in "knowledge mobilization" [15] – sometimes it is called "knowledge translation" [3]. Are you familiar with this?

KORI: No. I am not familiar with those terms, but I love the idea of finding ways to partner academics with practitioners to channel information exchange. When I talk to product teams, I sometimes feel I don't know a lot about their problems, but as the conversations proceed you realize that a lot of your past experiences are relevant. You just have to learn enough about the problems to see where things fit.

CHCCS: How much of your job as a researcher in industry is spent working with product teams, and how does that differ from the part of your job that is pure research?

KORI: It depends. It depends on the research project you are currently working on, the stage of the research, and the current needs of the product team. Often the research that a product team is interested in is something we did a few years ago at MSR. We're no longer excited about it, but they are because they can use it in the product they are about to ship. In other situations, we work closely with product teams and the research is guided by their problems. So, I guess I do both. Some projects are pure research that later answer a practical need, but other research starts with a practical need and [hopefully] finds answers that are useful [16].

CHCCS: How often does the second type end up with a pure research component, not just an answer to the immediate problem?

KORI: When researchers in MSR do this, it usually leads to a pure research component, because that's just how we think. There are researchers on product teams whose output is more directed to the immediate needs of the product, but at MSR we

manage to straddle both pure and applied research fairly well. I think we cannot help but see the larger research issues and follow up on them. Of course, I did have a mentor [you] who taught me that anything you do can be published if you look hard enough to find what is new in the work. But this does not mean just that you can publish for the sake of publishing, it's means that there are always insights that can be gained from anything you do even if it isn't a major scientific breakthrough.

CHCCS: Do you think that having been a faculty member for a decade before going to industry helped your career at MSR?

KORI: Yes. The varied experiences I had as an academic definitely helped not only the research I conduct at MSR, but also my work mentoring and supervising colleagues. It also helps me appreciate the differences between the type of research I should do at MSR compared to what people should do at a university. Given the resources we have at Microsoft (access to lots of real data, access to product teams and their problems, and the ability to see our work show up in actual products) we should leverage these assets in our research.

CHCCS: What do you think is the best way for researchers in industry to work productively with university researchers?

KORI: One of the advantages – and challenges – of industrial research is that it is very hands-on. But that means I can only work on a small number of projects at one time. As a professor, I had a number of students and could explore a larger set of questions with the help of my students. Combining these two approaches can lead to a win-win situation. That's one reason MSR hosts so many students as research interns and professors as visiting researchers. There are lots of questions we come across that we simply do not have the resources to explore, but they would make great master's or doctoral projects at a university.

CHCCS: How do you make that happen?'

KORI: While many of us collaborate with colleagues and students at universities, we definitely need to do a better job at this. The biggest challenge is that we are all very busy in our day-to-day jobs and so we often do not make this a priority. But we should.

CHCCS: MSR is well known for having a strong presence at many of the top research conferences. How does that help MSR? Or does it help?

KORI: MSR cares a lot about impact. That can be impact on the scientific community, it can be on impact on Microsoft products, or it can be impact in society. Participating in top-tier conferences allows us to contribute to and stimulate scientific discoveries in important areas. I once heard Bill Gates say that he did not want MSR to be an ivory tower where bright minds were locked up. He always wanted to have knowledge sharing between MSR researchers and the broader academic community.

CHCCS: Some people move in the opposite direction than what you did. They start in industry and move to academia. Would you ever consider moving back to academia?

KORI: Yes. Maybe someday I will. I loved my time working with students and being part of a university. But I have also loved my time at Microsoft.

CHCCS: What would draw you back?

KORI: Right now, I think there is more I can do at MSR. But someday, if the right opportunity came along and I thought I could do something that would significantly benefit the academic community, I would consider it.

CHCCS: Often people feel that academic researchers don't have enough work-life balance. Do you think that is true? Is it any different in industry?

KORI: I actually have thought about that and I have a rather long answer that I have shared with a number of people. Here's a short version of that answer.

The best part about working in a university environment is the students you get to work with. The most stressful thing about working in a university environment is the students you get to work with. Students are usually on a tight timeline to graduate, so you often end up reading a thesis or dissertation on the weekend or during your holiday. As an academic, your work affects their careers so you have to deliver on their timeline not yours.

CHCCS: You've been at this for long time. I'm sure it hasn't always gone as planned. What is your biggest pet peeve?

Experiences2Go. Research conducted "in the wild" explores new uses for collaboration technology within context .

KORI: I will probably get in trouble for this, but it is all the current hype surrounding AI. Clearly artificial intelligence (AI) is an important research area today, but many areas of computer science (e.g., systems, networking, HCI) are critical for AI to reach its full potential. Additionally, we also need to invest in areas that will be important in the future. Too many companies are so focused on AI that they are not valuing many other important areas of research.

CHCCS: Is that one of the things that universities might be better at – keeping an appropriate balance between short-term gains and long-term gains?

KORI: Yes, I think universities do strike a better balance across areas within computer science. But given the number of jobs looking for people with AI or ML (machine learning) skills, it could also skew the academic landscape.

CHCCS: Do you have concerns for where the field – computer science as a whole, but HCI in particular – is headed?

KORI: A big concern I have for computer science is around issues of diversity. The number of females in computer science is still low, but the situation for under-represented minorities is even worse. We have to do better than this.

CHCCS: What should we do?

KORI: Well, HCI is one of the brighter spots in the picture – especially for females – and we all know it takes time, but I think we need to work at finding new ways to stimulate interest in our field, otherwise it's like being on the endangered species list: even though it may take a long time to get off the list, you can disappear completely really fast when your numbers are that low.

We have been successful attracting women to the field, but this has to be sustained or we lose critical mass. We need to start looking earlier in the pipeline for women and under-represented minorities, and we need to do this across all parts of computer science, not just HCI.

CHCCS: How can university researchers help with that?

KORI: Involving undergraduate and even high school students in research is a great way to show them the opportunities in the field. At MSR, I often hire high school students for the summer. They bring a unique perspective to our work and I hope that their experiences working with us helps them see the possibilities for them in some part of computer science.

CHCCS: I guess you already sort of answered this, but does industry have a different role to play in encouraging diversity?

KORI: I would give the same answer for industry that I just gave for academia. If we can engage with students at a younger age, we have a better chance of catching their attention. If industry waits until students finish university, it's too late because the selection is already highly skewed. We need to start much sooner.

CHCCS: What is the best thing about being a researcher?

KORI: The people you meet and the experiences you can have. I have been lucky enough to travel all over the world and meet people from many cultures. I've even been able to share this with my family. It has provided great opportunities for my kids.

CHCCS: What advice would you offer to someone just starting out in the field?

KORI: Pick something that others don't believe in or don't understand. Too often a graduate student wants to do research on the current hot topic. But no one knows what will be tomorrow's hot topic, so they should take advantage of the opportunity to explore something new.

During my PhD I remember organizing a special interest group session at a conference. On the surface it was a total failure because only three people showed up. But one of them was Terry

Winograd, who is obviously a very well respected member of the computer science research community. He was very excited about the work I was doing and my ideas. That encouraged me to continue despite the fact that the broader research community was not supportive at the time.

I guess the bottom line is, always believe in yourself and in your ideas!

CHCCS: Thank you for sharing your thoughts. Congratulations (again) on your award. It is well deserved!

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