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Discurso de investidura como Doctor Honoris Causa del Profesor Doctor D. John M. Carroll



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DISCURSO DE INVESTIDURA COMO DOCTOR HONORIS CAUSA DEL PROF. DR. JOHN M. CARROLL
18 de septiembre de 2012, Aula Magna (Campus de Getafe)



Lord Chancellor, distinguished members of the faculty, ladies and gentlemen,

I am greatly flattered and deeply honored by this recognition. And I am delighted to be here in Madrid, to return to Universidad Carlos III, to see my friends and colleagues, and to remember and revisit the pleasure of Spanish food and fellowship. It was here in 2010 that I wrote my book, "The Neighborhood in the Internet," enjoying a wonderful year as an apprentice Madrileño.

An abiding tension in modern society is that between our human values and our material innovations, between our humanity and our technology. I think of Fritz Lang, but this theme is both older and younger than his classic film, Metropolis. Discussions of this theme are frequently quite dark.

In these brief remarks I will suggest – rather more optimistically – that human-computer interaction, also known as human-centered informatics, and usually abbreviated as HCI, provides a program and case-in-point for driving and shaping technology innovation proactively, and from its very inception, to support human activity and to enrich human experience.

I began working in the area now called HCI almost 40 years ago. In this pre-historic era, our objectives were human-oriented, but quite narrow. At that time, information technology was used only by professional programmers and quirky hobbyists. My colleagues and I at the IBM Watson Research Center sought to understand the professional practices of programmers as a special case of human problem solving, and to identify the aptitudes and strategies that allowed some individuals to be especially good programmers. This was fascinating research, but limited. As I look back, it was too unquestioningly driven by software technologies: Our research too typically asked how people were and would be able to assimilate and accommodate those technologies, instead of asking how the technologies should be shaped to suit people.

Our work, and indeed our whole world, was jolted mightily by the rapid emergence and widespread adoption of personal computing in the late 1970s. Suddenly, everyone was potentially a "user." And very few of these new users were committed full time to learning the mysteries of software. Instantly, the rhetoric of information technology became one of usability.

My work in this early period of HCI focused on studies of these new users. We discovered that users often suffered not from too little information support, but from too much of the wrong kind of support. We developed the minimalist model for designing instruction and information, based on ideas from John Dewey, Lev Vygotsky, and Jerome Bruner. We also studied the design and analysis of user interface metaphors, that is, interface designs that exploit specific analogies and disanalogies with artifacts and practices of everyday life in order to ease learning and interaction with software systems. For example, we incorporated design elements from games and exploration into user interface designs.

These early approaches were not panaceas. Thus, it is more difficult, and, by some measures, more costly to design minimalist information than it is to mechanically and voluminously fill out a hierarchical content outline. And user interface metaphors can invite misleading and limiting inferences through the very same mechanisms by which they invite creative and insightful inferences. My point is not that focusing on users made technology innovation easier or cheaper, my point is just that it worked much better for people - for the users, their organizations, and society.

We now stand far enough ahead of the 1980s that we can look back and see that this was a period of incredible innovation and advancement of technology. This happened because HCI began to direct the design of computer technology, and not merely to assess it, critique it, or help people learn to live with it.

The successes of the 1980s were not the culmination of HCI; they were merely the beginning. In the 1990s many further innovations pushed human-centered design into new domains and applications including hypertext and hypermedia information systems, universal email and other Internet-based collaborative services. In the 1990s, HCI was consolidated into a pervasive program for sustained innovation in the design of interactive systems; by the end of that decade professional practices in information technology were transformed.

My work in the 1990s focused on the development of scenario-based design methods, building upon work by Herman Kahn and others in strategic planning and management. I vividly recall debates with colleagues in IBM who thought I was mad to suggest that software should be designed and developed as a prop for human activity, and that patterns of human activity should be a primary working design representation for interactive systems. Yet as I look at interactive systems design today, this is precisely what happened. In retrospect, the truly odd fact is that there ever were people who thought that the primary description of a software system should be just a list of its individual functions and the code to implement each one.

Again, I stress that scenario-based design was not and is not a turn-the-crank panacea: To engage in scenario-based design, one must deeply understand what people do, what they value, what they wish to do, and much more. Indeed, a complementary methodological thrust of the 1990s was the wide acceptance of participatory design, technology design processes in which users are involved as full members of design teams. My own work on participatory design investigated what I call long-term participatory design in which design partnerships extend throughout the entire system lifecycle, even through multiple lifecycles, sometimes for years.

Contemporary HCI has continued to drive and direct software technology innovation by intervening directly in design for an ever-widening range of domains and applications including healthcare, security and emergency systems, automotive systems, education and training, and consumer products of every sort. Rather than merely seeking to create technology that is approachable, easy to learn, and easy to use, HCI today focuses on evoking and facilitating an ever-growing range of human experiences – joy, flow, ambiguity, reflection, creativity. For example, social media systems facilitate managing and loosely integrating a wide range of personal contacts and interactions. They allow people to be actively in touch with a much larger group of others than was ever possible before. Crowd sourcing of certain kinds of activity allows large groups of people to pool effort and perspectives, in some cases enhancing both productivity and creativity. HCI designs leveraged the affordances of emerging mobile technologies to allow many new kinds of social and work interactions and experiences, and through global positioning to put people in touch with their physical and cultural surroundings in new ways.

In recent years, my own work has focused on strengthening and enabling local community by supporting learning and awareness through place-based Internet tools. This was the topic of the book I wrote in 2010 when I visited the faculties of Computer Science and the Institute of Culture and Technology at Carlos III. Our work has addressed community activities such as monitoring water quality, distributing food, planning for emergencies, and including community experts in school science projects. Currently we are studying mobile time banking – that is, exchanging labor throughout a community based on time, not money. I note that one of the most active nations in the world in the time banking movement is Spain. Our mobile time banking work seeks to move time banking to collaborations at very fine levels of place-based activity.

To sum up and close, the integration of humanity and information technology through HCI design was a paradigmatic innovation. Social and humanistic considerations have traditionally been brought to bear in critiques of technology. And this is a valuable endeavor that should continue. Still, critiquing technology that is already designed and deployed can be frustratingly inert. It may foment alternative visions, but it changes nothing. Design is the language of change, and the successes of HCI show how the humanities and the human sciences can do more than deconstruct: They can underwrite and directly shape society's designs.

I am not suggesting, and no one should believe, that a single insight or wave of the hand could comprehensively reconcile humanity and technology; indeed HCI's program for this reconciliation emerged only through four decades of sustained attention, and continues to emerge. It is work in progress.

I am also not suggesting this reconciliation was, is, or ever will be easy. Humanists and social scientists in HCI have learned to lead in design, and take responsibility for human-centered technology, instead of waiting until after terrible misjudgments have been codified in technologies that undermine our humanity. They were only able to do this by showing the technologists how their own best efforts can be much better if they attend to human practices and preferences, and if they directly engage with people when they create technology for people.

The ending for this argument is still open. The brief history of HCI is a story of how human aspirations and technological possibilities were reconciled to create one of the most vital and impactful sectors of information technology, and to enable our digital society. Even broader implications are possible. For example, HCI is no longer accurately regarded as a part of computer science; it is much larger than computer science, incorporated into a dozen other disciplines, including psychology, design, communication studies, cognitive science, information science, science and technology studies, geographical sciences, management information systems, and industrial, manufacturing, and systems engineering. What will the effect of this be on university faculties and on the industries and institutions they support? My hope is that in the future we shall see a broader integration of our humanity and our technology.

Thank you.

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