

Videoconferencing in the Age of COVID

How Well has it Worked Out?

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ABSTRACT

During the past year we've all spent many hours on videoconference calls, sometimes more than was comfortable. While CHI might not have anticipated a viral-driven surge in videoconferencing, online meetings has been a topic of CHI research for the past 25 years. This is a good time to assess how well our research has matched what this natural experiment is telling us. What did we get right? And what did the field get wrong? The panel, comprised of people who directly witnessed much of this history, will reflect on these questions. We don't expect all to agree with each panelist's conclusions, and we will invite reactions and contributions from the audience as well.

CCS CONCEPTS

• Human-centered computing Human computer interaction (HCI); • HCI design and evaluation methods;

KEYWORDS

CSCW, videoconference, meeting fatigue

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1 INTRODUCTION

How well have we done as a field to understand the current use patterns and issues of videoconferencing? For something that's so much a part of our home and workplace now, has the CHI community done a good job of doing research on the topic?

Early market forecasts for the "Picturephone," first introduced publicly at the 1964 World Fair, were enthusiastic. At the time, it was predicted that replacement of the standard voice telephone by the picture telephone would happen early 1970's. [1] Obviously,

bandwidth costs, processing speeds, and the changes necessary to make video an integral part of life didn't allow adoption quite that quickly.

But by the mid 1980s, there was a significant amount of research being done on how, when, and where video conferencing would be used. An open video channel between distant work locations was being done experimentally in the early 1980s with a 24/7 link between Palo Alto and Portland offices of Xerox. [2] That expensive test was a way of buying a look at the future of video communications. Kruger's early experiments in augmented video experiences anticipated manipulated videoconference tools like the alternative backgrounds that are currently so popular. [5]

At the same time, Xerox PARC made experimental collaboration systems (COLAB) that explored different ways of sharing content as well as screen-sharing and video connections between colleagues. [10] In a different approach, CRUISER at ATT Labs let people wander through different video connections as a way to virtually wander the halls, the way one might now check out different webcams to get a spatialized view of the world. [8]

Even then, questions were being raised even then about the appropriate use of video technology: Is a videoconference a good replacement for face-to-face meetings? [1] Even as videoconferencing technology improved and explored different methods and approaches, the emphasis has been on the invention of new videoconferencing mechanisms (floor control, deployment, sharing, etc.) rather than on understanding the social dynamics of the emerging online collaboration systems.

While the widespread adoption of videoconferencing was always an open question, the relatively recent rise of inexpensive (or free!) videoconferencing for everyone substantially changed the dynamics of collaboration. Suddenly, synchronous and asynchronous video technology was everywhere—there was a new epoch of experimentation taking place outside of the usual research venues.

Then, the COVID-19 pandemic hit at the beginning of 2020, and videoconferencing became the norm. Telemedicine, education, and family video conferences are now the new defaults. One rarely sees a physician or colleague except through videoconferencing. Online mental health therapies, virtual cocktail hours, and distance learning are a part of all our lives.

In this panel we want to explore what the broad adoption of videoconferencing means. How well did earlier videoconferencing research anticipate the effects we're now seeing. Has the pandemic

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become the *black swan* event that will drive broad adoption and change our communication culture forever? [11] [13] We will ask questions about the ways in which the nature of videoconferencing has changed over the past year, and where we see it going in the next several years. How have we changed? [12] In what ways will work practices evolve to accommodate these sudden dramatic changes in collaboration? [6] Does the CHI research support or foretell where this is all going? This panel will explore these questions.

2 PARTICIPANTS

Daniel M. Russell, Google, U.S.A. (Moderator) Dan has had a long practice of working in online video systems, dating back to his participation in the early videoconferencing systems at Xerox PARC in the 1980s. More recently, he has been involved in ambient computing to provide distributed sensed awareness of colleagues in work settings (at Apple), and in remote cooperative work at IBM and Google. He has had a long interest in understanding how industrial and academic research informs (or does not inform) the development of deployed technology. He organized and moderated a similar panel at CSCW 2016 that asked related questions about the successes and failures of CSCW research over the past 30 years. [9]

John Tang, Microsoft Research, U.S.A. John has focused almost all of his research career on distributed collaboration, mostly while also living the distributed collaboration experience by connecting with remote work teams. His research interests are focused on understanding the needs of users to shape the design of technology to support collaboration. John uses mixed methods to understand how people currently use technology and prototypes the design of new technology to innovate in remote collaboration. John has recently been investigating the accessibility of remote collaboration technologies for people with diverse abilities. John has done extensive work in novel uses of video and audio to connect people, covering his experience at Sun Microsystems, IBM, and Xerox PARC, and has written extensively about what video can (and cannot) do for collaboration. [3]

Carman Neustadter, Simon Fraser University, Canada. Carman is Dean of the Faculty of Communication, Art, and Technology and Professor in the School of Interactive Arts and Technology. Carman specializes in the areas of human-computer interaction, interaction design, domestic computing, and computer-supported collaboration. He is the director of the Connections Lab, an interdisciplinary research group focused on the design and use of technologies for connecting people through technology. Research projects heavily focus on designs for family communication and have included always-on video connections between homes, audio sharing systems, telepresence robots, haptic feedback devices for families, and virtual reality video conferencing systems.

Tejinder Judge, Google, U.S.A. Tejinder is a Senior User Experience Researcher currently working on ambient computing, including smart displays and speakers in the home. Her research interests are in human-computer interaction with a focus on social computing, computer mediated communication, and domestic computing. Her research has studied the effects of always-on video connections on communication, connectedness, and awareness between families separated by distance. Tejinder and Carman are editors of

Studying and Designing Technology for Domestic Life: Lessons from Home, which explores how methods and technologies often used in workplace settings may not easily translate to the richness and complexity of domestic life. [4]

Gary Olson, UC Irvine, U.S.A. (emeritus). For nearly three decades, Gary has been working to bring distant people closer together. Collaboration, whether it's in the workplace or someplace else, is complicated, his goal is understanding how people use technology to make distance collaboration work well. One challenge is encouraging people to appreciate and celebrate cultural differences in a business environment. As technology continues to make the world smaller, we're increasingly likely to be interacting with colleagues who have different approaches to work and life. Professor Olson's seminal work, "Distance Matters," redefined the way businesses foster teamwork among personnel in far-flung locations. [7]

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