



# An Interview with Lana Yarosh: Confronting Social Isolation with the Help of Technology

INNOVATION LEADERS

*by Bushra Anjum*

## Editor's Introduction

*In this series of interviews with innovation leaders, Ubiquity Associate Editor and software engineer, Dr. Bushra Anjum, sits down with Prof. Lana Yarosh of the University of Minnesota to discuss geophysical and emotional distances as they relate to social disconnection and our ever-growing dependence on technology.*

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Svetlana “Lana” Yarosh is an assistant professor in the Computer Science & Engineering department at the University of Minnesota. Her research in HCI focuses on embodied interaction in social computing systems. Yarosh is currently most proud of winning both the NSF CRII and the NSF CAREER awards, her best papers at IDC 2018 and CSWC 2014, and receiving the McKnight Land Grant Professorship. Yarosh has two Bachelors of Science from the University of Maryland (in computer science and psychology), a Ph.D. in human-centered computing from Georgia Institute of Technology, and two years of industry research experience with AT&T Labs Research. She can be reached via email [lane@umn.edu](mailto:lane@umn.edu) and at Twitter [@lanayarosh](https://twitter.com/lanayarosh)

**Bushra Anjum (BA):** What is your big concern about the future of computing to which you are dedicating yourself?

**Lana Yarosh (LA):** As computer scientists, we may be responsible for one of the biggest health crises facing the modern world. I’m not talking about obesity, sedentary lifestyles, health inequities, or any medical disorder, but rather about the role of technology in loneliness. Social isolation is a better predictor of mortality than obesity or smoking and it is strongly associated with mental health disorders such as depression and addiction [1] Conversely, social connection is a better predictor of happiness than any other single factor. Something has changed in the last three decades: 40 percent of U.S. adults report feeling lonely (up from 20 percent in the 1980s) and most adults can’t name three close friends to turn to when in trouble [2] Is it possible that computer science is contributing to this problem? It may be so—increases in the use of “social” technologies like social networking sites, mobile apps, and messaging correlate strongly with depression and loneliness [3]. We are simultaneously constantly available for immediate contact through technology (email, text, apps, etc.) and yet increasingly feeling disconnected [4]. I think this is a fundamental challenge in how we relate to technology and

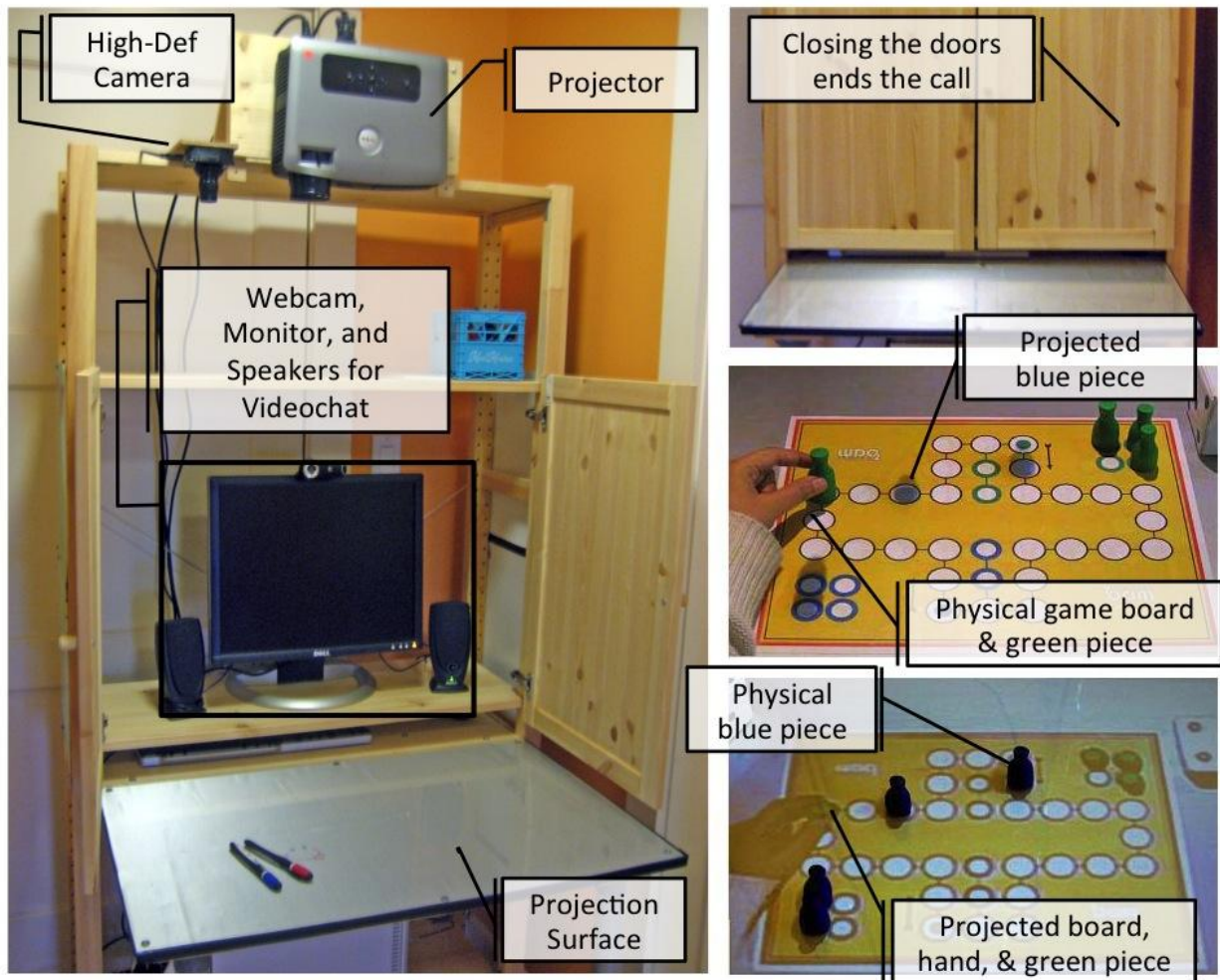
how technology mediates our connections to each other. Computing holds so much potential for expanding and strengthening social ties and yet we have not been able to meaningfully leverage it. I want to change this.

My work focuses on critical context for connection such as separated families and people facing health crises and develops rich media systems and assistive mobile technologies to support more meaningful social relationships.

**BA: How did you first become interested in confronting social isolation with the help of technology?**

**LA:** I didn't set out to study social connectedness, but somehow all my projects seemed to lead to this direction. My first project in this space started with me feeling disconnected from my family after moving away to grad school. I left behind an eight-year-old brother and wanted badly to continue being part of his life. But somehow despite our desire to stay close, technology failed us—Skype was boring small talk and too hard for my brother to use without my parents' help, online videogames distracted rather connected, Facebook is not appropriate for young kids, and a phone was just totally lame. I started talking to other families and found this was a common problem faced by so many: divorced families, military families, or even just geographically separated grandparents. I thought that I could build something to help!

While this work started as a project for a class, it eventually expanded to become my Ph.D. thesis and then beyond to be a substantial research agenda. I began by talking to children and parents from separated families and I found that the main problem with phone and video chat was that it was so boring compared to spending time together. Parents and children connect by doing together, not just talking. To make it possible to do things together while separated by distance, I led a team of other students in designing and implementing a connected piece of furniture called the ShareTable. The ShareTable uses a projector-camera-based augmented reality tabletop to let families do fun things together while separated: play board games, draw, read together, help with homework, or just metaphorically hold hands. The basic idea of the ShareTable is quite simple—a camera above the table captures the table surface and transmits it to the other system where it is projected onto the tabletop.



**Figure 1. The ShareTable supports long-distance interaction between children and parents.**

By leveraging the physical affordances of the furniture, it was possible for even very young children to use it without help—just open the cabinet to start chatting (it didn’t even have a mouse or a keyboard).

Making this system work really took all my skills and more: It required novel software, hardware, and even cabinet-making. But, it was all worth it when I got to see how families used it to stay in touch and the ways that it improved their relationships. See the system itself and what happened when people used it here: <http://bit.ly/ShareTable>. If you’re interested in more details, please check out some of our published papers on the project [5–8].

Since then, my group (eight Ph.D. students, a post-doc, and a small army of enthusiastic undergrads at [GroupLens Research Center](#) at the [University of Minnesota](#)) has also worked on

other contexts of social connection such as helping kids play with a best friend who has moved away, helping families support a loved one with cancer even if they don't live nearby, connecting at-risk elementary school children with local older adult mentors, and helping people with substance use disorders (e.g., alcoholism and opioid addiction) build a strong local support network to help them recover.

**BA: What initiatives are you currently leading that are using digital technologies to enable social connectedness?**

**LA:** I want to talk about my group's work in the space of substance use disorder recovery because in many ways addiction both amplifies and is amplified by a lack of social connection. For the past seven years, I've been working closely with recovery communities like Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) to understand how technologies can help. These communities are ubiquitous and very robust because they are governed by a set of traditions and values. Many of these, such as the importance of anonymity, physical touch, and meaningful connection challenge current communication systems. My lab's work in this space has taken a two-pronged approach to support recovery. First, we focus on enhancing people's opportunities to connect in person. We have explored applications that help people find the right AA meetings for them, encourage them to engage more through persuasive technologies, and enhance one-on-one peer support through mediated communication between in-person meetings [9–12]. Second, we are looking at places where technology can supplement in-person participation and provide new opportunities to connect where not enough in-person opportunities are available (e.g., rural settings where fewer meetings are available and transportation can be a substantial barrier) [13, 14]. We have been investigating video-mediated meeting and looking for opportunities to enhance these with richer interaction.

One reflection that I've had in working on this project is that this is such an inspiring and self-reflective group of people to design for and with! These are people facing substantial stigma while battling a disease that takes hundreds of thousands of lives yearly. They rely on grassroots services and organizations to help themselves and each other. In these groups, you will meet people who have thought about ideas relevant to other communities like anonymity, peer support, and welcoming newcomers more than anybody else. But, I also think that many of the approaches and insights from this group may extend to other contexts where the social connection is critical. Our long-term goal is to build technologies that will help all people find help, support, and connection when they need it most. You can help. If you are in recovery and would like to help test the new technologies we are creating, please reach out to us. If you are a

health researcher interested in how connection plays a role in health outcomes, we would love to chat about possible collaborations.

## Biography

Bushra Anjum is a software technical lead at Amazon in San Luis Obispo, CA. She has expertise in Agile Software Development for large scale distributed services with special emphasis on scalability and fault tolerance. Originally a Fulbright scholar from Pakistan, Dr. Anjum has international teaching and mentoring experience and has served in academia for over five years before joining the industry. In 2016, she has been selected as an inaugural member of the [ACM Future of Computing Academy](#), a new initiative created by ACM to support and foster the next generation of computing professionals. Dr. Anjum is a keen enthusiast of promoting diversity in the STEM fields and is a mentor and a regular speaker for such. She received her Ph.D. in computer science at the North Carolina State University (NCSU) in 2012 for her doctoral thesis on Bandwidth Allocation under End-to-End Percentile Delay Bounds. She can be found on Twitter [@DrBushraAnjum](#).

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