

Research Statement

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My research examines the social, technical, and cultural dimensions of *social computing* systems. In particular, I focus on the design and study of *online communities*. I use quantitative and qualitative methodologies to understand the social dynamics and cultural artifacts that emerge from peer-production systems. I then apply those insights to the design of the underlying sociotechnical infrastructure and the policies that it embodies. I am uniquely positioned to integrate my training as a designer of *human-computer interaction* systems and my experience analyzing people's practices, to produce innovative and impactful scholarship at the frontier of computer science, social science, and digital humanities.

In my work, I seek to make contributions to the research community and to have an impact in the world outside academe. I have done this in my doctoral research by creating and studying the Scratch Online Community¹: a large *social media* web site where *young people* program, share, and remix video games, animations, and interactive art. Today, four years after I created the web site, the community has grown to one million members and more than two million projects contributed from over one hundred countries.

CURRENT RESEARCH: REMIXING

Using the Scratch community as an online laboratory, I have studied *social creativity* through the lens of *remixing* or content reuse. More specifically, I have examined 1) the functional role of remixing in digital *cultural production* and *social learning*; 2) the structural properties of a *computer-supported* remixing system; and 3) the attitudes and tensions among amateur creators toward ownership and *intellectual property*.

¹Available at <http://scratch.mit.edu>

I began my research in this domain when trying to understand how end-user *computer programming* could be made into a more personal and social learning experience for children and novices. Inspired by the literature on commons-based peer-production systems (Benkler, 2007) and the emergence of participatory culture (Jenkins, 2006), I created the Scratch Online Community as a space for young people to have access to an audience, peers, mentors, and knowledge necessary to create personally meaningful interactive media (Monroy-Hernández, 2007) using the Scratch programming language (Resnick et al., 2009). From the beginning, the goal of the web site was to support a learning philosophy focused on creating instead of consuming (Papert, 1980; Resnick, 2007), and to do this in a community (Illich, 1971; Vygotsky, 1978; Lave and Wenger, 1991).

I have been fascinated by remixing because it is a phenomenon where social, technical and ethical issues intersect, as well as one of the simplest forms of creative collaboration. Remixing is often penalized by copyright law, prevented by technological means, and discouraged in traditional formal learning environments. At the same time, digital technologies have made remixing arguably easier, more popular, and more salient. Remixing embodies a cultural shift.

I have examined remixing in the Scratch community in collaboration with people from sociology and psychology. We have found that when young people's creative work is remixed, they are as likely to react positively as they are to accuse remixers of plagiarism (Hill et al., 2010). To address this tension and to promote positive views toward remixing, I manipulated the architecture of the Scratch web site by adding an attribution statement on all remixes (for example, "this project created by Mary but it is based on Joan's project"). We found that this automatic attribution was seen as different and less valuable than manual credit given by a human remixer (Monroy-Hernández et al., 2011)², a finding with possible implications for the design of other systems where social signals could be automated.

Remixing is also the mechanism used by *groups* to create something together (Monroy-Hernández and Resnick, 2008). My colleagues and I have explored how the open endedness and flexibility of some sections of the Scratch web site have allowed children to repurpose the technology to engage in socioemotional interactions among group members, fostering positive group dynamics that support the creation of computational media projects (Aragon et al., 2009; Brennan et al., 2009). We have also systematically surveyed the social landscape of the web site, finding evidence of the formation of reciprocal relationships through remixing; children exchange not only social currency but also digital gifts, which take much time to create (Nickerson and Monroy-Hernández, 2011).

²This paper received an honorable mention at the ACM Conference on Human Factors in Computing Systems (CHI) 2011.

More broadly, I have explored how these online social experiences are changing, how youth acquire media literacy skills, and how those skills are challenged and redefined (Monroy-Hernández et al., 2011).

My current work explores the ways young people participate in online communities of creators, aiming to inform the design of social technologies that support collaborative practices. To date, my research, has studied principles applicable to social media—assessing current behavior and previous theories to create social technologies, understanding how people incorporate others' ideas into their own, and how they interact in online communities.

FUTURE RESEARCH

In the future, I plan to extend my research by 1) developing and studying new social media systems to support online collaboration and self-expression for *broader audiences and new platforms*; 2) investigating the *social implications and politics* of social media; and 3) furthering the understanding of basic cooperative system design and its application to addressing and understanding societal needs, especially in the *developing world*.

New Platforms, New Opportunities

I would like to extend my work by creating new social systems that empower people, both young and old, to create and share on a broader range of platforms. For example, at Microsoft Research, I have started to explore how online communities can support new forms of collaborative creation on *game consoles and mobile phones*.

I plan to use these new environments to understand how various devices and media open the door to opportunities for self-expression and to contrast them with existing commons-based peer-production systems to examine fundamental properties of online collaboration.

In particular, I plan to study how *sociability* supports or discourages online participation. I am particularly interested in understanding how online *friendships and popularity* in a community influence people's creative practices, and preferences for making various types of creative work (for example, animations, videos, music or games).

Social Media and Civic Engagement

A second new line of research centers on the use of social media for civic participation. I have started to explore this in the context of how citizens use social media to react to violence caused by organized crime in Mexico. The popularity of social media in this environment has also seen the emergence of anonymous citizen-driven news curators, and the spread of dangerous rumors. In my initial and informal analysis, I have found that citizens—primarily young people—have turned to social media to report and learn about violent events in their communities as journalists cannot do so because of threats from both drug cartels and governments (Monroy-Hernández, 2011b,a).

I am interested in examining how trust networks among citizens are formed in such extreme circumstances. I hope to examine this to better understand the implications for the design of social media platforms. This relates to the findings my colleagues and I have published on *anonymity and ephemerality* in a controversial online community responsible for the creation and spread of highly remixed Internet memes (Bernstein et al., 2011).³ I look forward to the opportunity to extend this work to new contexts.

Social Computing for the Developing World

A third new direction that I am interested in exploring is the application of social computing technologies to address pressing problems in the developing world. An example is a project I co-created called Sana Mobile⁴: a health care mobile application designed to crowdsource the collection of medical data for speedy cancer screening in remote locations of Zambia.

I believe social computing can address pressing human development issues including health, education, and civic participation. I plan to continue to devote part of my research agenda to this area, in collaboration with researchers and scholars from several disciplines.

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³This paper received a best paper award at the AAAI International Conference on Weblogs and Social Media (ICWSM) 2011.

⁴Available at <http://sanamobile.org>

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