# Research Statement

My research focuses on how open science is operationalized through technological and institutional infrastructure and how deployment of open science initiatives affects the practice of science itself. Scientific research has become increasingly more public-facing using open source and open access technologies. While calls to democratize science have been around since at least the 1970s, open source tools are finally making this possibility a reality. My positionality within the fields of technical communication, rhetoric of science, and critical theory prepare me to analyze the discourses and tools of open science using both rhetorical and qualitative approaches. I use these methods to understand the unique challenges that professional writers and scientists will face as they encounter new writing situations and processes enabled by digital media.

Although the journal article is still the benchmark for recognition and advancement in academia, complementary technologies have been developed to support scientific publication workflows and to make the publication process more collaborative and public-facing. Specifically, we might think of technologies such as writing and editing platforms, collaborative tools for data organization and dissemination, citation management technologies, and sites for pre- and post-publication peer review. My approach to these technologies does not take a purely technologically determinist view; instead, I aim to attune myself to the ways in which algorithms and infrastructure designed by software engineers afford some opportunities for openness and publicness, while also constricting others.

For my dissertation, I examine how discourses of openness influence internal scientific communication and knowledge-making processes. Specifically, I focus on three separate case studies examining: the social apprenticeship of open technologies through a library training series, the design and infrastructural choices of a newly developed open access and peer review platform, and openness initiatives at a multinational software firm. I employ a mixed-methods approach to each of these studies, using qualitative research methods of semi-structured interviews and ethnography, combined with rhetorical and discourse analysis. Each method offers me a richer insight into the meanings of openness deployed in these sites, which vary between visions of participatory collaboration to neoliberalist perspectives driven by competition and market concerns. This research is ultimately driven by larger concerns of the future state of scientific practice and its relationship to the public.

I am currently preparing a manuscript for *Technical Communication Quarterly* where I look at the post-publication peer review site PubPeer. In the paper, I consider PubPeer an emerging parascientific genre (Kelly and Miller, 2016), or one which blurs boundaries between science and the public. I attend to how the site borrows discursive conventions from scientific peer review and journal clubs, while also mimicking the technoculture and infrastructure of Reddit, a site somewhat controversially known for its geek culture and instances of toxic masculinity. I find that in blending these diverse genres users must negotiate between the norms of internal scientific communication and the norms of technoculture in ways which sometimes result in both risk and controversy. I aim to build on this work through continually studying emerging areas for scientific discourse and expanding into the ways that publics engage with science through social media. This research would augment my work within the rhetoric of science to include the field of public science communication.

In addition to my own research, I am research assistant for Dr. Jean Goodwin of NC State's Public Science Cluster. With Dr. Goodwin, I am co-authoring two papers. One paper examines qualitative data I collected for an internal needs assessment of public science communication education for graduate students. This research involved interviewing faculty and leading focus groups with students to discover the challenges and opportunities within public science communication. Our paper extends quantitative studies of public science communication to focus on how faculty and students conceive of public science communication through their own actions and tasks. In our second co-authored paper, we provide commentary on a series of articles submitted by citizen scientists to *Narrative Inquiry in Bioethics*, where we highlight the ethical issues of citizen science and the continued divide between experts and citizen scientists.

I aim to continue contributing to the fields of rhetoric of science and technical communication through continuing interactions with scientists through interdisciplinary research and through knowledge of emerging technologies. This informs my work both as a researcher and a teacher. To teach scientific genres to our students involves awareness and understanding of these genres and knowledge of how scientists are deploying them.