NATIONAL ENDOWMENT FOR THE HUMANITIES

OFFICE OF **DIGITAL HUMANITIES**

Narrative Section of a Successful Application

The attached document contains the grant narrative and selected portions of a previously funded grant application. It is not intended to serve as a model, but to give you a sense of how a successful application may be crafted. Every successful application is different, and each applicant is urged to prepare a proposal that reflects its unique project and aspirations. Program guidelines also change and the samples may not match exactly what is now required. Please use the current set of application instructions to prepare your application.

Prospective applicants should consult the current program application guidelines at https://www.neh.gov/program/dangers-and-opportunities-technology-perspectives-humanities

Applicants are also strongly encouraged to consult with the NEH Office of Digital Humanities staff well before a grant deadline.

Note: The attachment only contains the grant narrative and selected portions, not the entire funded application. In addition, certain portions may have been redacted to protect the privacy interests of an individual and/or to protect confidential commercial and financial information and/or to protect copyrighted materials.

Project Title: *The Global Cochlear Implant: Provincializing "Brain Implants" through Disability Technocultures*

Lead Institution: University of Chicago

Project Directors: Michele Friedner, University of Chicago
Mara Mills, New York University

Grant Program: Dangers and Opportunities of Technology: Perspectives from the Humanities (Collaborative Teams)

Project Personnel

Michele Friedner, PhD. Associate Professor, Department of Comparative Human Development, University of Chicago (Project Co-Director)

Mara Mills, PhD. Associate Professor, Department of Media, Culture, and Communication, New York University. (Project Co-Director)

Fulden Arısan, PhD Student, Department of Comparative Human Development, University of Chicago

Lindsey D. Felt, PhD. Curator and Co-Founder of Leonardo/ISAST CripTech Incubator; Lecturer in the Program in Writing and Rhetoric, Stanford University.

David Friedrich. PhD Student, Conservatorium of Music, University of Western Australia (UWA).

Anahí Guedes de Mello, PhD. Associate Researcher, Center for Disability Studies (NED), Universidade Federal de Santa Catarina and Researcher at Anis/Institute of Bioethics, Brazil.

Stephanie Lloyd, PhD. Professor, Department of Anthropology, Laval Universite, Canada.

Timothy Y. Loh. PhD Candidate. History, Anthropology, and Science, Technology, and Society (HASTS), Massachusetts Institute of Technology (MIT).

Darrin Martin. Professor, Art and Art History Department, University of California at Davis.

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Mara Mills, New York University

The Global Cochlear Implant: Provincializing "Brain Implants" through Disability Technocultures

Project Summary

Perhaps no medical device has sparked more popular discussion of the "dangers and opportunities of technology" than the cochlear implant (CI). The first true bionic device, CIs (re)produce an absent 'normal' human function (Blume 2009). Despite ongoing polarizing debates about the ramifications of CI technology, only a few book-length studies of the technology exist, and these have overwhelmingly emphasized U.S. and European perspectives. This collaborative humanities project will document the impacts of the technology itself (e.g. algorithmic bias), the influence of the global corporations that market it, and the range of ways implants have been domesticated, maintained, and re-interpreted. At this pivotal moment for the development and global dissemination of neuroprosthetics, with brain implants widely featured in the popular press, this multi-disciplinary, international project will serve both a documentary and a comparative function, as well as provide a platform, through our conference and published work, for alternative narratives of CI use.

Significance and Contribution

"Brain implants" are making headlines again, with investment in new companies by Jeff Bezos, Elon Musk, Peter Thiel, Bill Gates and other leaders of the tech industry. While neural-computer interfaces have been around for fifty years in the form of the cochlear implant (Mills 2014), which is currently used by nearly a million people worldwide, the coming generation of brain implants promises an array of applications for sensory and cognitive enhancement. The tech industry views brain implants as a further instantiation of "ubiquitous computing," one that reduces or eliminates the hardware interface and is even posited as "the future of computing" (*Economist* 2022) or "the singularity" where humans and machines merge (Kurzweil 2005). *The Global Cochlear Implant* will result in the first international edited collection on the disability technocultures of cochlear implants, carefully developed through a series of research group meetings with scholars drawn from the fields of history, anthropology, media studies, literature, music, disability studies, and science and technology studies. A humanities approach is critical at this moment to disrupt the "ubiquitous" narrative surrounding implant technology, and to learn from user experiences in dissimilar contexts as opposed to tech industry forecasts.

Deaf people around the world have increasingly been undergoing implantation – including in developing countries, with the help of government programs, international NGOs and charities. As cochlear implantation becomes a standard and routinized global practice, it has given rise to a new and growing population: *deaf people who hear* through a process enabled by complex medical, rehabilitative, social, and political infrastructures. As such, deaf people with CIs are socio-technical pioneers (Rapp 1999) in that they introduce new understandings of what it means to occupy different categories like "deaf," "hearing," "disabled," and "non-disabled" at different times in their lives as well as simultaneously. However, access to implantation and the accompanying remaking of these categories are not occurring uniformly; even though sound booths and audiograms might look identical around the world and implant devices from the same corporations are being used, implantation infrastructures exist in relation to a multitude of social, political, and economic factors.

Historical research on CIs has thus far contributed to a gleaming master narrative of technological development, and there exist scant few case studies of how CIs are utilized and negotiated on the ground by individuals and families. Despite ongoing polarizing debates about the ramifications of CI technology (for deaf and hearing identity, use of signed vs. spoken language, and the ethics of implanting young children [Komeseroff 2007]), only a few book-length studies of the technology exist, and these have overwhelmingly emphasized U.S. and European perspectives. Thus, a large-scale, comparative project is

required to document the impacts of the technology itself (e.g. algorithmic bias), the influence of the global corporations that market it, and the range of ways implants have been domesticated, maintained, and re-interpreted. Because prospective brain implants are currently being advertised as piloting with rehabilitative applications before becoming available for sensory and cognitive "extension"—a common industry strategy Mills has described as an "assistive pretext" (Mills 2011)—we insist on centering disability and disability futures in our project's account of the lived reality of neuroprosthetics.

Both developed and developing countries increasingly provide CIs to children as well as adults, adding biopolitical urgency to this project. India, Pakistan, Mongolia, Jordan, Turkey, and Brazil now are home to both government and charitable provision of cochlear implantation to children. The surgical, audiological, and therapeutic terrain is vastly uneven and children receive different iterations of technology, depending on their geographic location. In India, China, and Pakistan, for example, children receive CI processors that were never available in the United States or elsewhere in the so-called developed world. While there are four main manufacturers of CIs, start-ups in China and Korea have recently designed and manufactured low-cost CIs and the Indian central government is also working on an "indigenous CI." A previous Korean CI manufacturer went out of business, leaving users of its implants without any support. New sensory inequalities and hierarchies are emerging as a result. While most of the media coverage and popular knowledge about cochlear implantation is celebratory, we argue that it is time to nuance the conversation. Instead of heart-warming videos of deaf children having their cochlear implants activated, we aim to produce and circulate knowledge about how cochlear implants are a boon but also introduce new and complex dependencies and ambivalent identities. Indeed, this project will advance understanding of how new biotechnologies are being used to target and cultivate the health of populations, fundamentally reconfiguring the relationship between individuals, the family, and the state and creating new categories of persons. (Hacking 1986). At a time when Elon Musk is promoting his Neuralink "brain chip" and bionic eyes have suddenly been rendered obsolete (Strickland and Harris 2022), a close look at a "successful" neuroprosthetic considered to be an unquestioned good and the gold standard in intervening on deafness is especially needed.

The guiding premise underlying this project is that *cochlear implants are material, moral, social, and political infrastructures that connect people with each other, with medicine, and with the state and that humanities scholars must study the opportunities and dangers posed*. As an infrastructure and a facilitator of connection, CIs bring to the forefront complex questions about cure, rehabilitation, and normalization, the role of bionic technology in mitigating and creating disability (e.g., by damaging residual hearing during surgery and facilitating dependence on a technological device), and the challenges of maintaining biotechnologies that putatively last a lifetime. To be clear, we do not take a normative position in regard to cochlear implants (and (b) (6)). However, we are concerned with the ways that they are increasingly offered as the only option for remediating or mitigating deafness and the new kinds of sensory inequalities and complex dependencies that result. Moreover, the public discourse surrounding CIs is narrowing, even as the population of users expands. Indeed, the only CI user organization, Cochlear Implant International Community of Action (CIICA) exists solely to lobby for additional CI use and funding. The prevalent discourse of CIICA, mirroring the WHO, is that CIs are cost-effective and that they mitigate the so-called burden of disability. Our humanities-based project aims to open up new channels of public conversation and document otherwise ephemeral and marginal user perspectives from diverse locations.

Project Research Questions

The Global Cochlear Implant asks the following questions:

1. What—historically, socially, politically, and economically—has been left out of existing scholarship on cochlear implantation?
2. How are identities, socialities, and political movements changing because of neuroprosthetics?

3. What does the history and present of CIs teach us about neuroprosthetics in general? How do CIs serve as both a cautionary tale and inspiration?
4. How might humanities scholarship, from qualitative ethnography to historical research and archive-building, influence future technology design and provide opportunities for user activism and political participation?

These research questions, which will guide our research meetings, conference, and edited volume, are designed to foreground diverse perspectives and experiences using cochlear implantation. We move away from considering CIs an unquestioned good and consider what is lost and gained in multiple locations.

Environmental Scan / Literature Review

Media studies and the history of computing: We use media studies and the history of computing to think critically about ableism in design, computing, and engineering (Whittaker et. al. 2019); approaches to design justice and crip technoscience (Costanza-Chock 2020; Hamraie and Fritsch 2019); and sensory/sonic techniques and epistemologies (Miyazaki 2016). Mills discussed bias-in-design for cochlear implants in a 2014 article, pointing out that "implant hardware and software embody cultural values related to communication: the privileging of speech over music, direct speech over telecommunication, non-tonal over tonal languages, phoneme over emotion recognition, quiet over noisy environments, single rather than multiple software options (for reasons of economy, namely lack of clinical time for installation and training), and black-boxed over user-customizable technology (software settings must be set in the clinic; users can adjust volume and microphone sensitivity, and select among a few preset programs based on generic "listening situations." These critiques need to be updated for the range of current CIs and paired with case studies that track between phenomenology, use, and the corporate logics of "hearing." Leading figures in the tech industry, historically and currently (e.g. Raymond Kurzweil, Hans Moravec, Vint Cerf), have used cochlear implants as thought experiments to theorize "sensory futures" without disability studies, foreshadowing and amplifying the current "hype" around brain implants. Cochlear implants have also become speculative objects for experimental composers, abstracted from use. Drawing on the work of literary scholar Lindsey Dolich Felt, who will write a coda for the book, and multimedia artist Darrin Martin—(b) (6) —we approach electronic sound and digital media from a "disability futures" and "criptech" perspective.

Deaf studies meets sound studies: The category of deafness possesses varied meanings, ranging from a disability status to a linguistic and cultural identity among individuals and communities (Bauman & Murray 2014; Burch & Kafer 2010; Lane et al., 1996; Ladd 2003; Monaghan & Senghas 2002; Padden & Humphries 2005). However, most work in deaf studies and the anthropology of deafness has not attended to the ways that deaf people orient themselves toward and experience sound. At the same time, research in sound studies has grown considerably, focusing on the cultural, individual, and material experience of sound (Novak & Sakakeeny 2015). Science and technology studies (STS) has recently sought to construct a bridge between these parallel and virtually entirely separate conversations (Blume et al 2014; Friedner & Helmreich 2012; Gallis 2011; Marshall 2014; Mauldin 2014). One of the project's overarching objectives is to bring together estranged bodies of literature under one cohesive research umbrella, demonstrating how knowledge, practices, and experiences of and about hearing and deafness, and neuroprosthetics, circulate and interact with one another. We critically mobilize STS to think about the concepts of "outcomes" and "quality of life" in the context of a world in which deaf people might be deaf and hearing, signing and speaking, disabled and non-disabled simultaneously.

Debates over CIs: For more than 40 years the bionic technologies cochlear implants (CIs) have been used to repair "sensory deficits" in deaf populations (Mudry & Mills 2013). While implantation has proliferated and is increasingly a worldwide norm, it is not without controversy, particularly in the West. Debates about the use of the technologies have been intense in deaf communities as well as in the academic disciplines of deaf studies and disability studies (Bauman & Murray 2014; Blume 2009; Leigh

2009; Mauldin 2013, 2016; Tucker 1998; Valente et al. 2011). These polarizing debates largely consider the stakes of parents deciding to implant their children; whether or not sign language is being devalued and/or gradually eliminated by the proliferation of this technology; and ultimately whether deafness is indeed a disability that needs to be fixed or whether deaf people can be considered cultural and linguistic minority groups (Lane 1992; Gale 2010; Padden & Humphries 2005). These positions map onto the distinction between d/Deafness, between manualists in favor of sign language vs. oralists in favor of lip reading and speaking, and people "for" or "against" CIs. Yet if one scratches the surface of discussions between and within these communities, one finds a great deal of complexity: sign language-speaking adults deciding to get CIs, implants being visible on the campus of Gallaudet University (the only liberal arts university for deaf students in North America) (Rush 2015), and the recent removal of the National Association for the Deaf's (NAD) position statement on cochlear implants. In addition, the World Federation for the Deaf does not have a position statement on cochlear implantation and focuses its efforts on sign language recognition and sign language-based education. Mills (2011) recently asked, in reference to the development of the CI, "can signals have politics?" The answer is undoubtedly yes. The electrical impulses transmitted by CIs are political, raising questions of group and individual identity, societal inclusions and exclusions, entitlements and rights, and tensions between nature and culture. CIs, and similar technologies, also raise questions specific to the biopolitics of our age. While this project aims to raise awareness of complexity and nuance rather than participate in partisan debates, attention to politics will be central to this project, as scientific models and technologies rework visions of nature and culture, and as boundaries are being actively rewritten and erased between what was previously considered the domain of the biological *or* the social, as they merge into indissociable and malleable life processes.

Disability and New Normals: As awareness of and interest in non-normative bodies and minds (bodyminds) increases in anthropology (Ginsburg & Rapp 2013), attention to what it means to talk about normality has grown (Lloyd & Moreau 2011). Rapp and Ginsburg (2015) argued for a "new normal" that is increasingly characterized by disability. According to demographic research, they tell us, increasing numbers of Americans are defined by this category and disability is becoming increasingly visible in public space and the media. Yet, we are also seeing the emergence of new technologies, such as CIs, that purport to obscure or end the category of disability as we know it (Friedner 2022, Mauldin 2013, 2016). Thus, interesting tensions emerge: disability is normalized at the time that it is seemingly erased; sensory and cognitive "extension" are promised alongside rehabilitation. In exploring tensions around normality, this research contributes to work in anthropology, deaf studies and science and technology studies that has been concerned with contextualizing and problematizing the concept of the "normal human," allowing us to consider different deaf futures, enabled and constrained by technology. While people with CIs might be categorically "normal" in terms of an audiogram, the complexity of their auditory world cannot be communicated by an objective measurement in a soundproof audiology booth. This project explicitly attends to questions of normalization, "new normals," and disability outside of the global North and the ways that individuals can simultaneously and alternatively occupy multiple categories, building upon a nascent and growing body of anthropological and STS research on disability.

CIs and Deaf Socialities in the Global South: How do CIs shape trajectories and engagement with other social, educational, familial, and political infrastructures in diverse locations? Existing humanistic research has largely looked at social interaction and experiences of sign language-speaking deaf people and has examined how deaf young adults often shun the use of technology. There is little research on how deaf people use technology (an important exception being Virdi 2020); the focus has been on the creation of deaf communities, socialities, and worlds in which hearing technology does not play a part (Friedner and Kusters 2020). How might we think of the (bio)socialities and communities of deaf people who hear and of the relationships across generation and across technology? The emerging sociality of CI users (Chorost 2006; Rush 2015) is a different kind of shared experience than those theorized by deaf studies scholars who focus on deaf people as "people of the eye" and attend to shared use of sign language and

not the use of hearing or sound (Bahan 2014; Fjord 1999; Haualand 2008). This is also different from contemporary theorizations around biosociality (Rabinow 1996), which we argue has not promoted an analysis of variation in experiences. This project builds on and complicates these categories and concepts used to think through the experience of hearing deaf people. The idea that there are "many ways to be deaf (Monaghan et al 2003) must be extended to include deaf people who use technology as well. And there is always the possibility that CI use might fracture or fragment existing deaf communities as well as prevent deaf children and others from entering into communities. In attending to specific geopolitical locations, this project provides a contextualized analysis of the globalization of neuroprosthetics as well as attention to the development of local technologies.

Activities and Methods

The Global Cochlear Implant will investigate significant shifts in the understanding, experiences, and practices of "implantation," hearing, deafness, and disability across space and time by convening a working group of interdisciplinary deaf and hearing scholars to analyze the history, present, and imagined futures of CI use internationally. Following the humanistic collaborative research model of the working groups at the Max Planck Institute for the History of Science and the themed symposia at the Wenner Gren Foundation for Anthropology, as well as the popularity of the essay form and edited collections in disability studies (Wong 2022; Mills and Sanchez 2023), we will develop a volume for publication over the course of two years.

In Fall 2023, we will issue an open call for papers, combined with targeted invitations of known historians, ethnographers, and literary and music scholars working on implant technology. We will include a small cohort of 3-4 graduate student researchers who we will fund and mentor through the publication process. Training of graduate student RAs will commence in Fall 2023 (see detailed timeline in Work Plan), following which we will host a three-day, public (hybrid) conference for the full author group at the University of Chicago in Spring 2024. The event will include an installation by deaf digital media artist Darrin Martin, whose work features implants as a frequent theme, to be exhibited in a public venue on the University of Chicago campus. In summer and fall 2024, we will continue to mentor graduate students closely, and the full author group will meet remotely to discuss chapter drafts, which will be revised and submitted to the press by January 2025. The project will culminate in a public-facing book release event held at and funded by the NYU Center for Disability Studies (estimated spring 2026).

Project Directors / Research Team

The project will utilize the interdisciplinary fields of science and technology studies (STS) and media studies as a bridge to bring together diverse and often estranged disciplines and fields such as disability studies, deaf studies, and engineering to analyze how understandings and experiences of deafness and disability are changing with the spread of new bionic technologies. The Co-Directors (collaborative team) are a medical anthropologist (Friedner) and a historian of science (Mills). Both ground their research in critical disability studies and STS. They have independently researched CIs, with Friedner publishing *Sensory Futures: Deafness and Cochlear Implant Infrastructures in India* (2022) as well as shorter pieces in the *New England Journal of Medicine* (2020) and *Scientific American* (2021) and Mills publishing a series of widely-cited articles on the early history and politics of cochlear implant design in *The Oxford Handbook of Sound Studies*, *JAMA (OHNS)*, and *The Oxford Handbook of Mobile Music Studies* (2012, 2013, 2014).

Additional contributors will be selected through a combination of invitation and open call. Invited contributors to the project are disabled and nondisabled historians, cultural anthropologists, literature scholars, music theorists, artists, science and technology studies scholars, and disability studies scholars, as discussed in Biographies. Three have CIs themselves, one has a bone-conduction implant, and one is a parent of two children with CIs. We are excited that there is a growing number of emerging and positioned scholars who have been conducting ethnographic and historical research on CIs in locations

such as Jordan, Turkey, China/Tibet, Brazil, Canada, Australia, and Russia, among other locations. Our project aims to place such scholars in conversation and to create both scholarly and public conversation about CIs as well as provide additional training and workshopping opportunities for scholars at different points in their career trajectories. In addition to invited scholars, we will post CFPs through scholarly international disability humanities listservs such as DS-HUM, and we will also encourage U.S. and European scholars working in other countries to co-write with CI users in their locations. The co-directors will provide mentorship and structured writing guidelines and edits to the entire group, with intensive independent studies offered to graduate student participants.

Final Products and dissemination

The project's outputs are a working group, graduate student training and research support, two public-facing events (one of which will include a disability arts installation), and an edited volume *The Global Cochlear Implant: Provincializing "Brain Implants" Through Disability Technocultures*. Primary source materials collected in the course of research for historical chapters—such as the manuscripts of early test subject Charles Graser, which include the papers of the first CI user group—will be prepared for deposit in relevant public archives. (Graser has already asked Mills to archive his personal collection. We will encourage other authors to keep this archival step in mind and will connect them to relevant repositories such as the Smithsonian NMAH, with whom we have previously deposited disability collections.)

Project findings will be disseminated through our initial UChicago conference, which will feature discussions of the edited volume's themes and chapter summaries. We are excited to receive feedback from members of the international academic, medical, and user communities at this event. Our edited volume will be made open access as Friedner and Mills will apply for a TOME grant (Toward an Open Monograph Ecosystem) or other publication subvention. Friedner and Mills also regularly publish in popular venues ranging from the *Los Angeles Review of Books* to *Scientific American* and will co-author a popular article summarizing the project's findings for a wide audience in a digital magazine such as *Aeon*, in addition to a white paper for the NEH. The NYU Center for Disability Studies (NYU CDS), which Mills co-directs, is the ideal venue for a book release event. The CDS reaches a large international audience—including cross-disciplinary scholars, disabled activists and allies, bioethicists, design and medical professionals—through its listserv, publications, social media, and annual event series. CDS events have been reviewed or featured in popular outlets such as *ArtForum* and *Hyperallergic*. As further evidence of the reach of CDS beyond the academy, the Center was invited by the *New York Times* to co-host the book launch of *About Us: Essays from the Disability Series of the New York Times* (2019). All NYU CDS communications, events, and publications are made accessible through techniques such as captioning, ASL interpretation, alt text, description, and Braille ready file formatting. The UChicago conference will benefit from CDS mentoring to ensure accessibility.

The Global Cochlear Implant will offer a contextualized, multidisciplinary humanities analysis of how cochlear implants have become an unquestioned good. In doing so, we foreground new and alternative histories, experiences of use, and imaginaries of disability futures.

The Global Cochlear Implant: Provincializing "Brain Implants" through Disability Technocultures
Work Plan: October 2023-October 2025
Michele Friedner, University of Chicago
Mara Mills, New York University

Overview

The Global Cochlear Implant team will consist of approximately 10 scholars working on cochlear implants (CI) from across the humanities disciplines. Preliminary archival, ethnographic, or musicological research and engagement with CIs will have been completed prior to the start of the grant period. In Year 1, participating scholars will complete any necessary research and data analysis to draft conference papers and original book chapters for an edited volume. Our collaborative humanities approach will reveal patterns of technological impact (commonalities as well as disparities) and differences in CI use across time and geographic locations.

To assemble the author group, we will issue an open call for papers at the start of the project, combined with targeted invitations of known historians, ethnographers, and literary and music scholars working on implant technology (see List of Personnel). We estimate that we will include 2-4 more scholars as a result of the CFP. The project will include a small cohort of 3-4 graduate student researchers who we will mentor through the publication process. All authors will receive a modest fee for their participation; two graduate students will receive RAships and they will also provide research and logistical support with the conference and the manuscript. Training of graduate student RAs will commence in October 2023 (see detailed timeline below), followed by a three-day in-person workshop for the full team, with one public facing conference, hosted at the University of Chicago in late Spring 2024. The event will include an installation by (b) (6) digital media artist Darrin Martin, whose work features implants as a frequent theme and whose art will be included in the edited volume. In Year 2, we will continue to mentor graduate students closely, and the full team will meet remotely to discuss chapter drafts to be revised and submitted to a press by January 2025. The project will culminate in an edited book with approximately 10 chapters. After the NEH project period has ended and the volume has been published, the NYU Center for Disability Studies will host a public-facing book release event, anticipated in spring 2026.

Timeline

Year 1 - September 2023

Friedner and Mills will disseminate a call for papers for the spring 2024 conference and edited volume. We will leverage international humanities listservs such as DS-HUM and the Society for Disability Studies to invite paper abstracts for consideration from graduate students, faculty, and independent scholars working on cochlear implants around the world.

Fall 2023 (October 2023-January 2024)

Hiring/Assembling a Team: Friedner and Mills will hire 2 graduate student research assistants (RAs). One will be Fulden Arisan (University of Chicago), and the other will be David Friedrich (University of Western Australia). Friedner and Mills will each use a course release to co-facilitate weekly remote training meetings with the RAs, joined bi-monthly by ABD graduate student Timothy Loh (MIT) and possibly others. Arisan will be a second year PhD student in the Department of Comparative Human Development, working closely with Friedner on their Turkey-based CI research as well as the University of Chicago event. Friedrich will be a second year Ph.D. student in Musicology (University of Western Australia) and will assist Mills with select German translations and Australian sources. Loh has completed his fieldwork on cochlear implant use in Jordan and is funded through 2024 by a finishing grant. Loh, like the other contributors, including Stephanie Lloyd and Anahi Guedes de Mello, will travel to Chicago for the spring 2024 conference and write a chapter for the edited collection.

Weekly Meetings: Friedner and Mills will use the weekly meetings to train graduate students and other team members in relevant disability studies topics, as well as the pragmatics of the publication process. The two NEH RAs, who are newer graduate students, will be guided through the IRB process at the beginning of the semester (if they have not already gone through it) and trained–depending on discipline–in oral history and transcribing, coding, analyzing, and interpreting qualitative interviews. All participating graduate students will engage with Mills and Friedner in seminar-style discussions of key texts from the "environmental scan" that informs the project as a whole (see Narrative). To prepare for authoring book chapters, Arısan, Friedrich, and Loh will receive training in abstract-writing, feedback from Friedner and Mills on drafts of their conference papers, and group feedback on practice conference talks. We anticipate that Arısan, Friedrich, and Loh will also present their research at American Anthropological Association, The Society for the History of Technology, or the Society for the Social Studies of Science (4S) meetings in 2024.

In addition, throughout the team meetings we will discuss and synthesize narratives, debates, and discussions appearing in the mainstream press, disability social media, and legal and medical forums addressing questions of disability equity and futures with regard to the evolving discourse on brain implants. These discussions will ultimately inform our introduction to the edited volume and our conference conversations and cross-referencing between chapters, which the RAs will help with during summer 2024. We will hold one required meeting on conducting ethical disability studies research: we will invite Margaret Price (English/Rhetoric, Ohio State), a disability studies scholar who has written extensively about conducting ethical disability studies research, to meet with us.

Data Collection and Analysis: Friedner and Mills will complete interviews, archival research, and literature reviews for their own chapters during this period. Friedner will author a chapter on emerging cochlear implant infrastructures with a focus on Pakistan, drawing on research conducted from 2016-2022 (primarily funded by a previous NSF grant) and an upcoming research trip during summer 2023 in Pakistan. Mills will author a chapter on user contributions to the first multichannel implant produced in Australia. Mills has previously completed research in the National Archives of Australia (funded by her NYU research account), which she will supplement with local research at the archives of Bell Telephone Laboratories (New Jersey), the American research firm where the Australian speech processor was partly developed. Mills will also work on relevant translated sources from historical scientific publications in German and Russian. Graduate Student RAs will analyze relevant data from fieldnotes written during their preliminary research, supplemented by the scholarly material that we will be reading together. (RAs will conduct further research in summer 2024, see below.) In weekly team meetings, supervised by the co-directors, data will be shared, problems discussed, and provisional analyses evolved. Among faculty participants, Lloyd will author an ethnographic chapter on Canada and Guedes de Mello will author a chapter on Brazil; other authors will write about China, Russia, and Australia, and there will be a balance of historical, cultural studies, and ethnographic chapters.

Spring 2024

Conference, Roundtable, and Installation Organizing: Friedner, with support from Arisan and an undergraduate RA to be hired through the University of Chicago's Undergraduate Research Experience program, will begin preparing for the conference, roundtable, and installation to be held in late spring on the University of Chicago campus. Friedner and team will organize travel, conference venues, and ensure that the conference is accessible through CART and possibly ASL interpreters (NYU's CDS will consult on the access-making process). Both the roundtable and the installation will be publicized on the UChicago campus as well as through international disability humanities listservs; the symposium will be hybrid to reach audiences that cannot attend in-person. In addition, Friedner will engage the Maclean Center for Clinical Medical Ethics and the Cochlear Implant team at UChicago Medicine to invite them to the symposium. We intend for our humanities analyses of cochlear implant use to reach audiences that include nonacademic CI users as well as designers of CI technology.

Summer 2024
Research and writing: Friedner and Mills will hire Arisan and Friedrich again as part-time RAs. Graduate student RAs will return to archives or the field to conduct further research, and Friedner and Mills will be available to read notes and essay drafts. In August, we will hold a virtual writing workshop with graduate student participants to debrief, discuss summer research, and expand conference papers into draft chapters for the edited volume.

Year 2 - Fall 2024
Writing and feedback: First drafts of chapters will be due from all authors in late September 2024. In October 2024, we will begin to hold targeted working group meetings over zoom to workshop chapter drafts. We intend to separate team members into two groups, broadly with one group focusing on historical chapters and another focusing on ethnographic chapters and hold workshop meetings for both groups. Note that we will also place authors in pairs so that they will receive editorial feedback from one other person aside from Friedner and Mills. Lindsey Felt (Stanford University, Writing and Rhetoric) will be invited to attend these meetings and to workshop her coda. Friedner and Mills will also start working on the book proposal.

Chapter Drafts and Book Proposal: Revised drafts will be due to Friedner and Mills on January 15, 2025 and Friedner and Mills will send the book proposal out to Duke University Press and NYU Press by the end of the month.

Spring 2025
Book Introduction, formatting, revisions: In early spring, completed chapters in hand, Friedner and Mills will complete the introduction and format the book manuscript with help from a UChicago undergraduate research assistant and the NYU CDS staff person. We will send the full manuscript to one of the presses by March 1. In late spring or early summer, we will receive feedback from the press and begin revisions.

Summer 2025
Revisions and Dissemination
Authors will complete the revisions requested by reviewers and the manuscript will be returned to the press. Friedner and Mills will draft an article for the popular online magazine *Aeon* outlining the key insights about brain implants and disability technocultures derived from two years of collaborative drafting, revision, and conversation.

End of Proposed Project Period

Fall 2025
Submit completed manuscript to publisher. Draft and submit required white paper to NEH.

Winter 2025-Spring 2026:
Book release event.

<u>Contingency Plans</u>
Preliminary research for the conference and edited volume will have been completed prior to the start of the proposed NEH project (particularly among the anthropologist participants who conduct ethnographic research), thus we are confident in our ability to produce the edited volume. The hybrid format of the conference will also allow us to pivot to fully online should travel become impacted due to COVID-related restrictions. If we must switch to a virtual format, we will arrange for the art installation to stream online as well. In addition, most of our team meetings are being held virtually and will not be impacted by travel restrictions.