

# Exploring Ethics Across Fields

Dario Robleto

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In the Spring of 2018, I was appointed Artist-at-Large in an ambitious cross-disciplinary initiative between Northwestern Engineering and the Mary and Leigh Block Museum of Art. Under Dean Julio M. Ottino and Director Lisa Corrin's visionary leadership, I have been afforded incredible access to various brain trusts in one of the country's premier universities.

The question at the heart of this initiative could not be more timely and relevant: What constitutes meaningful collaboration among people from different disciplines and disparate fields?

## A New Paradigm with Far-Reaching Impact

On this vital point, the challenges between the arts and humanities on one end and the sciences and engineering on the other are significant. There is a perception that we do not have much in common in how we formulate questions and methodological approaches; how we navigate the differences between the objective and subjective; how we determine “results”; and what the broader impacts of such transdisciplinary collaboration would entail.

In the context of limited time and resources, for an outcomes-oriented engineering school of Northwestern's caliber to give a contemporary artist a "hall pass" to wander through departments and classes based purely on curiosity and undefined possibilities could not be riskier. Creating the infrastructure for such work to occur is to value process as much as product and intellectual patience across disciplines more than suspicion and competition between them.

These are not trivial details. Artists like me, who advocate for this disciplinary patience and integration, mostly operate independently with little sustained support. What the dean and director are building together is a commitment to intellectual diversity among students and faculty and a program with, potentially, broader societal impact.

The disciplinary distinctions between the arts and sciences of today were not always necessary. For complex historical reasons, the arts, humanities, engineering, and sciences split in such ways that we often forget what we have in common. This, I feel, has come with a significant loss to society as a whole. Specialization within academic fields has accelerated to such an extent that, at least on paper, it seems hard to argue what meaningful dialogue an artist could have with a theoretical physicist, a heart surgeon, or an astrobiologist. Equally, it is quite a stretch to imagine how a chemist may challenge a sculptor or a performance artist.

Increasingly, though, the complexity of our inquiries into nature through one domain are so expansive that they transcend their field of origin and require multiple disciplines to address them adequately. After several months of research in various departments at Northwestern, it became clear to me that one field, in particular, demanded the effort of such multidisciplinary attention: synthetic biology.

## **Scientific Advancement Raises New Moral Questions**

Synthetic biology's radical advancement—human control and design of the human genome—is not only a technical feat but also falls into that rare classification of scientific advancements that are existential, extending far beyond the laboratory. Like all forms of power, especially one that harnesses the mechanisms of biological life, synthetic biology is now susceptible to the full range of competing human needs and desires: access and control, self-interest and the greater good, well-being and abuse.

As synthetic biology's potential unfolds—from curing all genetic diseases to its inevitable weaponization—its impact will stretch across cultural and social dynamics, religious thought, philosophical inquiry, global economics, artistic representation, and ethical norms. But it is this last consideration—ethics—that makes an urgent case for reintegrating the arts, humanities, and sciences. Through ethics and the social engagement it requires, that complex, laboratory-based science, such as synthetic biology, can embrace its connection to the humanity and public responsibility underlying the work.

As an artist and a citizen with a deep appreciation for science, something that deeply concerns me is the growing public divide and mistrust about scientific investigation and its perceived, but perhaps very real, lack of ethical and moral oversight. Increasingly, many scientific and medical fields are not just operating within existing, well-trodden ethical terrain—the Hippocratic oath or patient consent, for example—they also are inventing new ethical questions no one ever thought to ask. (Perhaps most provocatively, should we take the reins of evolution into our own hands?) When all the public sees are headlines about science moving forward because it *can*, before even asking if it *should*, it damages the kind of public dialogue we need to be having about issues that will affect us all.

But what does it mean to create work that outpaces ethical deliberation and public understanding?

Are there sufficient pathways for scientists to consult with ethicists, moral philosophers, and artists to consider perspectives entirely outside academia, like economically or racially marginalized groups, people with disabilities, patients and their families, or religious groups?

What does it mean if, partly through the breakdown between the arts, humanities, and sciences, a generation of scientists is unequipped to think through their work's social and ethical consequences? Essentially, how do we draw on the full range of humanity's creative and moral imagination when dealing with groundbreaking scientific developments?

As an artist, I feel I have a responsibility to remain informed and utilize the arts' incredible power as a type of poetic “checks and balances” to the sciences, poking and prodding with questions different from those my scientific counterparts may ask. Further, the arts are uniquely designed to aid with the translational work to the public by building metaphors, symbols, allegories, public programs, or whatever form is necessary to communicate these scientific developments clearly.

### **Interdisciplinary Reflection and Introspection**

It is within this confluence of cutting-edge science, ethics, social responsibility, and the critical and translational power of the arts that, with the generous participation of colleagues from the synthetic biology and bioethics departments, I was able to moderate a public event addressing many of the concerns I have laid out.

As I learned from observing and listening in on numerous conversations, my colleagues—synthetic biologists Josh Leonard, Danielle Tullman-Ercek, and Julius Lucks; and

medical anthropologist Megan Crowley-Matoka—are driven not only by their individual research goals but by the fact that they are socially conscious humans who care about the broader consequences of their work.

To honor the on-the-ground complexity of these scientists' experiences, it was crucial not to focus just on the worst-case scenarios of science run amok. Instead, I wanted to highlight the many inventive and nimble ways these scientists do rise to the ethical responsibilities their fields require, even while they reflect that the systems of ethical dialogue and oversight are far from adequate moving forward.

The format was designed for each of us to share an experience within our fields where an ethical conundrum unexpectedly appeared. At that moment, we had a choice: ignore it, work around it, let others worry about it, or challenge ourselves to embrace the problem and perhaps even let it determine how we move forward.

Not only did we layout clear examples of ethical conundrums within our fields (“dual-use” technology, the limitations of existing patent structures for the common good, the problems of self-regulation, the ethical responsibility of art-science collaborations, etc.), we also designed the evening to put our disciplines' modes of inquiry and problem-solving in comparison, alignment, or misalignment, revealing aspects that surprised us in our commonalities or challenged us in our differences.

### **Collaboration for the Common Good**

As I have observed over many years, the vast majority of the public never interacts directly with

scientists or artists. Equally rare is for scientists and artists to publicly or privately speak face to face. Our processes and motivations remain obscured, often filtered through various popular culture media that usually operate within clichés.

But, in an era where scientific advancements will increasingly complicate a wide range of cultural and social issues, it is irresponsible for the arts, humanities, and sciences to remain in their status quo—comfortable in disciplinary silos. Further, in the current climate of distrust and polarization of thought, with growing public skepticism of the sciences and arts in particular, having a public and civil discussion amongst ourselves about ethics is itself a statement about our responsibility to work together for the greater social good. Through initiatives such as Northwestern's Artist-at-Large Program, we can build a new model for how this work is accomplished.

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