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Citizen-Scientists join public artists in making visible the hidden presence of nuclear radiation

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BRIEF

Citizen science and public art can neutralize secrecy and information hoarding that has allowed nuclear weapons and radioactive contamination to proliferate. Secrecy and inertia impede the ability of global society to examine and respond to the risks of nuclear technology, promote environmental justice, protect indigenous communities from resource exploitation, and mitigate global conflicts. We propose to create a model for training and equipping a local, scalable network of citizen scientists to better protect their communities from nuclear radiation and to increase the difficulty of advancing nuclear weapons programs. Our goal is to reduce nuclear contamination and proliferation by enabling locally-based citizen-scientists, organizers and artists to participate in an open, shared radiological monitoring and teaching program.

As radiation exists beyond our perception and nuclear wastes persist far beyond our lifetimes, how do we both detect and effectively communicate its presence? This question uniquely intersects the fields of science and art—and in the age of misinformation it is imperative to not only sense and perceive hidden threats, but to make people both feel and believe in the veracity of the data. The mission of this project will be to create publicly accessed experiences, artifacts, and datasets through sharing art, research-methods and sensor equipment with citizens to reestablish a baseline of truth surrounding the invisible threat of nuclear radiation across humans, animals, plants and minerals.

WHO WE ARE

Dan Borelli, Artist and Lecturer/Director of Exhibitions at Harvard University Graduate School of Design
Marco Kaltofen, Associate Research Engineer, Department of Physics, Worcester Polytechnic Institute

CONTACT / SOCIAL MEDIA

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#unfriendingtheatom #scienceisreal #environmentaljustice #disruptiveart #artmakingchange #artivism
#scienceandart #artandscience #citizenscience #interventions #publicart #activism

OUTCOMES/DELIVERABLES

What we're proposing is creating a better generation of ancestors by exploring nuclear cultures through a combination of art and science. We will collaborate by combining both our various field-based methods towards a set of content aimed at communicating to a general audience. Here's how we're going to achieve this:

Extracting Exotic data from mundane objects

Social media, crowd sourced science, advanced X-ray microscopy and nanoscale techniques allow citizen-scientists to tap into the vast stream of nanoparticles that is continuously discharged by industrial processing of unique nuclear/radioactive materials.

Data Harvesting: Deploying Safecast devices

Deploying these citizen-science devices to interested people to create our own network of data-gathering

Ground Truthing: Mapping the spatial network of impact

Accurately mapping the locations of detected radiation, both extremely local and widely global

Specimens: The zoo of radiological objects

An exhibition where these are placed in an aquarium for safe public interaction. The Zoo teaches visitors to read and understand the previously invisible nuclear fingerprints left by atomic power and weapons.

Open Call: Globally sharing the Methodology & Data with other sites of concern

First Places of Inquiry: Plymouth Mass., America's Hometown; Fukushima, Japan; Emerging Nuclear States

BIOS

Dan Borelli, Artist and Lecturer/Director of Exhibitions at Harvard University Graduate School of Design

Dan Borelli is an Artist and Director of Exhibitions at Harvard University, Graduate School of Design (GSD) where he is also a Lecturer in the Master's of Design Studies program. His practice focuses on environmental justice, contaminated communities, and how research-based art can address shared traumas. His ongoing socially-engaged artwork "Illuminating Futures: Ashland and Nyanza" makes public hidden narratives of cancer clusters, human loss, activism, and ultimately regeneration surrounding one of the first Superfund sites in the United States, and received funding from ArtPlace America, the National Endowment of the Arts, Harvard's Initiative in Learning Technology, and an ongoing collaboration with the Laborers Union New England Training Academy. In 2019, his work 'Mineral Spirits' on the Plymouth Rock and the Pilgrim Nuclear Power Plant was featured in 'Local Ecologies', a traveling exhibition across the University of Massachusetts campuses of Boston, Lowell and Dartmouth. Also in 2019, Dan was an Artist-in-Residence for the New Bedford Whaling National Park, a project entitled 'The Whiteness of the Whale.', and featured at the Public Lands Alliance National Conference in Washington D.C. in 2020. His project with Emmanuel Pratt 'We The Publics' has traveled to the Smart Museum in Chicago, 2017 and was featured at HUBweek Boston 2018.

Marco Kaltofen, President, Boston Chemical Data Corp. & Associate Research Engineer, Department of Physics, Worcester Polytechnic Institute

Dr. Kaltofen is a licensed Massachusetts civil engineer who specializes in environmental investigations involving chemical, petroleum and nuclear accidents and releases. If you've lost something radioactive, Dr. Kaltofen is the forensic engineer you'd hire to find it; ditto if you've found something radioactive and need to know where it came from. He graduated from Boston University (general engineering and chemistry) and also graduated from Worcester Polytechnic Institute in 2015, with an MS in Environmental Engineering and PhD in Civil Engineering. His research publications are primarily in the field of forensic nuclear science, with a focus on Environmental Justice issues and Nuclear Nonproliferation.

Marco Kaltofen is a bilingual Indonesian-American immigrant who has studied industrial accidents and natural disasters including Hurricane Katrina in New Orleans, the BP oil spill in the Gulf of Mexico, the Fukushima meltdowns in Japan, war-driven petroleum spills in Iraq, an oil-contaminated scientific base in Antarctica, radioactively-contaminated wildlife from Chernobyl, and nuclear reactor complexes ravaged by wildfire in Santa Susannah near Los Angeles, CA; Hanford in Washington, and Los Alamos in New Mexico.