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Lessons from Artist in Residence Program Design and Impact

August 2024

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Art can bridge complicated subjects, heavy subjects, dry subjects, and make them understood in a new way, make them interesting, or leave a positive impression (Pelto, 2024). Art not only allows scientific results to be communicated to a broader audience, but it can also inspire new insights and methodologies when integrated into the science itself. In the pursuit of innovation, the most impactful work often employs diverse styles of thinking and multi-disciplinary teams. Art offers visual thinking strategies and stimulates the creativity and exploration required for impactful and extraordinary science work. Just as artistic expression is channeled through different mediums, there are multiple modalities for developing and communicating artistic and scientific collaborations to the public. Neither art nor science is produced in a vacuum; we must create space to engage with the complex socio-technical challenges that are the subject of our collaborations.

As a national laboratory, Pacific Northwest National Laboratory (PNNL) seeks to be on the leading edge of public interest research and deliver innovation, a core value of the institution. Through the support of the U.S. Department of Energy's Water Power Technologies Office, PNNL has convened a workshop entitled *Advancing Energy Futures through Art* in Seattle, Washington, on August 19th and 20th, 2024.¹ An explicit focus on Artist in Residence (AiR) programs initiates the discussion, as this is one of the few clear places where public interest research, artistic engagement, and energy futures have aligned. The workshop proposes to hear from program managers of successful AiR programs, scientists, and artists who work in the energy futures space, to discuss AiR program models and successful modalities for art and storytelling. This paper is provided as background context for workshop participants.

Artist in Residence Programs: Simple and Successful

When scientific institutions establish an Artist in Residence (AiR) program, the goal is to bring together artists and scientists to work, communicate, and learn, driving creative thinking and innovation to the benefit of both disciplines (Broad Institute, 2023). While seemingly simple in its scope, the value of these cross-disciplinary collaborations extends beyond the studio gallery. Communicating with artists presents scientists with an opportunity to reframe their work, as the artistic lens provides a medium for metaphor, representation, and reflection (Broad Institute, 2023). By approaching their own work in this novel way, scientists can make connections they otherwise might not see, spurring new research pathways, innovative solutions, and potential collaborations with scientists outside their field, leading to wider and more meaningful impact of their work.

¹ <u>https://www.pnnl.gov/events/advancing-energy-futures-through-art</u>

Artist in Residence programs can also provide value to society, as the process of such collaboration provides an avenue to share knowledge not only between artist and scientist, but with the general public, by removing the barriers to scientific understanding through an invitation to the gallery, installation, concert venue, or theatre, to see, experience, play, and learn (Art the Science, 2022). This inclusive process brings scientists, artists, and the public together to a place of shared discovery, learning, communication, and mutual understanding and respect.

Artists are typically invited to apply to AiR programs hosted by scientific institutions for anywhere between a few months to a year or more residence (Art the Science, 2022) (Broad Institute, 2023) (Berkley Arts Research Center, 2023) (Cedar Creek Ecosystem Science Reserve, University of Minnesota, 2023) (The European Space Agency, 2021) (Fermilab, 2023) (MSUFCU Arts Power Up Arts Residency and Facility for Rare Isotope Beams (FRIB), 2023) (Microsoft Research Artist in Residence Program, 2023) (The MIT Center for Art, Science & Technology (CAST), 2023) (National Academies of Sciences, Engineering, and Medicine, 2023) (National Center for Ecological Analysis and Synthesis, 2023) (SETI Institute, 2023). Artists are often provided a studio space, lab access, and some combination of a one-time award payment, a stipend for living and travel expenses, reimbursement for materials, and living accommodations. Most AiR programs culminate in an exhibition, though often AiR are also invited to host workshops or lectures during their appointment.

Most AiR programs have at least two phases—an exploratory phase and a project development phase. In the exploratory phase, artists are invited to communicate and collaborate with scientists in their lab spaces, in some instances even joining a research team to understand and contribute to the scientific process. After the weeks- to months-long exploratory phase, artists begin the project development phase spanning the remainder of their appointment until their exhibit. Exhibits are often paired with public lectures or community discussions with artist, scientists, and members of the public to share ideas and create a public dialogue about the scientific and artistic works (Art the Science, 2022).

The Mission of Artist in Residence Programs

Prominent scientific institutions recognize the value of AiR programs. Research institutions from Fermilab, the European Space Agency (ESA), and NASA's SETI Institute; academic institutions from UC Berkley to MIT; and industry, from Microsoft to General Electric (GE), host AiR programs. The greater mission of AiR programs to cultivate learning, discovery, and innovation can be better understood through the following AiR program quotes:

"Whether through paint brushes or petri dishes, the **creativity**, **conceptualization**, and **discovery** inherent to both art and science place them **surprisingly close on the continuum of efforts to make sense of our world**." (Broad Institute, 2023)

"Art and science are, in many cases, inspired by similar motivations: a **desire to explore the unexplored** and to **uncover the hidden patterns and relationships of everyday life**." (Cedar Creek Ecosystem Science Reserve, University of Minnesota, 2023)

"Our artist-in-residence program is a unique opportunity for artists and environmental scientists to come together to **work in dialogue and inspire each other**. Our goal is to **unleash new levels of creativity and innovation** in the ways we **think about**, **communicate**, and solve the world's most pressing environmental challenges." (MSUFCU Arts Power Up Arts Residency and Facility for Rare Isotope Beams (FRIB), 2023)

"Our Science-Artist Residencies enable the artist to **expand their practice in a** scientific environment and gives the scientist a chance to share elements of their science through an innovative way with the public." (Art the Science, 2022)

"The AIR program connects contemporary artists with SETI Institute researchers and facilitates an exchange of ideas to catalyze new perspectives, insights, and modes of comprehension." (SETI Institute, 2023)

"At Fermilab, the arts have been viewed as way to not only nurture creativity and welcome our neighbors, but also to **explore and share scientific ideas and concepts**. The result has provided a means of expressing the science of Fermilab through the unique lens of each of our artists. It also **inspires conversations about that common ground of creativity that is necessary in both science and art**." (Fermilab, 2023)

"Creative innovation is the driver of a major research university. Thinking and experimenting together across fields opens up new discoveries." (MSUFCU Arts Power Up Arts Residency and Facility for Rare Isotope Beams (FRIB), 2023)

"[The program] focuses on nurturing exchanges between art, design, technology, science, and engineering. Dedicated to promoting rigorous interdisciplinary research based on the conviction that the pressing problems of our time are simultaneously scientific and social, technological and political, ethical and economic. It acts as a hub and a meeting place, and provides a space for reflection where artists, scholars, curators, and civic arts leaders from a variety of disciplines can gather and learn from one another." (Berkley Arts Research Center, 2023)

"[The] program is distinctive for its emphasis on the research and development phase of artistic work. In addition to presenting new work, residencies embed artists in the ongoing research and teaching at MIT, where scientists and engineers are open to artists' speculative and hands-on way of working." (The MIT Center for Art, Science & Technology (CAST), 2023)

"[The] program brings together artists, scientists, and engineers to reflect and create across the vast unexplored possibilities at the intersection of humanity, culture, and technology. This program merges disciplines to powerfully showcase cutting-edge research, convey higher concepts, and expand public perception of computer science and what computer scientists do." (Microsoft Research Artist in Residence Program, 2023)

"The National Academies have long recognized that engaging the public through art and the humanities is a **powerful way to foster appreciation for the impact of science and critical and innovative thinking**, and have supported programs to foster connections with artists, musicians, poets, filmmakers, and other creative communities." (National Academies of Sciences, Engineering, and Medicine, 2023)

"Two Bulls [Sanford Underground Research Facility's 2024 Artist in Residence] hopes his art can help individuals and communities grapple with the complex, and sometimes controversial history in this part of the world (Ray, 2024)."

Current Models

AiR programs' application process and selection criteria vary across institutions. Some appear more open-ended, such as the Broad Institute's selection criteria seeking 1) a demonstrable curiosity about Broad Institute science, 2) evidence of successful multi-disciplinary collaboration, and 3) a compelling body of artistic work (Broad Institute, 2023). Programs may solicit artists that work with specific mediums or be open to all with interest. Some require more formal applications with a CV, personal testimonies, description of artistic concepts, and workshop proposals (Cedar Creek Ecosystem Science Reserve, University of Minnesota, 2023). Others elicit applicants through requests for proposals (Cedar Creek Ecosystem Science Reserve, University of Minnesota, 2023). AiR application requirements tend to align with the structure of the AiR program, the more deliverables or engagement expectations, the more rigorous the requirements.

The residency itself is typically designed to allow the artist ample time for both structured and unstructured interactions with scientists, and may kick off with a seminar upon the artist's arrival to provide context to their residency and their work, describing their process and the impact of collaboration between art and science (The European Space Agency, 2021). Other engagement opportunities may include workshops hosted by the artist to expose collaborating scientists to the artist's work, as well as seminars or brainstorming sessions. At the conclusion of the residency, the artist will be expected to present a record of their experience during their residency, which may take the form of a gallery exhibit or portfolio, and often includes a departure seminar to speak to that experience.

While some AiR programs are supported by a series of private funds and donations (The MIT Center for Art, Science & Technology (CAST), 2023), others are considered a unit within the institution itself, presumably sharing funding as any other branch (Berkley Arts Research Center, 2023). Partner financial institutions may also provide funding, such as in the case of the MSU Federal Credit Union supporting the MSU Museum and Facility for Rare Isotope Beams (FRIB) AiR program (MSUFCU Arts Power Up Arts Residency and Facility for Rare Isotope Beams (FRIB), 2023). The majority of AiR program pages, however, do not disclose their funding sources.

Community Engagement & Program Development Strategies

A successful AiR program may take many forms and may even be unlike those described here. Developing such a program should be considered a reflection of the values and ideals of the institution that hosts it, requiring careful intention.

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