Selbstbericht im Rahmen der Zwischenevaluation:

Juniorprofessur für Komposition und Musiktheorie in postdigitalen Bildungsräumen

BEGLEITDOKUMENTATION

Anlage 9d: Drittmittel – Antrag vier

Jun.-Prof. Dr. Lawrence Wilde

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VolkswagenStiftung – Kooperationsprojekte

Open Up – Neue Forschungsräume für die Geistes- und Kulturwissenschaften (439.999 €) | Projekttitel: *Resonant Education through Accelerated Creativity with Technology (REACT)*

Status: in Begutachtung

REACT ist ein von mir als Principal Investigator (PI) eingereichtes Forschungsprojekt zur Rolle von KI und digitalen Tools in kreativen Lernprozessen. Im Zentrum steht *Lania*, eine gemeinsam mit LabXchange (Harvard) entwickelte Plattform für integratives Lernen in Kunst und MINT. Ziel ist es, inklusive, resonante Bildungsräume zu gestalten. Das Projekt basiert auf Fallstudien, Interviews und Kreativitätsbewertungen in einem trinationalen Forschungsteam.

❖ *Der vollständige Antrag beginnt auf Seite 3 dieses Dokuments.*

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Antrag/Proposal:
Resonant Education through Accelerated Creativity with Technology (REACT): An Empirically Grounded Theoretical Framework for Integrated Arts and STEM Learning

Ausschreibung/Call	Aufbruch – Neue Forschungsräume für die Geistes- und Kulturwissenschaften (2025)/Open Up – New Research Spaces for the Humanities and Cultural Studies (2025)
Projekt-Nr./Project ID	0201269
Keywords	AI in Learning, STEAM Education, Resonance Theory, Creativity, Postdigital Education
Beantragte Fördersumme/ Requested funds	439.999 EUR
Projektlaufzeit/ Project duration	18 Monate/months (01.04.2026 - 30.09.2027)
Projektbeteiligte/ Project partner	Prof. Dr. Lawrence Irving Wilde, Universität Siegen Charles White, Universität Graz Prof. Dr. Edward Bilous, Fordham University - Graduate School of Education The Bernard L. Schwartz Center for Education

Scientific abstract

REACT (Resonant Education through Accelerated Creativity with Technology) is a transdisciplinary research project that develops an empirically grounded theoretical framework for examining how AI and digital technologies mediate creativity, learning, and affective engagement in integrated Arts and STEM (STEAM) education. Building on Hartmut Rosa's sociological theory of resonance, the project conceptualizes *resonance* as a theoretically robust and empirically measurable construct to evaluate the quality of learner engagement in postdigital educational environments. Methodologically, REACT adopts a mixed-methods, design-based research approach, combining longitudinal case studies, qualitative interviews guided by the Sense of Agency Scale (SoAS), and validated creativity assessments (Alternate Uses Task, Remote Associates Test). A central case study involves the co-design and implementation of an AI-enhanced online STEAM learning platform, developed in collaboration with international partners. The platform serves as a living laboratory for recursive theory-practice integration: theoretical insights inform platform development, while user data and

observations iteratively refine the REACT framework. By synthesizing perspectives from sociology, cognitive science, education, and human-computer interaction, REACT advances a novel, research-informed model for sustainable, creative, and resonant learning in AI-mediated educational contexts.

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Template for Short Proposals

Open Up – New Research Spaces for the Humanities and Cultural Studies

Please complete without specifying author, institute or career level.

When writing your proposal, please bear in mind that it will be reviewed by a multidisciplinary panel.

Title of the project:

Resonant Education through Accelerated Creativity with Technology (REACT): An Empirically Grounded Theoretical Framework for Integrated Arts and STEM Learning with AI

1 Exploratory research question (max. 200 characters)

Our research question is twofold: (1) How do EdTech and AI-augmented learning spaces impact student learning, creativity and resonance in integrated Arts and STEM education? (2) Can the REACT framework help design future postdigital classrooms?

2 Project description (max. 3.000 characters)

We propose to develop the Resonant Education through Accelerated Creativity with Technology (REACT) theory—an empirically grounded framework for examining how digital technologies and AI shape creativity and learning in postdigital education. REACT draws on Rosa's theory of 'resonance'—the experience of meaningful connection—and its counterpart, 'alienation,' to understand how learners engage with knowledge in increasingly digital and hybrid classrooms [1], [2]. While EdTech and AIEd promise personalization and engagement, they risk depersonalization and disconnection [3], [4]. REACT seeks to examine these dynamics by providing a conceptual framework for evaluating how technology can either amplify and attenuate resonance in integrated Arts and STEM education (STEAM).

Central to the project is a real-world case study: the design of an innovative, AI-enhanced online platform for STEAM learning. Drawing inspiration from the Laniakea supercluster, the platform structures its curriculum as 'constellations'—interconnected clusters of lessons, activities, and media-rich experiences that link the Arts to STEM concepts. These clusters form larger 'constellations' of learning designed for global accessibility, with a particular emphasis on reaching underserved communities. The platform will be created in collaboration with an interactive learning initiative at a leading institution in Cambridge, MA, and serve as a living laboratory for studying the implications of digital technologies on resonance and creativity in learning.

REACT will be developed concurrently with the platform's implementation, offering theoretical and practical insights for identifying and supporting 'postdigial resonance' in learning [5], [6]. The project adopts a recursive model: theory informs platform development, while platform use feeds back into the evolution of the theory.

Methodologically, the study employs a mixed-methods design: longitudinal case studies of students using the platform; interviews guided by the Sense of Agency Scale (SoAS) [7] to examine learner self-efficacy and creativity; and cognitive creativity assessments (e.g., Alternate Use Task [8], Remote Associates Test [9]) to evaluate developments in creative thinking and sense of agency [10].

REACT will be based at the PI's home institution, a German university and supported by international collaborations. Partners include an Austrian university (Co-PI 1) contributing expertise in educational science, and a New York-based non-profit organization (Co-PI 2) providing insights and experience into future uses of technology and media on learning. This tri-national approach ensures the project is grounded in both theory and applied innovation, and that it reflects diverse educational contexts and methodologies.

Outputs will include an online platform for STEAM education, peer-reviewed publications, educator workshops, and open-access pedagogical resources. REACT opens a new research space within the humanities and cultural studies by bridging theoretical inquiry and platform development, proposing an innovative model for STEAM education—one that centers creativity, human connection, and the transformative potential of technology in designing future postdigital, resonant classrooms [11], [12].

3 Scientific relevance and novelty (max. 3.000 characters)

The Resonant Education through Accelerated Creativity with Technology (REACT) project responds to the growing need for critical frameworks that account for the complex interplay between human creativity, affective experience, and digital technologies in education [4]. While existing research acknowledges the benefits of integrating the Arts into STEM education [13], this project is the first to theorize and empirically investigate these dynamics through the lens of resonance. REACT foregrounds the affective, cognitive, and existential dimensions of learning, offering a rigorous model to examine how digital systems mediate agency, emotional connection, and creative engagement.

REACT breaks new ground by proposing resonance—not merely as a metaphor, but as a measurable affective-cognitive phenomenon—as a central construct for evaluating educational technologies [2]. In contrast to conventional approaches that assess engagement or academic outcomes, REACT prioritizes the quality of experiential connection learners form with content, peers, and digital tools. It extends Rosa's sociological theory of resonance [1] beyond its traditional domains, embedding it within postdigital education and human-computer interaction (HCI).

While current STEAM frameworks promote interdisciplinary learning, they often lack a robust theoretical structure for understanding the qualitative dimensions of learner-technology interaction [14], [15]. REACT addresses this gap by integrating sociological, cognitive, and phenomenological perspectives. It aligns with concerns raised at the 2024 EDEN Conference —"Learning in the Age of AI: Towards Imaginative Futures"—which emphasize risks such as disconnection, burnout, and diminished self-efficacy in AI-enhanced classrooms [16]. REACT provides tools to systematically study and mitigate these effects through resonant design.

The project further addresses a research gap by critically examining the ambivalent role of AI and algorithmic systems in shaping learning experiences [3]. While AIEd platforms can offer personalization, they also introduce risks of alienation, data-driven bias, and reduced student agency. REACT provides a new theoretical and empirical lens for investigating these opportunities and challenges.

Moreover, the project's global scope—including partners in Germany, Austria, and the U.S., and links to UNESCO-affiliated initiatives—ensures relevance across diverse cultural and educational contexts. Its emphasis on open-access, high-quality learning materials for underserved communities contributes to the global discourse on equity, sustainability, and the future of education [17].

Through this ambitious integration of theory, practice, and empirical inquiry, REACT opens a novel research space within the humanities and cultural studies—reimagining the intersection of creativity, technology, and human connection in the postdigital age [18].

4 Added value of the chosen multi-perspective approach to explore the research object (max. 3.000 characters) without specifying author, institute or career level

The complexity of postdigital, AI-mediated education necessitates a transdisciplinary, multi-perspective approach to fully understand how emerging technologies shape creativity and learning [19], [20], [21], [22]. The REACT project—Resonant Education through Accelerated Creativity with Technology—integrates four major disciplinary lenses: sociological theory, cognitive science, educational science, and technological design.

First, the sociological perspective is grounded in Rosa's theory of resonance [1]. It frames learning as a relational process impacted by social acceleration and technological mediation. This lens critically examines whether digital environments amplify meaningful connections or exacerbate experiences of alienation, situating creativity and learning within larger cultural and existential dynamics.

Second, the cognitive science perspective brings empirical rigor through validated tools such as the Sense of Agency Scale [7], Alternate Uses Task [8], and Remote Associates Test [9]. These tools allow for systematic observation of how students' creativity, self-efficacy, and intellectual risk-taking evolve in human-AI interaction (HAI) contexts [23]. This ensures that findings are measurable, testable, and replicable.

Third, the educational science perspective ensures direct applicability to pedagogy and curriculum design. It emphasizes the centrality of learner agency and supports adaptive teaching practices that foster resonant educational experiences. Longitudinal case studies and semi-structured interviews will generate rich, context-sensitive insights into how students navigate complex AI-augmented learning environments.

Fourth, the technological perspective keeps the project rooted in real-world practice. Drawing on expertise from a Cambridge MA-based EdTech platform developer, REACT leverages media design, AI personalization, and user feedback. The platform operates as both a case study and a site of experimentation, offering a dynamic, iterative testing ground.

Further, REACT's recursive research design ensures that these perspectives do not operate in disciplinary silos. Theoretical insights inform platform development, and empirical findings from platform usage feed back into theory refinement. This feedback loop is not only innovative—it is essential for keeping pace with the evolving realities of postdigital education.

The tri-national collaboration (Germany, Austria, U.S.) expands the reach and relevance of the project. It enables the inclusion of culturally diverse educational settings, pedagogical traditions, and policy environments, strengthening the adaptability and generalizability of the REACT framework.

Finally, the project makes an open and equitable contribution to the research community. All non-sensitive pedagogical materials and anonymized research data will be published open-access and licensed under CC BY 4.0. This ensures that educators and researchers—especially those in underserved contexts—can adopt, adapt, and extend the project's findings and resources.

In sum, REACT's multi-perspective design is not only methodologically appropriate—it is foundational to its ambition of opening up a new, empirically grounded research space at the intersection of creativity, learning, and technology.

5 References

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Please complete without specifying author, institute or career level.

6 Where do you see the ‘open up character' of your project? (max. 500 characters)

REACT opens up a bold new frontier as the first project to examine how AI and digital technologies shape ‘resonant’ learning in integrated Arts and STEM (STEAM) education. It frames ‘resonance’ as both a theoretical and measurable construct, bridging creativity, technology, and pedagogy. Through global collaboration and open-access tools, REACT invites educators, researchers, and designers to co-create the future of sustainable postdigital learning.

7 Where does your project take risks? (max. 500 characters)

REACT takes risks by conceptualizing ‘resonance’ as a measurable construct in education research, extending it into AI-enhanced STEAM learning. It challenges dominant models of EdTech by foregrounding creativity and affect, and integrates theory-building with real-world platform design. Its transdisciplinary, recursive approach risks complexity—but promises transformative insight.

8 What difficulties or counter-arguments do you anticipate and how do you intend to address them from the outset? (max. 500 characters)

Challenges include operationalizing ‘resonance’ as an empirical construct and integrating diverse disciplinary methods. We address this by triangulating validated psychometric tools with qualitative data and iterative design-based research. Methodological rigor is ensured through interdisciplinary collaboration, and open-access dissemination enables peer review, critique, and replication.

9 Which academic and non-academic target groups do you want to address with your project-related workshop? (max. 500 characters)

The workshop targets researchers in education, cognitive science, and HCI; educators and curriculum designers in STEAM fields; and EdTech developers. Non-academic groups include teachers, cultural institutions, and non-profits working in creative education and underserved communities. The goal is to foster dialogue, share tools, and collaboratively explore resonant, AI-supported learning.

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Curriculum Vitae

All the following details are required unless anything is stated specifically to the contrary. The CV **must not exceed four pages**. Please make sure to retain the template formatting. In particular, the font should not be smaller than Arial 10 point, with line spacing no less than 1.15. A photograph must not be attached to the curriculum vitae. The information and instruction texts provide you with information when preparing your CV. **Please remove these texts completely after filling in the CV.**

1 Personal Data

Title	Jun.-Prof. Dr.
First name	Lawrence
Name	Wilde
Current position	Junior Professor for Composition and Music Theory in Postdigital Educational Spaces
Current institution(s)/site(s), country	University of Siegen, Germany
Identifiers/ORCID	0009-0005-7198-9527

2 Qualifications and Career

Stages	**Periods and Details**
Stages of academic/professional career	2024 - present Elected Member of the Young Academy of the North Rhine-Westphalian Academy of Sciences and Arts (Das Junge Kolleg der Nordrhein-Westfälischen Akademie der Wissenschaften und der Künste) 2024 - present Elected Member of the Young Academy for Sustainability Research (YAS) of the Freiburg Institute for Advanced Studies (FRIAS) University of Freiburg

	2023 – present Junior Professor of Composition and Music Theory in Post-digital Educational Spaces - University of Siegen - Faculty II: Education · Architecture · Arts 2021 Tanglewood Music Festival Composition Fellowship 2018 Fulbright-Hays Award to Stockholm Sweden | Research Project Completed Independently 2014 Paul and Daisy Soros New American Fellowship
Doctorate	**Date:** 15.09.2021 **Institution:** Princeton University **Subject:** Composition **Supervisor:** Prof. Dr. Steven Mackey
Degree programs	**Period:** 2016 – 2021 **Subject:** Ph.D. in Music Composition **Institution:** Princeton University **Period:** 2014 – 2016 **Subject:** M.F.A in Music Composition **Institution:** Princeton University **Period:** 2010 – 2014 **Subject:** B.M. in Music Composition **Institution:** The Juilliard School

2.1 Supplementary Career Information

[Not applicable]

3 Activities in the Research System

At the University of Siegen, I teach a diverse range of courses that centre on fostering student creativity, including (1) *Postdigital Laptop Ensemble (PULSE),* (2) *New Media*, (3) *Music Theory Through Songwriting and Composition*, (4) *Music Theory in the Extended Common Practice,*

Popular Music, and World Music Traditions, (5) *Digital Music Production and Composition*, and the (6) *Songwriting, Production, and Composition Education Seminar*.

In addition to teaching composition and core music theory courses, I am the founding director of the Postdigital Laptop Ensemble at the University of Siegen (PULSE), a technology-mediated music ensemble that functions as platform for collaborative-creativity and an interdisciplinary educational space. PULSE was launched with support from the 'Better Innovative!' (*Besser innovativ!*) grant awarded by the University of Siegen's Commission for Quality Improvement in Teaching and Studies (*Kommission zur Qualitätsverbesserung in Lehre und Studium*).

I have extensive experience in administration and governance through my service on university committees and governing bodies. At the University of Siegen, I currently serve as (1) Spokesperson for the Interdisciplinary Center for Educational Spaces (IZBR), (2) Deputy Spokesperson of the Institute of Music, (3) Chair of the Acquisition and Networking Working Group, (4) Member of the Search Committee for the University Professorship in Musicology / Sound Studies, (5) Member of the Curriculum Development Working Group and (6) Member of the Examination Development Working Group. In these roles, I have contributed to strategic planning, such as the development of the 'Future 2030' (*Zukunft 2030*) plan for the music department and gained substantial expertise in transdisciplinary course design and student assessment. I am fully prepared to apply this experience to my responsibilities as the PI.

I have had a range of teaching experiences in my previous role as the Roger Sessions Ph.D. Fellow and Assistant in Instruction (AI) at Princeton University. In this position, I taught the (1) *Music Theory through Performance and Composition* course, (2) *Ear-Training* (part of the theory course), (3) *Instrumental Music: The Symphony from Haydn to Stravinsky*, (4) *Beginning Workshop in Musical Composition*, and several other courses outside the Department of Music including (1) *Gender Crossings in American Musical Theater*, (2) *America Then and Now*, (3) *Urban Sociology: The City and Social Change in the Americas* and (4) *Immigration Politics and Policymaking in the U.S.* These interdisciplinary experiences will inform my work as the PI.

In my role as a Teaching Assistant (TA) at The Juilliard School, I taught the core *Music Theory and Analysis* courses levels I through IV. My duties included teaching diatonic, chromatic, and atonal harmony, keyboard skills, improvisation, composition, counterpoint, ear-training, principles of musical form, and analytical methods. During my time at Juilliard, I was actively involved with the Center for Creative Technology and collaborated on several multidisciplinary works for the Beyond the Machine Music Festival. The second Co-PI, Dr. Edward Bilous, is the founding director of the Center for Creative Technology and will provide invaluable insights to the project.

4 Supervision of Early Career Researchers

I am committed to providing high-quality research supervision to early career researchers. Currently, I am supervising a Master's thesis (Masterarbeit) at the University of Siegen, focusing on student and teacher experiences with digital technology for music-making in the classroom. In 2024, I supervised a Master's thesis titled *'Digital Classroom Music-Making in the Context of Internal Differentiation in Music Lessons at Lower Secondary Level'* (*Digitales Klassenmusizieren im Kontext der Binnendifferenzierung des Musikunterrichts der Sekundarstufe I*). In 2023, I supervised a Master's thesis titled *'The Importance of Video Game*

Music for Immersion in Gaming' (Zur Bedeutung von Videospielmusik für die Immersion beim Gaming).

5 Scientific Results

5.1 Scientific Publications

E.g. articles in peer-reviewed journals, peer-reviewed contributions to conferences or anthology volumes, and book publications.

1. **Wilde, L**., White, C., & Jandrić, P. (2024). Postdigital resonance. *Postdigital Science and Education*. https://doi.org/10.1007/s42438-024-00516-x. **Open Access.**

   This paper offers an examination of how digital technologies are reshaping human experiences, proposing the addition of a *postdigital axes of resonance* as an expansion to Hartmut Rosa's theory of resonance. As the main author, I contextualized this concept within contemporary digital culture, demonstrating how digital technologies mediate and fragment individuals' connections to the world. This work informs my proposed research project, emphasizing the intersection of human creativity and technology.

2. **Wilde, L.**, & White, C. (2024). TABstaff+: A Hybrid Music Notation System for Grid-Based Tangible User Interfaces (TUIs) and Graphical User Interfaces (GUIs). *Ninth International Conference on Technologies for Music Notation and Representation*. 2024. Institute for Computer Music and Sound Technology (ICST) at Zurich University of the Arts. *Zenodo*, https://doi.org/10.5281/zenodo.13144433. **Open Access.**

   This paper introduces a novel approach to music notation for grid-based musical interfaces like the Ableton Push, designed to bridge traditional and digital music education. As the primary author, I developed the TABstaff+ system, which integrates traditional staff notation, tablature, and chord diagrams to create a versatile tool for teaching, composing, and performing music with TUIs and GUIs. This work is directly relevant to my proposed research, as it demonstrates how digital technologies can reshape compositional practices, highlighting my ability to innovate at the intersection of human-computer interaction (HCI) and music composition.

3. White, C., & **Wilde, L.** (2024). A Resonant Learning (RL) Framework. *Education Quarterly Reviews*, *7*(3). https://doi.org/10.31014/aior.1993.07.03.597. **Open Access.**

   This paper applies Hartmut Rosa's theory of resonance and Graham Wallas' creative process to postdigital educational spaces, offering an innovative approach to teacher education. As co-author, I contributed to the development of the RL framework, emphasizing the integration of creativity, technology, and resonant learning experiences, particularly within technology-mediated music composition. This work is directly relevant to my proposed research, as it explores how digital technologies influence creativity and learning.

4. **Wilde, L.** (2024). *Postdigital Spaces for Music Education: Empirical Insights from the PULSE Laptop Ensemble Project.* Symposium: Contours of a Postdigital Music Education, University of Education Freiburg & Freiburg University of Music.

   The paper provides an overview of the Post-digital Laptop Ensemble at the University of Siegen (PULSE), a technology-mediated new music ensemble for music teacher training. As the founding director, I designed this innovative platform to investigate the sociomateriality of musical practice and to develop new postdigital pedagogical formats. The project, relevant to my proposed research, provides empirical insights into how digital technologies influence music education, highlighting themes of creativity, agency, and empowerment, while demonstrating my capacity to lead interdisciplinary research aligned with the project's goals.

5. **Wilde, L.** (2023). *Post-agency: Understanding the Effects of Artificial Intelligence (AI) on Student and Teacher Agency in Postdigital Educational Spaces.* LuxERA – Luxembourg Educational Research Association, University of Luxembourg.

   This paper critically investigates how AI influences the autonomy and decision-making processes of both students and teachers, emphasizing the concept of post-agency, which I developed to highlight the intertwined relationship between human agency and machine-driven processes in postdigital classrooms. It argues that AI systems, rather than being neutral tools, actively shape learning and teaching practices, often altering individual agency within educational spaces.

6. **Wilde, L.**, & White, C., (2025). Laptop Orchestra: A Model Postdigital Resonant Educational Space. *Postdigital Science and Education*. (Special Issue Contribution, In Final Review). **Will be Published Open Access.**

   This paper examines the laptop orchestra as an innovative, collaborative model for postdigital education, highlighting its potential to foster resonance, creativity, and embodied learning.

7. White, C., & **Wilde, L.** (2025). Unlimited Variations: A JavaScript Program for Generating Audio Non-Fungible Tokens and an Aesthetic Framework for Tokenized Music. *Organised Sound*. (In Final Review). **Will be Published Open Access.**

   This paper presents a generative JavaScript tool for audio NFTs and proposes an aesthetic framework for tokenized music.

8. White, C., & **Wilde, L.** (2024). *Com(P)unication: Computer-mediated interaction and postdigital embodiment*. Artistic Research. https://doi.org/10.13140/RG.2.2.30526.29766.

   This multimedia composition explores the relationship between human agency, computer interaction, and postdigital embodiment. In this work two computers interact via a video conferencing setup, guided by a blindfolded performer, blending acoustic feedback and computer- generated sounds to blur the lines between digital and physical spaces. This composition examines how technology shapes embodied experiences, contributing to the discourse on postdigitality in music and challenging conventional notions of human-computer interaction.

9. **Wilde, L.** (2014/20). *String Quartet No. 2 'Speak, Time'* [Musical composition]. New York, NY. American Society of Composers, Authors and Publishers (ASCAP), SoundInk Publishing.

   This artistic-research was commissioned and premiered by the Kronos Quartet. For this work, I developed custom Max MSP patches and utilized the SuperCollider programming language, integrating Markov chains to generate and manipulate musical material, which was subsequently transcribed for acoustic string instruments. My compositional process involved the use of machine learning algorithms and Markov chain-driven systems to generate and refine harmonic progressions.

10. **Wilde, L.** (2017). Transverse Lines [Musical Composition]. New York, NY. American Society of Composers, Authors and Publishers (ASCAP), SoundInk Publishing.

    This composition was created for the ensemble Eighth Blackbird using an embodied music composition method. I employed Max MSP software to utilize the computer's camera for tracking my body movements, mapping gestures to various aspects of the music generation process. The gestural data was captured and transferred into MIDI information, which I recorded in Ableton Live and processed in musical notation software for the live musicians. Each thematic fragment for the ensemble's members was derived from the interaction between the body and the camera, resulting in a unique integration of physical movement and digital composition.

5.2 Other Scientific Output

1. White, C., & **Wilde, L.** (2024). Resonance with Emergence of Transformation (v1.0) (Version 1). figshare. https://doi.org/10.6084/m9.figshare.26076571.v1.

2. White, C., & **Wilde, L.** (2024). Nested Emotional States (NES) (Version 1). figshare. https://doi.org/10.6084/m9.figshare.26053012.v1.

3. White, C., & **Wilde, L.** (2024). Digital Embodiment (v1.0) (Version 1). figshare. https://doi.org/10.6084/m9.figshare.26049511.v1.

4. White, C., & **Wilde, L.** (2024). Visualizing Resonant Learning (v1.1) (Version 5). figshare. https://doi.org/10.6084/m9.figshare.26003800.v5.

6 Academic Distinctions

In 2024, I was elected to the The Young College of the North Rhine-Westphalian Academy of Sciences and Arts (Das Junge Kolleg der Nordrhein-Westfälischen Akademie der Wissenschaften und der Künste). I have also been elected to the Young Academy for Sustainability (YAS) Research at the Freiburg Institute for Advanced Studies (FRIAS), University of Freiburg. My research at Das Junge Kolleg and the YAS focuses on the intersection of music,

AI, and sustainability in postdigital creative practices. My academic trajectory includes artistic-research fellowships, including the 2021 Tanglewood Music Festival Composition Fellowship and the 2018 Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship, which enabled me to conduct research at the Royal College of Music (KMH) in Stockholm, Sweden. Earlier, I was awarded the 2014 Paul & Daisy Soros Fellowship for New Americans for my doctoral research at Princeton University, further solidifying my interdisciplinary approach to music composition with digital technology.

Throughout my career, I have been invited to give presentations at leading international conferences and institutions. Below is a selection of recent engagements:

• 2022: Princeton University Nassau Hall Society Conference, Stockholm, Sweden, where I presented work on postdigital composition during the celebration of new institutional partnerships with Stockholm University, the Royal Academy of Sciences, and the Norwegian Nobel Committee.

• 2021: Tanglewood Music Festival, Music Composition Fellowship, where I gave a presentation on using machine and deep learning for exploring new harmonic systems.

• 2019: Guest lecture at the Royal Academy of Music (KMH), Stockholm, exploring human-AI
interaction in the compositional process.

These fellowships and presentations reflect my active role in the international discourse on music technology, composition with AI, and postdigital creativity.

7 Academic and non-Academic Cooperations

Recognizing the need for online music education during the COVID-19 pandemic, I co-founded the Haydn Music School (HMS) in 2019. HMS is a fully virtual platform dedicated to providing high-quality online music lessons for pre-college students. At HMS, my teaching responsibilities include instruction in composition (both acoustic and electronic), music notation software such as Dorico, Sibelius, and Finale, Digital Audio Workstations (DAWs) like Ableton Live, Logic Pro, and Cubase, as well as programming languages including Max MSP and SuperCollider.

8 Civil Engagement

In 2014, I founded the AEON Music Ensemble, a 501(c)(3) nonprofit organization in NYC dedicated to promoting new music. I secured funding from the United Nations Sustainable Development Solutions Network (UN SDSN) and The Earth Institute at Columbia University to launch the interdisciplinary project *Music for a Sustainable Planet.* The initiative was realized in the form of a concert series featuring new multimedia works exploring the connection at Symphony Space between scientific research, music, and society. The inaugural concert took place in NYC as part of the annual UN SDSN conference and featured interdisciplinary works inspired by the 17 Sustainable Development Goals (SDGs) performed by the Kronos Quartet and the AEON Music Ensemble.

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Curriculum Vitae

All the following details are required unless anything is stated specifically to the contrary. The CV **must not exceed four pages**. Please make sure to retain the template formatting. In particular, the font should not be smaller than Arial 10 point, with line spacing no less than 1.15. A photograph must not be attached to the curriculum vitae. The information and instruction texts provide you with information when preparing your CV. **Please remove these texts completely after filling in the CV.**

1 Personal Data

Title	Mr.
First name	Charles
Name	White
Current position	Research Associate
Current institution(s)/site(s), country	Max Weber Center for Advanced Cultural and Social Studies of the University of Erfurt and the Institute for Educational Research and Teacher Training at the University of Graz
Identifiers/ORCID	0000-0002-6202-0854

2 Qualifications and Career

Stages	**Periods and Details**	
Stages of academic/professional career	2023 – present	Research Associate | Doctoral Candidate Max-Weber-Kolleg der Universität Erfurt | Universität Graz (Cotutelle)
	2019 – 2023	Director of Music Technology and Composition Yamaha Corporation of America - Corporate Music School, Boston, MA, USA

	2021 – 2022	Guest Researcher - Electronic Music Composition and Music Technology Cornell University, Department of Music, NY, USA
	2019 – 2022	Graduate Research Assistant - Music Theory and Composition Brandeis University, Department of Music, MA, USA
	2018 – 2019	Visiting Research Associate - Music Technology and Popular Music Production The Royal Northern College of Music (RNCM), Manchester, UK
	2017 – 2018	Visiting Research Associate - Music Theory and Music Composition Oxford University | Trinity College, Oxford, UK
Doctorate	**Date:**	10/2023 - ongoing
	Institution:	Cotutelle Promotion at the Max Weber Center for Advanced Cultural and Social Studies of the University of Erfurt and the Institute for Educational Research and The Department of Education Research and Teacher Educationat the University of Graz
	Subject:	Education and Sociology
	Supervisor(s):	Prof Dr. Verena Weidner; Prof. Dr. Hartmut Rosa; Univ.-Prof. Dr.phil. Kathrin Marie Otrel-Cass
Degree program	**Period:**	2023 - ongoing
	Subject:	Doctor of Philosophy (Ph.D.) Sociology and Music Education
	Institution(s):	Max-Weber-Kolleg der Universität Erfurt und die Universität Graz (Cotutelle)
	Period:	2015 - 2017
	Subject:	Master of Music (M.M.) Major: Music Theory, Technology and Composition
	Institution(s):	NYU - New York University Steinhardt School of Culture, Education, and Human Development, New York, NY, USA

	Period:	2011 - 2015
	Subject:	Bachelor of Music (B.M.) Major: Piano and Instrumental Pedagogy
	Institution(s):	The Mannes School of Music | The New School, New York, NY, USA

2.1 Supplementary Career Information (optional)

[Not applicable]

3 Activities in the Research System (optional)

Teaching

Summer 2025	**Kurstitel:** Neue Medien Universität Siegen - Fakultät II: Bildung · Architektur · Künste
Winter 2025	**Kurstitel:** Global Grooves — Rhythmus lehren und lernen durch technologievermittelte populäre, klassische und weltmusikalische Praktiken Universität Erfurt - Fachgebiet Musik
Winter 2025	**Kurstitel:** Neue Medien — Aufstrebende Technologien von Blockchain und Tokenisierung bis hin zu KI in den Medien Universität Siegen - Fakultät II: Bildung · Architektur · Künste
Winter 2025	**Kurstitel:** Postdigitale Musikkomposition und -produktion Universität Siegen - Fakultät II: Bildung · Architektur · Künste

4 Supervision of Early Career Researchers (optional)

[Not applicable]

5 Scientific Results

5.1 Scientific Publications (10 max., required)

White, C. (2025). Embodied Resonance in Technology-Mediated Group Music-Making. *International Journal of Performance Arts and Digital Media*, 1–19. https://doi.org/10.1080/14794713.2025.2473139. **Open Access.**

Wilde, L., White, C., & Jandrić, P. (2024). Postdigital resonance. *Postdigital Science and Education*. https://doi.org/10.1007/s42438-024-00516-x. **Open Access.**

White, C., & Wilde, L. (2024). A Resonant Learning (RL) Framework. *Education Quarterly Reviews*, *7*(3). https://doi.org/10.31014/aior.1993.07.03.597. **Open Access.**

Wilde, L., & White, C. (2024). TABstaff+: A Hybrid Music Notation System for Grid-Based Tangible User Interfaces (TUIs) and Graphical User Interfaces (GUIs). *Ninth International Conference on Technologies for Music Notation and Representation*. 2024. Institute for Computer Music and Sound Technology (ICST) at Zurich University of the Arts. *Zenodo*, https://doi.org/10.5281/zenodo.13144433. **Open Access.**

White, C., & Wilde, L. (2024). *Com(P)unication: Computer-mediated interaction and postdigital embodiment*. Artistic Research. https://doi.org/10.13140/RG.2.2.30526.29766. **Open Access.**

Wilde, L., & White, C. (2024). *(A)Synchrony: An interactive installation exploring video-streaming platform playlists and videos as musical 'sketches'*. Artistic Research. https://doi.org/10.13140/RG.2.2.11691.25128. **Open Access.**

Currently In-Review:

Wilde, L., & White, C., (2025). Laptop Orchestra: A Model Postdigital Resonant Educational Space. *Postdigital Science and Education*. (Special Issue Contribution, In Final Review). **Will be published Open Access.**

White, C. (2025). Postdigital Rituals in Laptop Orchestras. *Sound Studies.* (In Final Review). **Will be published Open Access.**

White, C. (2025). Resonant Learning with AI: Teaching Songwriting using Generative AI – Practical Classroom Application and Insights for Future Music Educators. *Music Educators Journal* (In-Review). **Will be published Open Access.**

White, C., & Wilde, L. (2025). Unlimited Variations: A JavaScript Program for Generating Audio Non-Fungible Tokens and an Aesthetic Framework for Tokenized Music. *Organised Sound.* (In Final Review). **Will be published Open Access.**

5.2 Other Scientific Output (10 max., optional)

White, C., & Wilde, L. (2024). Resonance with Emergence of Transformation (v1.0) (Version 1). figshare. https://doi.org/10.6084/m9.figshare.26076571.v1. **Open Access.**

White, C., & Wilde, L. (2024). Nested Emotional States (NES) (Version 1). figshare. https://doi.org/10.6084/m9.figshare.26053012.v1. **Open Access.**

White, C., & Wilde, L. (2024). Digital Embodiment (v1.0) (Version 1). figshare. https://doi.org/10.6084/m9.figshare.26049511.v1. **Open Access.**

White, C., & Wilde, L. (2024). Visualizing Resonant Learning (v1.1) (Version 5). figshare. https://doi.org/10.6084/m9.figshare.26003800.v5. **Open Access.**

White, C. (2024). Phases of Resonant Learning - Resonance & The Creative Process (v1.0).gif (Version 4). figshare. https://doi.org/10.6084/m9.figshare.26003509.v4. **Open Access.**

White, C. (2024). Visualizing Second-Order Resonance (v1.0).gif (Version 3). figshare. https://doi.org/10.6084/m9.figshare.25999855.v3. **Open Access.**

White, C. (2024). Visualizing Resonance (v1.0).gif (Version 3). figshare. https://doi.org/10.6084/m9.figshare.25999657.v3. **Open Access.**

White, C. (2024). Second-Order Resonance with Learning Phases (Version 3). figshare. https://doi.org/10.6084/m9.figshare.25999618.v3. **Open Access.**

White, C. (2024). The Creative Process and Resonance - Four-set Venn diagram of the Resonant Learning concept (Version 3). figshare. https://doi.org/10.6084/m9.figshare.25999603.v3. **Open Access.**

White, C. (2024). Resonant Learning Phases (Version 3). figshare. https://doi.org/10.6084/m9.figshare.25999534.v3. **Open Access.**

6 Academic Distinctions (optional)

[Please write your text here]

7 Academic and non-Academic Cooperations (optional)

The applicant served as Lead Practitioner for Music and Governor at Star Academies, a multi-academy trust encompassing primary and secondary schools in the United Kingdom. In this capacity, the applicant worked with the leadership team on developing the music curriculum that fosters digital literacy and musical skill through technology-mediated learning. Prior to this, the applicant served as the Director of Music Technology and Composition at the Yamaha Corporation of America - Yamaha Music School of Boston (YMS) in Massachusetts, United States. In this role, the applicant expanded the Yamaha Music Education System (YMES) methodology by integrating touch and display-based digital tools (e.g., iPads, Smartphones, etc.) and implementing laptops as musical instruments and pedagogical tools. While working at YMS, the applicant maintained an active role as Co-Founder and Head of Music at the Haydn Music School (HMS), a virtual music school aimed at harnessing digital learning environments for democratising music education. In terms of educational qualifications, the applicant holds a Master's Degree in Music from New York University Steinhardt School of Culture with a focus on music composition, technology, and education. The applicant obtained a Bachelor's Degree in Music at Mannes School of Music - The New School with a focus on instrumental performance, piano, and music pedagogy.

Contributing to the generation and communication of new ideas, hypotheses, tools, or knowledge – A key output of the applicant relative to the proposed project is the development and implementation of a movement-based and technology-mediated early childhood music education course at the Yamaha Music School in Boston, Massachusetts. The applicant wrote code in SuperCollider and used the OSCulator software to map Nintendo Wii Remotes for gestural interaction with sound on laptop computers. Students in the course were taught the fundamentals of music composition through individual and group dance and other full-body movement activities. While gestural controllers did allow students to interact with sound in real-time, in terms of supporting embodied music learning, two limitations of using commercial non-modular controllers like the Nintendo Wii Remote were observed by the applicant. The first was a lack of correlation between the manipulation of Wii Remotes and that of traditional acoustic instruments, and the second was the lack of adaptability of the tool to specific musical concepts. This course served as a springboard for the applicant's future research in designing

and applying modular multi-modal digital instruments and laptops in early childhood music education.

8 Civil Engagement (optional)

Contributing to the development and sustainability of research teams and individuals – As the Lead Practitioner for Music at Star Academies, the applicant worked with the curriculum development research team on the implementation of digital teaching strategies for the Key Stage 3 (KS3) music courses (year grades seven through nine). The applicant's responsibilities included project management, team support, and teaching activities leading to the development of digital educational content outlining ‘Star Learning Journeys’ (academic roadmaps for pupils) in line with the learning objectives and pupil declarative, procedural, and tacit knowledge acquisition. The applicant played a critical role in the success of the curriculum development research team resulting in the incorporation of digital technology into the music curriculum for the first time. The applicant further supported teaching and learning through the development and application of touchscreen laptop activities (e.g., Do-It-Now, I-Do, We-Do, You-Do, and Exit tickets), interactive online music learning environments, Digital Audio Workstations (DAWs), and virtual classroom spaces.

Contributing to the wider research and innovation community – The applicant contributed to local and international research communities by co-leading the CityGram and NoiseGate research and community-engagement projects with the New York University Music Technology and Composition programs. NoiseGate raises awareness about spatial, urban, and environmental noise pollution. The applicant's contribution and commitment to the research project led to funding by the National Endowment for the Arts and the New York State Council on the Arts of an interactive educational exhibit on Governer's Island. The applicant has been a reviewer for the international NoiseGate festival and served on the committee panel in the evaluation of proposals for exhibits, presentations, and performances, illustrating commitment to the peer review of research projects.

Contributing to broader society – In 2014, the applicant founded the ÆON Music Ensemble, a 501(c)(3) non-profit ensemble in NYC dedicated to interdisciplinary and technology-mediated performances. The applicant secured funding from the United Nations Sustainable Development Solutions Network (UN SDSN) and The Earth Institute at Columbia University to launch the interdisciplinary project Music for a Sustainable Planet. The initiative was realized in the form of an educational concert series featuring new multimedia works exploring the connection between scientific research, music, and society. The inaugural concert took place at Symphony Space in New York City as part of the annual UN SDSN conference and featured interdisciplinary works inspired by the 17 Sustainable Development Goals (SDGs) performed by the Kronos Quartet and the AEON Music Ensemble. Since the inaugural performance, the applicant has been instrumental in securing leading artists such as Yo-Yo Ma, Paul D. Miller, aka DJ Spooky, and others for successive installments of the Music for a Sustainable Planet concert series.

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Curriculum Vitae

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1 Personal Data

Title	Dr.
First name	Edward
Name	Bilous
Current position	Founding Director, Center for Creative Technology Artistic Director, Future Stages Festival of Emerging Art Forms
Current institution(s)/site(s), country	The Juilliard School
Identifiers/ORCID	https://www.juilliard.edu/music/faculty/bilous-edward

2 Qualifications and Career

Stages	**Periods and Details**
Stages of academic/professional career	1993 – present Founding Director, Center for Innovation in the Arts • Developed the vision and mission for the Center for Innovation in the Arts (formerly the Music Technology Center), InterArts, Future Stages, Art of the Score, curriculum and resident programs

		• Directed the Center's expansion from a single desktop computer to a professional production facility • Worked closely with architectural firm Diller, Scofidio + Renfro in the design of the Meredith Willson Black Box Theater, home to Juilliard's technology-driven concerts and events • Develop programs that nurture collaboration across the arts, design, engineering, and technology • Work with institution leadership, division directors and department heads on interdepartmental programs • Supervise the acquisition and implementation of new performance and production technology
	1993 – 2012	Chair, Literature and Materials of Music Department (L&M) • Directed the largest academic department at Juilliard providing instruction to students in the Music, Drama and Dance Divisions • Worked closely with faculty to develop a rich curriculum integrating research, analysis, creative projects and performance activities • Developed and managed a vibrant teaching fellowship program • Provided leadership in hiring, orientation, and support of faculty • Produced L&M Concert Series - touchstone events for undergraduate students that brought to life the links between academic studies and artistic experiences • Worked with the World Music Institute to present a series of world music concerts to raise awareness of diverse global musical traditions

	1993 – present Councils and Committees • Faculty Council • Graduate Faculty Council • Academic Distinction Committee • Academic Review Committee • Middle States Accreditation Review Committee 1995 – present Founding Director, FUTURE STAGES - 21ST CENTURY PERFORMING ARTS • Artistic and educational leadership for Future Stage (formerly InterArts 1995-2021), a series of multimedia and technology-drives performances featuring students from all three of Juilliard's Divisions • Advance the use of emerging technologies for innovative arts productions and experiences • Mentor students and alumni on all aspects of project development and production • Hire and supervise designers including scenic, lighting, video, projection, and technology • Work with Director of Communications to promote and publicize events • Research and explore the use of emerging technologies for innovative arts productions 2001 – 2021 Founder, Artistic Director, BEYOND THE MACHINE, A Festival of Electro-Acoustic Music • Artistic director for electro-acoustic and technology-driven music performances • Review and select submissions for student performances • Coach artists and ensembles on issues of performing with technology

	2010 – present Artistic Director, Global Collaborations and Performances • In C, by Terry Riley, a distributed performance featuring orchestras in New York and Tianjin performing together live via the web and with interactive dance-video design • Bridging the Time-Space Divide, a live, telematic concert featuring students at the Stauffer Academy in Cremona, Italy performing compositions by Juilliard composers, in real-time with students in the Juilliard Historical Performance Ensemble. • Winter Music, by John Cage, a telematic production featuring students from Juilliard, UCLA, and Tokyo National University of Fine Arts performing live via the web • Third Construction, by John Cage - a multimedia installation/performance featuring students from Juilliard, Guildhall School, and Tokyo National University of Fine Arts 2021 – present Producer, Art of the Score • Created and produce, Art of the Score, a screening of international films with original musical scores by Juilliard student composers • Mentor students through process of film scoring, from composition through the final mix • Ranked as one of the top international programs for the study of film music
Doctorate	**Date:** 1983 **Institution:** The Juilliard School **Subject:** D.M.A. in Composition **Supervisor(s):** Elliott Carter
Degree programs	**Period:** 1980 **Subject:** M.M in Composition **Institution(s):** The Juilliard School

	Supervisor(s): VIncent Persichetti **Period:** 1979 **Subject:** B.M. in Composition and Conducting **Institution(s):** Manhattan School of Music **Supervisor(s):** Charles Wuorinen and Elias Tannenbaum, composition; George Manahan, conducting **Period:** 1981 **Subject:** Composition **Institution(s):** Private lessons with Roger Sessions **Period:** 1979 **Subject:** Composition **Institution(s):** Private lessons with Krzysztof Penderecki **Period:** 1978-1979 **Subject:** Electives in History and Anthropology **Institution(s):** Columbia University

2.1 Supplementary Career Information

CAREER HIGHLIGHTS

• Member of the Founding Board of Directors of Virtua Arts, a non-profit entity created with the mission of producing an integrated arts + STEM education platform in collaboration with LabXchange at Harvard University

• Founding Director of the Center for Innovation in the Arts at the Juilliard School established with the mission of providing opportunities for students, faculty, and visiting artists to collaborate across disciplines and with new technologies

• Worked in collaboration with global partners to produce a series of live, interactive, stage performances linking institutions in the US, China, Europe, the UK, and Japan in real-time

• Appointed by a Congressional Commission created by President Obama to direct Visions of Peace, a National Commemoration the Centennial of the Armistice of WW1, featuring

former President Jimmy Carter and leaders of several European nations

• Guest speaker for the U.S. Department of State on artistic and cultural topics

• Produced an international event celebrating the 25th Anniversary of the United Nations featuring artists from all six UN geographic regions

• Panelist for the National Endowment for the Arts on the Arts in Education

• Collaborated with philosopher Dr. Maxine Greene, Columbia University Teachers College, and leaders in dance, theater and the visual arts to create the basic cannon of aesthetic education practices for the newly created Lincoln Center Institute

• Composed and produced the musical score to the Academy Award winning film Scottsboro

• Arranger and producer for projects featuring jazz and contemporary music legends including the Who, Sinead O'Conner, Dr. John, Michael Brecker, Randy Brecker, Ron Carter, Lenny Picket, Lou Marini, Lou Soloff, and others in recordings and performances on Saturday Night Live, Carnegie Hall and other programs and venues

QUALIFICATIONS AND EXPERIENCE

• Deep understanding of all sectors of the performing arts ecosystem including education, production, business, non-profit, government, and entertainment communities

• Extensive experiences working with universities, conservatories, and cultural institutions nationally and globally

• Extensive experience working in the entertainment and production industries
• Whole-systems and institution-wide thinking skills

• Experience cultivating bonds between diverse communities and cultures

• Innovative projects that feature collaboration between artists, designers, engineers, and technologists

• Effective integration of technology in education and artistic productions

• Inspired educator and passionate advocate for the arts and arts education

• Trusted colleague and community member

LEADERSHIP ABILITIES

• Seasoned leader, ability to manage complex projects and achieve results

• Ability to use resources effectively and work within schedule and budgetary frames

• Inspire the support of stakeholders and build relationships with new partners

• Effective representative on local, state, and national platforms

• Authentic, personal engagement with administration, students, faculty, and community

• Ability to nurture collaboration between artistic and academic departments and programs

• Recognize, support and mentor creativity and leadership in others

ARTISTIC-CREATIVE EXPERIENCE

• Creator of NY Times acclaimed multimedia concert-theater events

• Artistic direction for stage, studio, film/video, and virtual productions

• Experience and understanding of emerging art forms and technologies

• Producer and arranger for projects featuring jazz and contemporary music legends including the Who, Sinead O'Conner, Dr. John, Michael Brecker, Randy Brecker, Ron Carter, and others

• Former owner of several New York music studios and production facilities

• Joyful appreciation of the performing arts in its many forms and traditions

• Respectful engagement with artists from diverse backgrounds and cultures

3 Activities in the Research System (optional)

Teaching

1984-present	Faculty, Music, Drama, Dance and Evening Divisions – The Juilliard School
1979-1989	Original Member Teaching-Artist Faculty, Lincoln Center Institute (LCI). Co-created the basic cannon of aesthetic education practices

4 Supervision of Early Career Researchers (optional)

COMMUNITY PERFORMING ARTS - JUILLIARD
Education Advisor and Mentor (1993-2012)

• Helped to establish Juilliard's Community Engagement Program

• Created the first program to train teaching-artists at Juilliard

• Created *Insights into Learning*, the first class to integrate the principles of aesthetic education into a conservatory curriculum

• Created the program of study for the Morse Fellowship Program

• Created the program of study for L&M Teaching Fellows

• Mentored fellows in lesson planning and curriculum development

• Mentored two generations of Juilliard students interested in pursuing careers in arts

education and advocacy.

5 Scientific Results

5.1 Scientific Contributions (10 max., required)

2001-Present
Artistic Director, *Beyond the Machine,* a series of interdisciplinary and multimedia events
Willson Theater, The Juilliard School

2025
Creator, *A Story of Awe*
Multimedia Theatrical Event for Children and Families
Powered by Google

2017-2019
Artistic Director, WW1 Commemorative Events at the Palace of Versailles and the Washington National Cathedral, Featuring Kevin Costner, and the grandson of Noble Sissle, leader of the *New*
*York 369 Hell Fighters Regimen*t and father of jazz.

2017
Director*, Cracked Orlando*
A Music Drama with Fractals*,* by Jonathan Dawe
Willson Theater, The Juilliard School

2016
Composer and Music Director, *Sacred*
A Global Documentary Event, Thomas Lennon, Director
PBS - National Public Television

2015
Composer, *The Emperor of All Maladies*
A Documentary Film Presented by Ken Burns
PBS - National Public Television

2014
Director, *In C*
A Multimedia Concert Event, Music by Terry Riley
Willson Theater, The Juilliard School

2013-2014
Creator, Co-composer, *BASETRACK LIVE*
A Multimedia Theatrical Event
Brooklyn Academy of Music (BAM), Royce Theater, UCLA, 3 National Tours

2013
Co-composer*, On the Nature of Things*
Pilobolus

2012
Director, *Rattling the Cage*
A Centennial Celebration of the Music of John Cage
Telematic performance with The Juilliard School, Guild Hall School, UCLA and
Tokyo National University of Fine Arts

5.2 Other Scientific Output (10 max., optional)

INVITED TALKS, PRESENTATIONS AND WORKSHOPS

- United States Department of State Guest Speaker Program
- Charlie Rose for “BASETRACK LIVE”
- Keynote speaker, MIT Arts and Technology Hackathon
- Keynote Speaker, Global Silicon Valley Arts and Technology Convention
- TEDx – *Nurturing Creative Intelligence Through Music and Art*
- ShanghaiTech University, Shanghai, China
- French-American Foundation / French Ministry of Culture
- Kobe College, Kobe, Japan
- Showa Conservatory of Music, Tokyo, Japan
- League of American Symphony Orchestras
- Goldanski Institute, Princeton University, Princeton, NJ
- Columbia University, Teachers College, New York
- Leonard Bernstein Center for Education Through the Arts, Nashville, TN
- Project Zero, Harvard University, Cambridge, MA
- Tanglewood Center for the Performing Arts, Tanglewood, MA

6 Academic Distinctions (optional)

AWARDS AND PROFESSIONAL AFFILIATIONS

- 2019-Present Guest Speaker, U.S. Department of State on artistic and cultural topics
- 2016-19 Artistic Director, National WW1 Centennial Commission, created by President Obama
- 2015-2018 Visiting International Scholar, ShanghaiTech University
- 2014-17 National Advisory Board, Cornish College, Seattle WA
- 2011-12 Recipient, William Schuman Scholars Chair, The Juilliard School

7 Academic and non-Academic Cooperations (optional)

PROFESSIONAL CONSULTATION

2010 and 2011 Panelist, National Endowment of the Arts Panel on Learning in the Arts

2006-2008 Senior Educational Advisor, The Academy, A Program of Carnegie Hall, Juilliard, and the Weill Music Institute

1989-1993 Consultant, Lincoln Center Institute (renamed Lincoln Center Education)

MUSIC PRODUCTION AND BUSINESS INITIATIVES

Co-Founder, BDM – Music Production Company and Studios
President, 1984-2001, Board of Directors, 2001-present

- Successful production company with 3 studios/production suites in NY

- Scores for over 20 feature and documentary films including projects with Ken Burns, Ethan Cohen, Thomas Lennon, Castle Rock Entertainment, and Icon Films

- TV projects with Saturday Night Live, HBO, PBS, and NBC.

- Worked with leading jazz, pop and world musicians in recording environments and in live events.

- Produced recording sessions in major studios in New York, London, Prague, Los Angeles, Seattle, Macedonia and Nashville

Educational Branding

- Worked with major foundations, investors, and with PBS to develop a strategic plan for a series of arts-education TV programs, new media and live events targeted for young audiences

- Consulted on the development of a strategic plan and scalable business models for the production and international distribution of top-tier educational content and media

8 Civil Engagement (optional)

COMMUNITY PERFORMING ARTS - JUILLIARD
Artistic Director, Music Advancement Program (MAP)
1991-1993

A program for African-American and Latino children pursuing studies in classical music and jazz

- Designed the original curriculum
- Provided leadership in hiring, orientation, and support of faculty
- Engaged with parents, faculty and students on issues of musical development

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Basic Data Management Plan[1]

Due to an increasingly data driven science, research data has become a paramount foundation for and result of scientific work. The heterogeneity of such data (raw data such as measurement data, laboratory findings, audio-visual information, texts, survey data; secondary data such as statistics, simulations, annotations) corresponds to the heterogeneity of different disciplines, procedures and research questions. The secure storage of relevant research data is important for the replicability of experiments; it is equally important as a starting point for new research questions. The VolkswagenStiftung supports the longterm storage of and the free access to research data, making allowance for respective legal questions.

1 Which existing data/data collections will be employed in the project? Is the data freely available (open data) or do you have to consider intellectual property rights or privacy issues?

We will reference prior literature and existing case studies from open datasets in integrated Arts and STEM education. No proprietary or restricted datasets will be used. All data involving human participants will be subject to ethical review and will comply with GDPR and institutional ethics guidelines.

2 Which data/types of data will be generated during the process of the project? What kind of data volume is to be expected?

The project will generate both qualitative and quantitative data. These include: (1) survey responses from students and teachers using creativity and agency assessment tools; (2) semi-structured interview transcripts; (3) platform usage analytics; and (4) anonymized learner artifacts such as responses, creative outputs, and engagement logs. In addition, pedagogical content developed in the form of learning clusters and constellations will be a major outcome. We anticipate a moderate to high data volume of approximately 15-20 TB over the course of the project.

[1] Please use this basic data management plan if you have not yet decided upon the target repositorium in which you intend to store the project research data. If you have decided upon the target repositorium, please use the data management plan of the target repositorium.

3 How will you organize the data: Which formats and standards will be applied to storing the data? Which standards do you employ for generating the metadata and which formats to store respective metadata? Will you assign persistent identifiers (PID) to the data to ensure a lasting referencing and citing?

All data will be stored in open, non-proprietary formats (e.g., .csv for tabular data, .txt/.json for transcripts, .mp4/.wav for media files). Metadata will be generated following the DataCite Metadata Schema 4.4 and Dublin Core standards to ensure interoperability and discoverability. Each published dataset will be assigned a Persistent Identifier (PID), such as a DOI, through repositories like Figshare to ensure long-term referencing, accessibility, and citation.

4 Are the exploitation rights and the usage rights of the generated data defined (e.g. by awarding creative commons licences)? The definition of respective rights needs to be clarified between the individual researchers of the collaborating project teams in the course of the project, as well as after the completion of the project for the research community.

All project partners will sign a consortium agreement at the outset defining rights and responsibilities concerning the data. Anonymized research data and non-sensitive pedagogical materials will be made available under Creative Commons Attribution 4.0 International License (CC BY 4.0). Rights to institutional or platform-specific data (e.g., technical infrastructure of the developed online learning platform) will remain with the respective development teams, while ensuring academic openness and fair access for research purposes.

5 In which repositories and for how long will the project-generated data and metadata be stored and made accessible after project completion?

Non-sensitive, anonymized datasets will be stored in reputable open-access repositories such as Figshare or Zenodo. These repositories provide long-term preservation and ensure persistent access through PIDs. Metadata and datasets will be retained for a minimum of 10 years in accordance with best practices in open science and data management.

6 Who is responsible for the adequate handling of the research data in the project?

The Principal Investigator (PI) will serve as the Data Management Lead, with data handling responsibilities shared across the research team. Each Co-PI will be responsible for ensuring ethical data collection and compliance with institutional data protection policies in their local contexts.

7 When is the data available to the scientific community? And in which licence category?

Non-sensitive, anonymized research data and associated metadata will be made available to the scientific community within six months of project completion. Data will be published under a Creative Commons Attribution 4.0 (CC BY 4.0) license, supporting maximum reuse with proper citation. Data involving human subjects will only be published after ensuring full anonymization and with all required ethical approvals in place.

LANIA

LANIA is a platform in development that will promote integrated learning and creative collaboration through the arts. Inspired by Laniakea, the supercluster of galaxies that is home to the Milky Way, content on LANIA will be organized into constellations of lessons and activities that revolve around masterworks of music, dance, visual arts, architecture, and design with links to related STEM topics and other academic disciplines. Together, the constellations will form a multidimensional K–12 curriculum that will enable learners to experience and understand the connections between the arts and STEM.

LANIA is a not–for–profit entity being developed with the purpose of creating integrated arts education programs in partnership with LabXchange, Harvard's acclaimed online STEM learning program. Building on the success of LabXchange, which has more than 55 million users worldwide, LANIA aims to make its lessons and activities freely available to teachers and learners everywhere. The content will also be adapted for in–person programs and experiences led by professional teaching artists in collaboration with topic experts. LANIA is the brainchild of Dr. Edward Bilous, Founding Director of the Center for Innovation in the Arts at the Juilliard School, and is developed with co–founders Anna Filochowska and HanYue Yin.

OUR MISSION

- Create LANIA, an open–source platform for integrated learning that uses masterworks of performance and visual arts as entry points into a multidimensional, K–12 curriculum
- Develop arts education programs and experiences that integrate diverse forms of knowledge and intelligences, bridge the arts and STEM, and inspire interdisciplinarity at all levels of learning
- Use emerging technologies to create personalized learning pathways, examine concepts and ideas from multiple perspectives, and follow lines of inquiry across disciplines and knowledge sets
- Support creative collaboration across disciplines and geographic borders
- Create an Innovation Ecosystem for the Arts that will be a catalyst for growth and innovation across all sectors of the arts ecosystem

The Arts as a Gateway to Learning – Meta Experience

LANIA's multidimensional curriculum will use masterworks in different mediums and styles as entry points into a vibrant, interconnected network of learning. Each work will be examined from multiple perspectives including; structure and design, the use of space and time, materials, tools and technologies, skills needed to create and perform, cultural and historical context, and social–emotional resonance. The lessons and activities will support creative exploration and the application of knowledge across disciplines.

Interested in learning more? Contact us at info@lania.io.

Using AI to Create Personalized Learning Pathways

LANIA will use emerging technologies to create personalized learning pathways between works of art and related STEM topics. Along the way, AI tools will reveal how patterns and forces found at all levels of nature also underlie many great works of art, architecture and design. Learners can explore concepts and ideas from multiple perspectives, follow themes and lines of inquiry across disciplines, and organize their discoveries using a unique tagging system based on different knowledge sets. Users can also collaborate with other members of the LANIA community and add to a collective knowledge base.

Expandable Over A Lifetime

Unlike most disciplines the arts can be enjoyed by people of all ages. A child's first encounter with a Beethoven symphony can provide joy over the course of a lifetime, yet with each listening, new meaning and insight is revealed. On LANIA, learners can use our unique tagging system to save insights and ideas for further exploration within an academic term or throughout their lives.

Interactive Multidimensional Curriculum

Upon entering LANIA, we see a universe of points of light, each representing a work of art in the LANIA gallery. A user can review the collection by organizing the works of art using *historic–contextual identifiers* including medium (music, dance, visual art, digital, and media arts), artist–creator, artist–performer, date, origin, history–culture, and artistic practice. The historic–contextual identifiers correlate loosely with topics traditionally found in arts appreciation and history classes. Similarly, a user can explore the collection by using *analytical–structural identifiers* such as structure and form, principles of organization, patterns and rhythms in nature (spirals and turning, branching, fractals, etc.), forces in nature (gravity, centrifugal force, etc.), energy and waveforms (pitch, color theory, etc.), locomotion and movement, and technologies (musical instruments, brushes and tools, mechanical and digital technologies). Analytical–structural identifiers will be linked to age–appropriate STEM classes available on LabXchange Harvard's on–line STEM platform.

Teachers will be able to select among several learning pathways curated by LANIA teaching–artists and STEM teachers and practitioners. They will also be able to create customized learning pathways that address the educational needs of their school and community.

Edward Bilous, DMA, Founding Director of Virtua Arts, educator, composer, artistic director

Edward Bilous is the Founding Director of the Center for Innovation in th Arts at the Juilliard School. Throughout his career in education, he developed programs that spark innovation and creative exploration, inst an appreciation of diverse artistic traditions, forge links between artform and disciplines, and inspire artists and teachers to become voices of positive change in our dynamic and interconnected world.

He began his career in arts education as one of the first teaching-artists at the newly created Lincoln Center Institute. Together, with philosopher Maxine Greene, and colleagues in dance, theater and the visual arts, he helped to create the basic cannon of aesthetic education practices that continue to inspire students and teachers around the world. His work in education has expanded to include the study of the arts and aesthetic modalities in the frame of integral philosophy, knowledge creation and intelligence, and integrated arts+STEM learning systems.

He joined the faculty of the Juilliard School in 1984 and developed many of the institution's most innovative programs including the Arts and Education Program, the Center for Innovation in the Arts, InterArts and Beyond the Machine – A Festival of Interdisciplinary and Multimedia Art. In 2012, he was awarded the William Schuman Scholars Chair by the Juilliard School in recognition of his life-long contributions to arts education.

Additionally, Bilous served on the National Endowment for the Arts panel for Learning In the Arts and was the Senior Education Advisor in the creation of The Academy – A Program of the Juilliard School, Carnegie Hall and the Weil Institute. Bilous is also on the Board of Directors of the United Nations Chamber Music Society where he has produced many works linking artists and audiences around the world.

Bilous is a pioneer in the application of arts experience to generate transdisciplinary collaboration and knowledge creation. He is a frequent speaker, consultant and facilitator in artistic, educational and corporate communities. His workshops feature immersive, hands-on experiences that explore new ways of working and creating with emphasis on innovative program design, interdisciplinary collaborations and curriculum design. He has been a key-note speaker at MIT Hacking Arts, ASU+GSV Summit and his recent TEDx talk was titled "Nurturing Creative Intelligence Through the Arts."

Dr. Bilous received his MM and DMA from the Juilliard School, composition with Elliott Carter and Vincent Persichetti and B.M. from the Manhattan School of Music, composition with Charles Wuorinen and Elias Tannenbaum. He also studied privately with Krzysztof Penderecki and Roger Sessions.

LANIA

An Online Platform for Integrated Arts + STEM Learning
Developed in Collaboration with Harvard University

With access to over 55 million users worldwide through LabXchange, Harvard's acclaimed online STEM learning platform, LANIA will provide an unprecedented opportunity to bring transformative arts experiences to schools and communities everywhere.

LANIA is the brainchild of Dr. Edward Bilous, Founding Director of the Center for Innovation in the Arts at the Juilliard School, acclaimed composer and artistic director, and educator.

The Arts as a Gateway to Learning

On LANIA, great works of music, dance, visual arts, and architecture are entry points into a multidimensional curriculum that reveals the links between diverse forms of knowledge. Each work is examined from multiple perspectives including, structure and design, the use of space and time, materials and technologies, skills needed to create and perform, cultural and historical context, and social-emotional resonance.

LANIA's multidimensional curriculum will be adapted for afterschool programs. Students enrolled in the programs will receive a Certificate of Participation from LabXchange at Harvard and from the LANIA Foundation.

Using AI To Curate Personalized Learning

LANIA technologies allow users to curate personalized learning pathways across diverse disciplines and forms of knowledge. Along the way, AI tools will reveal how patterns and forces found at all levels of nature also underlie many great works of music, dance, art, architecture and design. A coded tagging system will enable users to save insights and ideas in a personal journal accessible throughout their lives.

LANIA

- An on-line platform for learning that uses great works of music, art, dance, and architecture as entry points into a multidimensional, K-12 curriculum
- Activities and experiences that integrate diverse forms of knowledge and inspire interdisciplinarity at all levels of learning
- Emerging technologies provide personalized learning pathways that invite learners to examine concepts from multiple perspectives and follow lines of inquiry across disciplines.
- Interactive tools that support creative collaboration locally and globally

Interested in learning more? Contact us at info@lania.io