



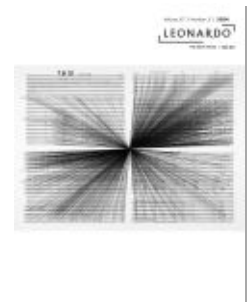
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Top-Rated LGA Abstracts 2023

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YIANNIS COLAKIDES AND MARY ANNE STANISZEWSKI
Leonardo Graduate Abstracts (LGA) Coordinators/Editors

THE MATERIALITY OF DIGITAL ART: PRACTICES OF INTEGRATION OF EVERYDAY OBJECTS INTO SOCIOPOLITICAL MEDIA ARTWORKS (2021)

Caterina Antonopoulou

This PhD thesis investigates artistic practices of integration of technologically augmented everyday objects into critical, socially engaged, and tactical media artworks. It focuses on the dynamic relationships formed between material quotidian objects and other more-than-human agents throughout the “lifetime” of the artworks.

Material objects are examined from an interdisciplinary perspective, as artistic, social, and technological entities. Therefore, the research intersects the fields of (a) art history and theory; (b) selected social, anthropological, and philosophical theories that explore the concepts of “object”

and “thing”; and (c) media studies and computer science, with a focus on embedded, networked, and interactive media. Emphasis is placed on communities and open practices related to the appropriation, hacking, and repurposing of found objects and technologies.

These research topics are examined through selected case studies, which include original media artworks by the author as well as existing artworks by other media artists. In the selected critical, socially engaged, and tactical media artworks, the author defines the networks of relationships articulated between the material objects and other entities, as well as the networks’ transformations caused by the objects’ actions and interactions with multiple, heterogeneous, human and nonhuman agents.

Caterina Antonopoulou: caterina.antonopoulou@yahoo.com. PhD thesis, University of the Aegean, 2021.

KNOTTING THE MEMORY//ENCODING THE KHIPU : REUSE OF ANCESTRAL ANDEAN TECHNOLOGIES AS NEW EXPERIMENTAL SOUND INTERFACES IN THE FRAMEWORK OF THE DECOLONIALITY, ART, AND SCIENCE RELATIONSHIP

Laddy Patricia Cadavid Hinojosa

This thesis presents the results of theoretical-practical research that focuses on the vindication of the memory contained in ancestral Andean technological interfaces made invisible by colonization and their relationship with art and science. From a decolonial perspective, I have reused two of these devices in new artistic processes related to experimental sound, New Interfaces for Musical Expression (NIMEs), and multimedia performance. For this purpose, I have analyzed the relationship between art, science, and technology from the decolonial aesthetics perspective and reviewed current references and proposals that use precolonial technologies applied to their artistic works in the field of sound.

In the practical section, two tangible sound interfaces for live performance have emerged: The Electronic_Khipu_, an instrument for interaction and experimental sound generation used by weaving knots with conductive rubber cords encoding sound compositions based on an Andean Khipu, an ancient textile computer used for the processing and transmission of information encrypted in knots and cords of cotton and wool; and the Kanchay_Yupana//, an open-source step sequencer for the generation of rhythms inspired by the Andean Yupana, a tangible board similar to an abacus with a system of carved geometric boxes used to perform arithmetic calculations. In an exercise of decolonial speculation, I aim to imagine how computer music and live coding could be created by the first textile computers and ancient technologies of the Andes.

Laddy Patricia Cadavid Hinojosa: Lpcadavid@gmail.com. Master's thesis, University of Arts Linz, 2022.

MATTERS OF CONCERN: A CRITICAL INVESTIGATION OF BIOPLASTICS, 3D PRINTING, AND THE MAKER MOVEMENT

Matthew W. Harkness

This research proposes practice-based models for examining the perceptions of 3D printing as entrepreneurial, accessible, and environmentally sustainable. It argues that these perceptions limit the potential of 3D printing and maker culture because of their overemphasis on human agency. It contends that such perceptions have arisen because of misunderstandings about the agency of the materials and technologies engaged in 3D printing networks, the failure of maker culture to make 3D printing accessible beyond the typical readership of maker magazines, and the failure to account for the environmental dangers of the plastic filament that construct 3D printed

objects. By reflecting on material experiments with 3D printing that are informed by critical making, co-design, and speculative critical design within an Actor-Network Theory (ANT) framework, this research addresses the long-term implications of entrepreneurial, accessible, and environmentally sustainable practices of maker culture. Through ANT, this research argues for the importance of the more-than-human actants in maker practice networks of 3D printing and provides documentation of practice-based research projects as models. Ultimately, this research interrupts the individualism at the core of much debate in maker movement groups by reframing maker practices as material-semiotic constellations of human and more-than-human actants constantly in flux.

Matthew W. Harkness: m.harkness@unsw.edu.au. PhD dissertation, University of New South Wales, 2022.

THE SINOGRAPH IN DIGITAL LANGUAGE ART

Yue-Jin Ho

This study explores the use and implications of sinographs (Chinese characters or Japanese kanji) in digital language art, a field that encompasses any digital works with significant literary aspects. This can include kinetic poetry, media installations, art games, etc. By examining works from artists such as Jim Andrews, Hung Keung, Tatsuya Miyamoto, and Lien-cheng Wang, it identifies how the specificities of sinographs contribute to their meaning-making processes. It also investigates how the unique affordances—potential uses or actions allowed by an object—of sinographs differ from other writing systems in the context of artistic creation. As most digital literature theories focus

on letter-based scripts, this research addresses the gap in understanding the logographic nature of sinographs, which retain semantic values at subcharacter levels. A list of affordances unique to sinographs in digital language art will be produced to demonstrate how sinographs can be utilized to create meanings and unique aesthetics in different cultural contexts. This paper aims to understand the digital specificities of sinographs, their influence on artists and readers, and their unique affordances in creating digital art. The findings will contribute to the growing body of work on sinographs in digital language art and facilitate further understanding and application.

Yue-Jin Ho: yuejinho@gmail.com. PhD dissertation, City University of Hong Kong, 2022.

DIAGRAMMATIC MEDIA/SUBJECTIVITY—ECOLOGY— EVENT/GENERATING ORGANIZATIONAL TECHNIQUES THROUGH CREATIVE PRACTICE FOR A POST-MEDIA ERA

Garrett Laroy Johnson

This dissertation charts another path for Media Arts and Sciences (MAS) by generating institutional and creative research practices that work against logics of integration and extraction. Drawing on activist, psychoanalyst, and philosopher Félix Guattari, I use institutional analysis to model how MAS came to inherit legacies of 1970s cyberlibertarianism and digital utopianism, which disavow politics in favor of technocratic steering. A key consequence of this disavowal, I argue, is an embrace of an integrative and market-driven mode of interdisciplinarity.

Responding to technocratic MAS, I argue for re-consideration of politics in MAS through an approach to research, creation, and practice informed by Guattari's concept of diagrammatics. Diagrammatics centers subjectivity in crises of mental, social, and environmental ecology. Through creative social practice with computational media art, I work toward a notion of diagrammatic media grounded in experience.

Media diagrammatics intertwines the extensive engineering of concrete machines (artmaking, systems build-

ing, event making) and the speculative engineering of abstract machines (dreaming, conceptualizing, modeling, critiquing). Diagrammatic media objects (e.g., radiophonic aberrances in the electromagnetic field, a book, an autumn leaf) are lures for thinking-feeling. Diagrammatic media proposes we stop thinking in terms of computational media systems altogether and begin thinking about diagrammatic assemblages of concrete and abstract machines.

A prototype of a tangible media-rich writing system called diagrammatic points to the relationship between lateral thinking, moving, and feeling in learning and writing. I speculate on a slow network for the system that actualizes new modes of collaborative writing. *Portacular Resonances*, a radiophonic media installation, drives a Sci-Phi endeavor about contemporary anxiety differently: as a clue for cosmic becoming that spirals upward from emotional capitalism's reactive affect and into a potential collectivizing force. Finally, through the Guattarian concept of the machine and a bespoke interview protocol, I ask about the conditions for transformation in gathering events such as SloMoCo, a slow conference for artist researchers.

Garrett Laroy Johnson: garrett.laroy.johnson@gmail.com. PhD dissertation, Arizona State University, 2022.

NETWORKS OF EXPERIENCE: INTERACTIVE DIGITAL ART IN THE 21ST CENTURY

Emily Lawhead

This dissertation considers interactivity in digital art practices. Emerging technologies advance so quickly that artworks using such technologies are not fully understood. Digital artworks are susceptible to unprecedented threats, including technological obsolescence, file incompatibility, and software updates that could considerably alter the artwork in a matter of months. However, immaterial characteristics such as interactivity are often overlooked in the panic of preserving physical technologies. Software and hardware might not indicate how interactive a work should be, if it involves one or many participants at once, or how exhibition space should facilitate interaction. *Networks of*

Experience establishes a framework to quantify and prioritize the many ways in which participants interact with artworks that make use of digital technologies. It proposes a three-part typology—individual interactive experience, collective interactive experience, and distributed interactive experience—illustrated with case studies including the VR artwork *The Chalkroom* (2017) by Laurie Anderson and Hsin-Chien Huang, the immersive exhibition *Continuity* (2021–2022) by the Japanese “ultratechnologist” collective teamLab, and the social media performance *Excellences & Perfections* (2013) by Amalia Ulman. The project offers clarity on the nature of interactivity, with an eye to long-term preservation when digital artworks are on display, on loan, or acquired in museum collections.

Emily Lawhead: Emily.lawhead@umfa.utah.edu. PhD dissertation, University of Oregon, 2022.

HERTZIAN FIELDS: EXPLORING WI-FI MICROWAVE SIGNALS AS A SPATIAL AND EMBODIED SENSING MEDIUM FOR ART

Stelios Manousakis

This dissertation is centered around a series of three artworks (*Hertzian Fields*) exploring Wi-Fi as a spatial and embodied sensing medium. These works use a new sensing technique developed by the author that leverages the interference of the human body with Wi-Fi signals to create highly responsive live performance and interactive systems.

Hertzian Field #1 (2014) is an augmented reality immersive environment using sound to explore the materiality of WiFi communication through its interaction with space and the human body.

Hertzian Field #2 (2016) is a 20–25-ft augmented reality immersive performance for solo performer, Wi-Fi fields, computer, and surround sound that conjures a phenomenology of the hertzian medium explored through sound and movement.

The Water Within (Hertzian Field #3 and #3.1) is a reactive wet sauna: an intimate multisensory environment of complete immersion, combining Wi-Fi sensing fields, machine listening software, embedded 3D sound, hot steam, and architectural design. Steered by the flows and variable densities of water molecules traced in steam and bodies by (ab)using Wi-Fi, it creates a regenerative post-relational experience that celebrates interference, signal loss, and disconnecting. The piece exists in two iterations and formats: an interactive installation (2016) and a composed interactive experience (2018).

The dissertation describes the author's conceptual and technical approach in using Wi-Fi microwave signals as an artistic medium. It also examines the background, context, ideas and research processes that led to the creation of these works. In doing so, it lays the foundation for developing a better and deeper understanding of microwaves and Wi-Fi signals, investigates their artistic potential, and discusses related approaches by other artists.

Stelios Manousakis: stm@modularbrains.net. PhD dissertation, University of Washington, 2023.



The Water Within (Hertzian Field #3.1) by Stelios Manousakis. Documentation still from *Modern Body Laboratory #2*, March 2018, The Hague, the Netherlands (©Stelios Manousakis). Video and additional information available at <https://modularbrains.net/water-within-hf3-1>

TRANSDISCIPLINARY ARTISTIC PRODUCTION FROM THE FIELD OF BIOLOGY AND TECHNOLOGY IN THE SECOND DECADE OF THE 21ST CENTURY

Hamilton Mestizo

This thesis introduces a theoretical framework by examining authors and concepts related to the use of biology and biotechnology as artistic mediums. Pioneering artworks of the 20th century are summarised, and an in-depth categorization during the second decade of the 21st century is undertaken. These artworks are organized conceptually within a biology-art context and related thematics, created through transdisciplinary collaborations.

Subsequently, the research delves into cultural movements like DIY biology, Open Science Hardware, and citizen science. Collaborative projects arising from these approaches enrich both artistic creation and scientific investigation. These movements democratize research, extending its influence across multiple contexts worldwide.

The “BioCrea: Open Space for Creative Biology” project is a vital component of this research. This initiative, executed in stages between 2018 and 2020, establishes a public laboratory within the cultural center Medialab Prado in Madrid, fostering a community dedicated to transdisciplinary exploration in biology and biotechnology through Art-Based Research methodologies.

Lastly, the thesis presents outcomes derived from the research. These results emphasize the development of tools and technologies for pedagogical, research, and creative applications. Notably, the COVID-19 pandemic's unique circumstances in 2020 and 2021 influence the trajectory of the research with new experimentation and collaborations with various institutions to yield context-specific outcomes.

Hamilton Mestizo: thingco@gmail.com. PhD dissertation, Complutense University of Madrid, 2023.

SCRIPTED PERFORMANCES: DESIGNING PERFORMATIVE ARCHITECTURES THROUGH DIGITAL AND ABSURD MACHINES

Oliver Palmer

“Scripting” in architecture is usually associated with computer-based design programming. However, this narrow usage belies a rich vein of concepts intrinsic to architecture and authorship. This thesis frames scripting as a critical mode of computation, performance, and design process. It does this through seven projects that explore relationships between technology, society, and the philosophical absurd. Works include films, performances, programs, and installations produced independently and collaboratively with experts from scientific and artistic fields. This thesis asks: How might an expanded definition of “scripting” act as a critical methodology for performative architectural design? How can this methodology mediate between, and comment on, technology and society? And what is the relationship between scripting, authorship, and agency? Computational scripting has been explored in depth by a number of practitioners and theorists; performative scripting has been examined within the context of theater and artistic practice; this study adopts an expansive definition

of scripting that embraces each of these approaches while simultaneously proposing scripting as a critical design methodology. Furthermore, the thesis introduces the philosophical “absurd” as a framework for critiquing emergent technologies and their impact on society. In chapter 1, two projects (Ant Ballet, Godot Machine) are discussed as modes of diagramming absurd theatrical scripts. The “framing” of these projects provides direction for further work within the thesis. Chapter 2 introduces two dance pieces (Nybble, Scriptych) which represent scripted performances and a novel computer-scripted feedback mechanism. Both are diagrammatic modes of presenting contemporary computing mechanisms. Chapter 3 then discusses two experimental computationally-scripted absurd films exploring the practices and impact of contemporary technology companies (86400, 24fps Psycho). Chapter 4 introduces a film (*Network/Intersect*) created through a novel design process imposing strict rules on the creation of work. It concludes by naming this practice “reflexive scripted design,” proposing it as the thesis’ main original contribution to knowledge.

Oliver Palmer: ollie@olliepalmer.com. University College London, 2017.

ECOLOGY OF ENCOUNTERS: MEETING SPACES FOR HUMANS AND NONHUMANS IN MEDIA ART

Noor Stenfert Kroese

The rapid intensification and development of both scientific and technological progress are shaping our world at an unprecedented speed. Our time asks us to re-relate to each other and the others we share our space with. “The human” can no longer be seen as the center but as part of a comprehensive and complex system. This thesis is a practice-based exploration of the encounters between humans and nonhumans via sensing technologies in my art practice. Through the lens of agential realism and the methodology of diffraction, I look back on four of my works: (1) RHIZA, an inter-

species connector between fungi and humans; (2) ZIEN, a collaborative public art project between ministry officials, citizens, and a robot arm; (3) FadingColours, real-time data sculptures that connect ocean data on coral bleaching and the living conditions of algae; (4) ZOE, a temporary coexistence between reishi mushrooms and a custom-made robotic system. I am questioning whether the philosophy of critical posthumanism and new materialism come to practice in my process of creating media art installations. The research concludes that the practice of responsibility and care creates the possibility for interspecies encounters within the process and outcome of media art.

Noor Stenfert Kroese: noor@stenfertkroese.com. Master's thesis, *Kunstuniversität Linz*, 2023.

TECHNIQUES OF OVERSIGHT AND [COUNTER] INTELLIGIBILITY, 2000–2018 (A FEW SMALL OPACITIES)

Abram Stern

This research considers oversight and [counter]intelligibility in order to rethink questions of surveillance and militarism, through media theory and critical art practices. At the center of this work are two media art projects, *Operational Character Rendition* and *Unburning* (a collaboration with Margaret Laurena Kemp). Through the creation of these projects, I consider how infrastructural and institutional contexts inscribe themselves into media related to surveillance and its oversight. This work activates both denotations of oversight: as supervision and surveillance, but also the failure to notice. The contradictions of seeing

and not seeing inform a close reading of torture memos, aerial surveillance videos, and media art. This work draws from feminist media art due to its investment in embodiment and making hidden labor and abuse intelligible, even if abstracted or otherwise distanced. I read and perforate this media and metadata as sites of intelligibility, through technologies of making-sense, but also as sites of obfuscation, concealment, and redaction. These are explored through case studies that consider technologies and cultural practices of making-public through interfaces and archives of US intelligence community–related documents, and also by artists whose work redeploys and countervails (and counterveils) these assemblages.

Abram Stern: aphid@ucsc.edu. PhD dissertation, *University of California Santa Cruz*, 2022.

COMPUTATIONAL AESTH-ETHICS: UNDERSTANDING VISUAL COMPUTATION PROCESSES BETWEEN THE IMAGE AND ITS CONTEXT

Kristina Tica

This research is established at an intersection of computational image-making and image-reading processes in a broader socio-technical environment. The presentation of my artistic practice is elaborated through a theoretical discussion and analysis of the ontology of a computer-generated image and its aesthetics and ethics, within underlying ideologies in the discourse of their representation—between their content and context. Beyond the representational surface of the image, the analysis is developed through comparison of the affordances of the tools and their syntax through critical data and image semiotics. From statistical art to combinatorial transcendence, the

points between the spectacle and backstage resources of artificial intelligence are discussed. Paradigms of development and integration of machine learning systems on a political, social, and ethical scale can be understood through the artistic appropriation of these tools. Examples of optimization and accuracy, quantity and quality in the projects and theoretical concepts will be presented to underline and address the importance of human agency in the age of automation. The semiotic interplay between the content and context becomes necessary to address responsibility and visibility, so as to better understand not only the technologies but also the systemic structures, along with the ideologies, that lie behind them.

Kristina Tica: tica.kristina@gmail.com. Master's thesis/Master of Arts, Kunstuniversität Linz Institut für Medien—Interface Cultures, 2023

REFIGURING CRUDE OIL AND/AS MEDIA: FIELD NOTES FOR FUTURE PETROPRACTICES

Elia Vargas

What kinds of practices can produce new concepts of oil? Utilizing feminist philosopher Karen Barad's posthumanist performative approach and media theorist Jussi Parikka's geological media materialism, my dissertation examines the early American oil industry to refigure oil as media. This critical and creative work conjoins media and science studies scholarship with speculative field notes and crude oil-based artworks to create a theory/fiction document that reconceptualizes oil as media. This method accounts for the entangled ways that oil, a technologically, culturally, and naturally manufactured fossil fuel, has structured how

things are and how they are known. The unconventional dissertation form proposes that alternative knowledge practices are a pathway toward new petropractices. If oil use predates the concept of fossil fuel, what is the origin of the theory of fossil fuels? The question distinguishes between the science of petroleum, constituted of ancient organisms and biomass, and the technocultural assumption that energetic entities should be put to work as fuel. It is taken for granted that the former implies the latter. By scrutinizing the most basic—but overlooked—assumptions of oil, my work challenges the orthodoxy of how Western society has come to conceptualize the earth as a source of raw resources.

Elia Vargas: eliaavarg@buffalo.edu. PhD dissertation, University of California Santa Cruz, 2022.