Domestic Light: a mid-project Artist Talk

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Abstract

Domestic Light is a timely work, conceived in and for a COVID and post-COVID world, it explores the nature of our relationship to the character of light, home, and the passage of time – through the collection of a year-long data time-lapse of spectral color of light in homes worldwide. Currently in process, Domestic Light will have been collecting global multi-spectral light data for 11 months at conference time.

This work-in-progress artist talk on the Domestic Light project will share excerpts and a live view of the currently in-process year-long real time data-video work, and will foreground discussion and observations about the creation and collection of the color data at the heart of the project, as well as a facilitate discussion amongst sensor hosts and collaborators about the social and software network built for the project. The presentation concludes with a brief exploration at the future plans for the network and a view of the physical installation premiering in 2025.

Members of our sensor host network will discuss the emerging peer to peer artistic and cultural networks that can facilitate new possibilities of observation of our environment and the exploration of expanded temporalities through data timelapse.

Keywords

Artistic Practice, Participatory Art, Experimental Art, Technological Infrastructures, Collaborative Approaches, Temporal Aesthetics, Real-Time, Location-based media

Introduction

The Domestic Light project is a multi-faceted artistic project rooted in the direct year+ long observation of the literal color of home. The project has developed a global network of multi spectral light sensors, sited in domestic window sills in each of the Earth's time zones in both northern and southern hemispheres for a solar year. That data is used to create a real-time light and color portrait of our earth from the perspective of home, serve as a compositional source for a series of visual works by Winters and others, and will be shared as an open data set for future use.

In this Artist's Talk work-in-progress presentation, lead artist Ian Winters and key collaborators of the Domestic Light project will present a work-in-progress view of the project which began a year+ long, globe wide data gathering timelapse in summer 2023. For this report midway through the project, members of the collaboration will walk through a presentation of the work-in-progress real-time data artwork, giving an overview of the artistic and technical network infrastructure and an outline of the project roadmap later in 2024 through 2025.

Domestic Light is a year-long time-lapse media art exploration of the literal color of home world-wide, that also serves as an artist-instigated network for the creation of sensor and data art projects. It delves into the nuances of individual and social perception, and casts reflections on the intersections of light, home, and time across the globe.

The project question – *what is the color of home?* – yields a complex array of answers: the particular blue of a winter coastal sky after a storm, the yellow of one's inherited incandescent lamp, the slate-grey of afternoon rain. Part violet, part teal, part blue, part red, part yellow – none are readily reduced to the Red, Green and Blue of computer screens and print. Observing a multi-spectral portrait of the color of home, Domestic Light aims to open a small window into the nuance and limits of our perception and the reproduction of perception that begins with Newton's discovery of spectra and echoes through the discourse of color today. Through a network of multi-spectral color sensors in windowsills across time zones, the project captures the diverse colors of 'home,' questioning the perceptual spectrum beyond the familiar RGB of screens and print. Locke presages this disjunct, *"Besides colour, we are supposed to see figure, but, in truth, that which we perceive when we see figure, as perceivable by sight, is nothing but the termination of colour*." [1]

Domestic Light bridges the conceptual framework of shifting temporalities and speculative methods by using an artist-created data gathering network to explore what our ideas of presence and duration mean in works of cultural production that span year+ long time frames.

This deep dive as artists into the technological substructure of data collection and transformation is informed in part by Vilem Flusser, in his 2012 essay on technology and culture, *The Ground We Tread* crystalizes the tension of contesting the objectification underlying the Western project that, *"it is not possible to reject one's own culture. It is the ground we tread."* And yet, this ground is built of a seemingly inexorable technological apparatus that leads in his words, to *"objectifying transcendence…. into an*

apparatus for the annihilation of man." that must be contested so that we may, *"...nurture the hope to project ourselves out of that project."* [2]

Domestic Light aims to broaden the possibilities of observation and authorship to attempt to restore subjectivity to data, and explore possibilities of collaboration through shared global experience in a project at once scientifically, politically, and artistically rigorous.

Physical and Technical Description

The project has multiple artistic outcomes:

- an online web portal, https://domesticlight.art that shows a data-centric view of the project, *Fig. 1*;
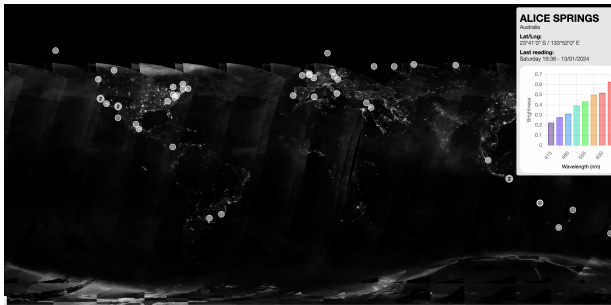
Figure 1 View of the online data portal, showing real-time data from a sensor host

- a real-time monitor-based artwork by Winters that visualizes the data as a live color field that simulates the multi-spectral experience in RGB color, *Fig. 2*;
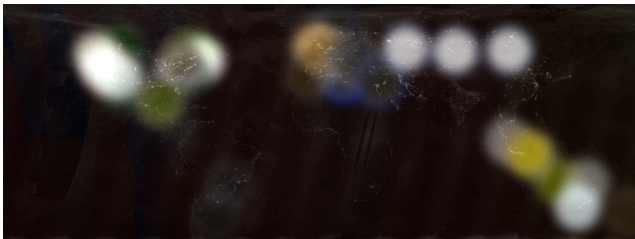

Figure 2 View of real-time monitor work at shortly after project launch at the Minnesota St Project, SF Arts Ed Gallery. Dimensions 70" w x 22"h, 8096px x 2160px

- an opensource data set;
- a sound library comprising 1 minute sound submissions from sensor host collaborators responding to the prompt, "the sound of home";
- a physical installation and live performance. In Fall 2024 after the initial data and sonic gathering phase of the project is complete, Winters and composer Pamela Z will use the combination of data and sound samples to create an immersive live multi-channel video and audio installation in San Francisco.

Technically, the data collection uses a network of approximately 100 custom artist-built sensors fitted built on a Raspberry Pi form factor for easy case replicability. *Fig, 3.*

These custom circuit boards and enclosures use an AMS AS7341 and AS7343 multi-spectral sensor chip to sample the intensity of 11 color spectra, every 5 seconds and time stamp it using a real time clock. The data is logged and
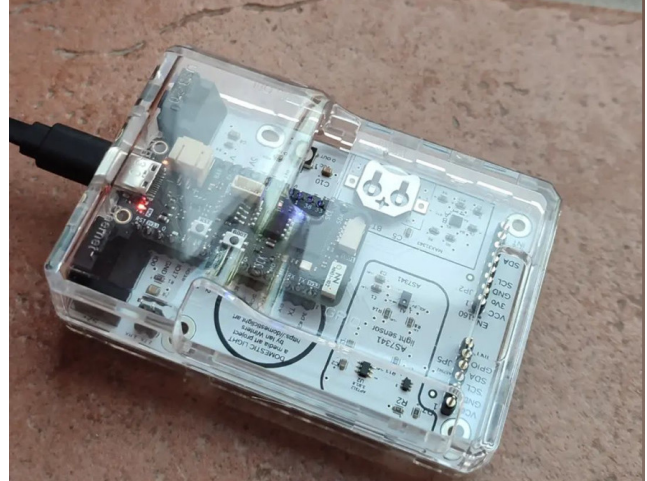

Figure 3 View of installed light sensor board, Loreto MX transmitted using an ESP32-S3 processor to a cloud database, then queried for processing and displayed on the real time portal at https://domesticlight.art, allowing participants to query the current spectral footprint of their home.

Network as a hybrid "Data Instrument"

The project's physical hardware and network architecture are both intended to be extensible by collaborators and are conceptualized as a "data instrument", which, while developed for this project, is intended to be reused for a multiplicity of compositions. *Fig 4.* The sensors are configured for the easy addition of I2C based environmental sensors and network architecture is built to allow new collaborative data projects to reuse the same infrastructure. The project code was developed as open-source code and is available for reuse and review on the project Github site, https://github.com/thirtysevennorth/domesticlight_public. [4]

Figure 4 Multi-spectral LED module to reproduce spectral light data as a performance tool with view of testing apparatus

Expanding the concept of the data instrument and data time-lapse, the culminating installation will be built of a custom designed array of approximately 300 multi-spectral LED lighting fixtures that will allow interactive "play-back" of the spectrally and temporally dense data by time, spectra and location. *Fig. 5.* Each of the fixtures is network connected and can function either as an independent instrument (such as in a home) or as an integral part of the sculptural array of lights.
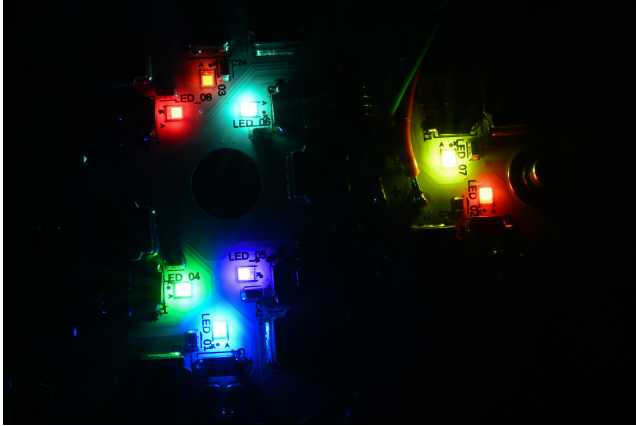

Figure 5 View showing spectral LED range from 410nm to 670nm Under consideration is extending the person-to-person project scope to facilitate sensor hosts housing one of the multi-spectral light fixtures with its light data source coming from sensor hosted by a paired collaborator in another location in order to help our host collaborators directly experience the data set.

At project completion the data will be archived at the University of Sussex as an opensource data set for future use by collaborators and others interested in color. We also aim to instigate ongoing artistic and scientific collaborations through the ongoing development of the sensor network by creating a data API to allow easy access to both live and recorded data for participants.

Artist peer-to-peer network

At the heart of the project has been the incremental growth of the number of collaborators hosting a sensor towards our aim of reaching every time zone on earth by project end. Facilitated by Leonardo/ISAST, via individual outreach and by social media, direct person-person contact has been essential.

At time of writing, 6 months into the project, sensors now live in homes ranging from European capitals to Amazonian Achuar communities, homes of technologists in India and Australia, and artists in South Africa and Indonesia. While the project is nominally an art-technology project, the social practice of trust has been pivotal, as strangers become hosts for these sensors, as well as part of a community joined by a mutual interest in exploring the concepts of light and home in their daily lives.

The human challenge lies not just in the technological implementation but in fostering connections that transcend cultural and geographical boundaries toward a shared synthesis of a collective experience of home and light.

References

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Author(s) Biography(ies)

Lead artist **Ian Winters** is a media and video artist making works for gallery, site-specific projection / light works, as well live performance staged work. Often in collaboration with composers, directors, and choreographers, he creates both staged and site-specific visual and acoustic media environments internationally. His work has been supported by the Creative Work Fund, the Rainin Foundation, Zellerbach Family Foundation, Djerassi, and EMPAC, among many others. He maintains an active worldwide teaching practice, leading workshops in live media and the integration of sensors, physical performance and site-based pieces. He studied video and performance at the School of the Museum of Fine Arts and Tufts University, followed by training in dance / physical theater, and architecture. He is also the co-curator of MilkBar with Mary Armentrout and is also a visiting research fellow at the Sussex Humanities Lab at the University of Sussex. More about his projects can be found at www.ianwinters.com.

Data Scientist **Weidong Yang,** Ph.D. is Co-Director of Kinetech Arts, a non-profit organization bringing dancers and engineers together to explore the creative potential of making art via new technologies. He is also the founder and CEO of Kineviz, a data science company that connects world-class businesses, agencies, and nonprofits, with data and provides visualizations of complex data to gain insights for better outcomes. Weidong has been awarded 11 US patents; contributed to 20+ peer review publications; and holds a doctorate in Physics and a Masters in Computer and Information Science from the University of Oregon.

Other key collaborators in the presentation include curator **Vanessa Chang**, our partner at Leonardo/ISAST; programmer **John Macallum**; **Bernardo Fipro** (sensor host and programmer), **Fernando Martin Velazco** (sensor host and communications).

See https://domesticlight.art/team for full list of collaborators and biographies.