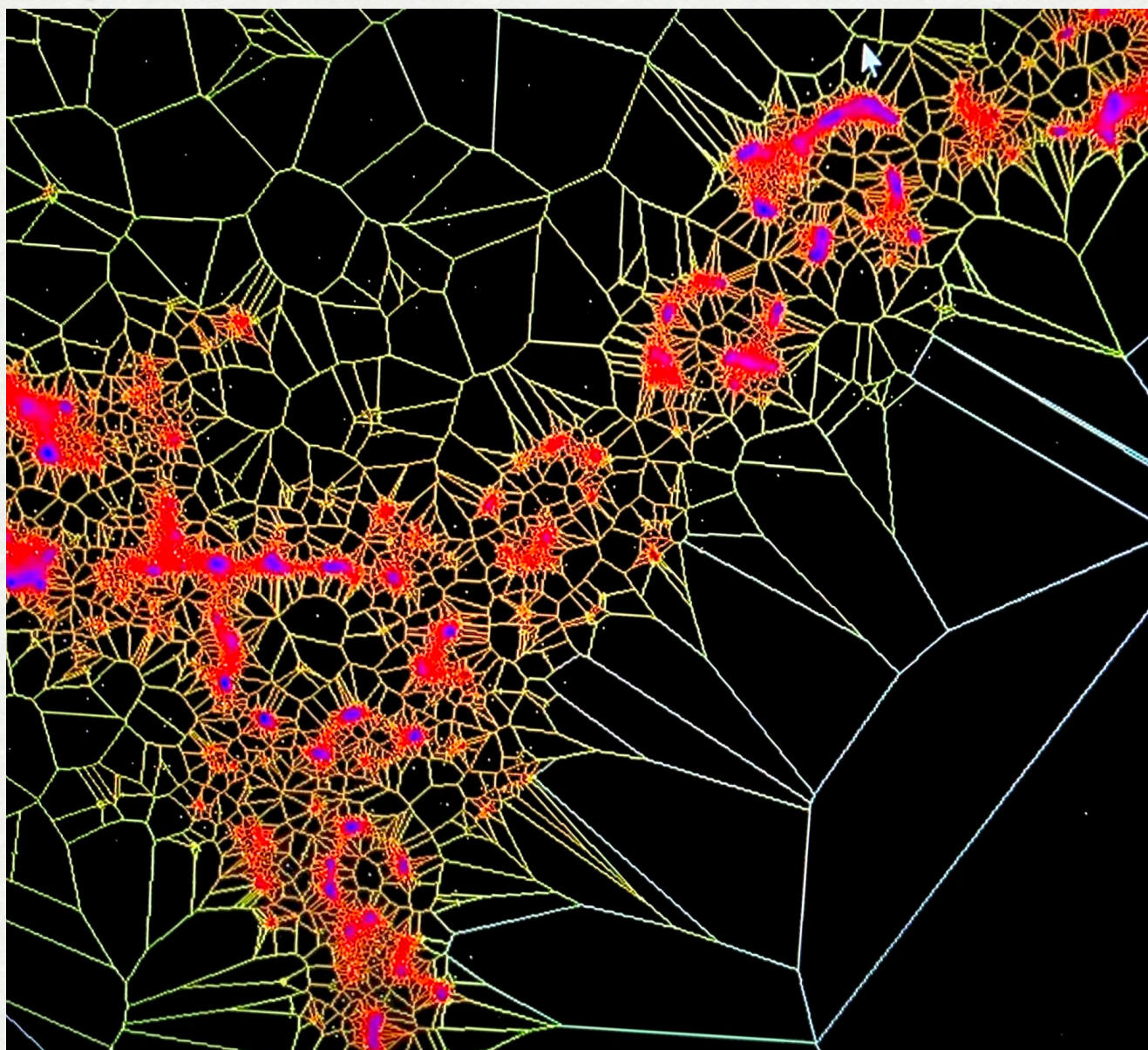


2024

# Portfolio

*Tina Ghelani*



2019

Installations and Art pieces

2024

# About



*I am an Indian-born Berlin-based Neuroscientist and a super-resolution microscopy expert working in the field of synaptic plasticity and development of synapses.*

*I bring epifluorescence, confocal, STED, STORM, and sptPALM imaging of neurons and synapses of rats and Drosophila into sculptures, 3D paintings, and digital art.*

*I am an avid neuroartist and my work reinterprets my scientific research over the years and learned scientific dogmas into different forms of graspable visualizations of how we as humans relay information, form neuronal networks, how our neuroanatomy mimics natural design, and how the smallest functional unit of our being; a synapse is formed.*

## **Contact**

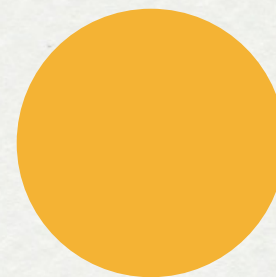
Feel free to contact me for inquiries, questions, collaborations, or just drop by with a hello at:  
tinaghelani@gmail.com

My works can be found at: [www.tinaghelani.com](http://www.tinaghelani.com)

2019

# 2024 Inside Thoughts

## Work in Progress

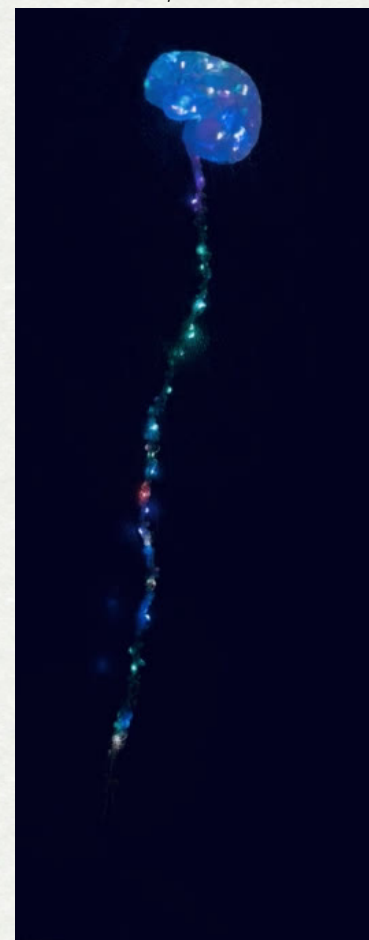
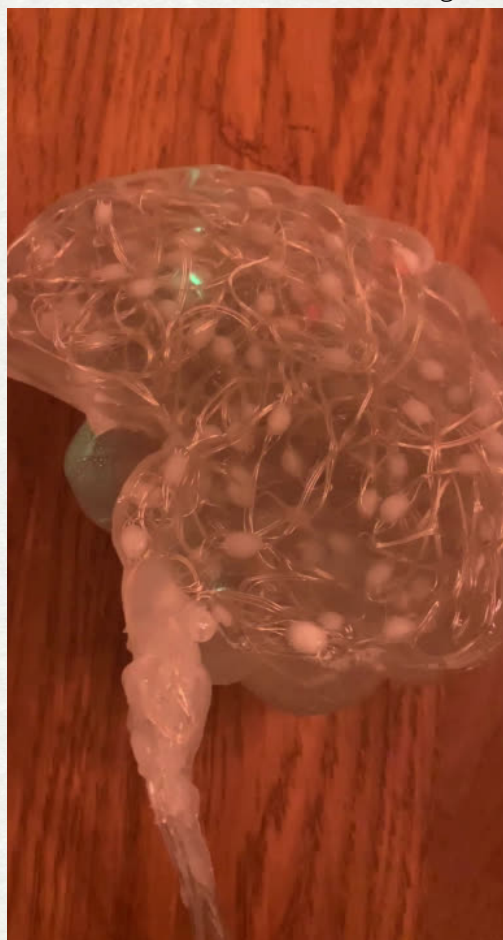


*In this sculpture, we represent interpolated fMRI data that represents the interconnectivity and activity of neuronal populations throughout regions in the brain and spinal cord. This is a unique experience to visualize thoughts, feelings, sensations, and decision-making inside a transparent brain and down the spinal cord. We have used LEDs in resin and silicone to generate an anatomically representative human brain and spinal cord, that can be split and viewed inside and outside by allowing the audience to walk through an active brain model that expresses activity related to a range of human feelings, decision making, and somatosensory processing. As there are no 3D active models of the brain that delineate the experience of seeing in real time what our brains are doing inside our heads, I set out to make one. This project will start first with a sculpture and in the future be connected to an EEG headset that will enable visualizing experienced and live thoughts inside our brain in real-time on a 3D life-size transparent model of a brain.*

*Artists: Tina Ghelani, Daniel Till*

*Biography: Dr. Tina Ghelani- Berlin-based Neuroscientist and artist working in the field of synaptic plasticity and the development of synapses.*

*Daniel Till- Berlin based Data Wrangler, Digital Loader Camera, Sound and Drone expert.*



**Inside Thoughts**  
*Sculpture in resin, LEDs, and  
silicone*  
40.6cmx15.3cmx100cm  
Tina Ghelani, Daniel Till  
Berlin

2023

2023

# Paths Relit II



*Paths Relit II is a piece that reflects on the complex modes by which neurons in the brain connect with one another. A 3D-light sculpture depicts the pathways of 18 connecting neurons and animates several short and robust pathways that learn to connect to generate a successful interconnected network of neurons.*

*Here, several attempts to connect the network together result in Red i.e. unsuccessful pathways and the learned outcome of these failed connections leads to the consolidation of a successful pathway in Yellow that connects the entire network together.*

*This sculpture imagines perhaps the birth of a pruned and tuned pathway for a specific memory in the brain. The piece explores the topic of whether our structure imbues function or vice versa and how we could generate control over our biology or understand its inevitable design.*

*Negative memories can often intrude stronger on our consciousness, are repeated often as an important learning, and have a deeper impact on our behavior. This likely occurs due to negativity bias, which refers to our brain giving more importance to negative experiences. I invite the observer to enter a different visualization of the sculpture and question the output of the final consolidated pathway in the piece as being either a positive or a negative reinforced experience/memory. Both memories would follow a similar biological pathway of interconnected neurons in the brain, thus perhaps here is a philosophy to gain agency over our biology by applying reinforced and repetitive positive memories over negative ones to regulate those negative spiral of memories.*

Paths Relit II

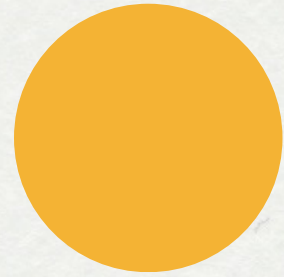
Tina Ghelani, Karl  
Pannek  
Daniel Till  
Video by: Nailya  
Bikmurzina  
Berlin



2020

2020

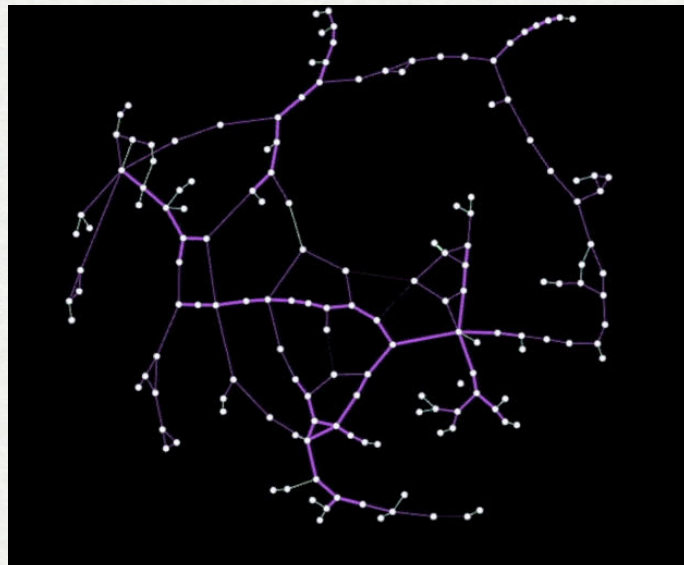
# Paths Relit I



*A meld of network visualization techniques and culture hippocampal image analysis on networks of cultured hippocampal neurons are animated into a simulated neuronal network generated. This video and digital art piece tie together with the main Paths Relit I light sculpture. Together these pieces bring the analytical and structural transformation of raw neuroscientific data into the new network visualizations. Together these pieces re-visualize the structural design of connecting neurons functioning through simple designs of network connectivity. They delve into the topic of how our structure imbues function or vice versa. We invite the observer to enter different visualizations of neuronal networks and question their function in the light of positive and negative reinforced experiences.*

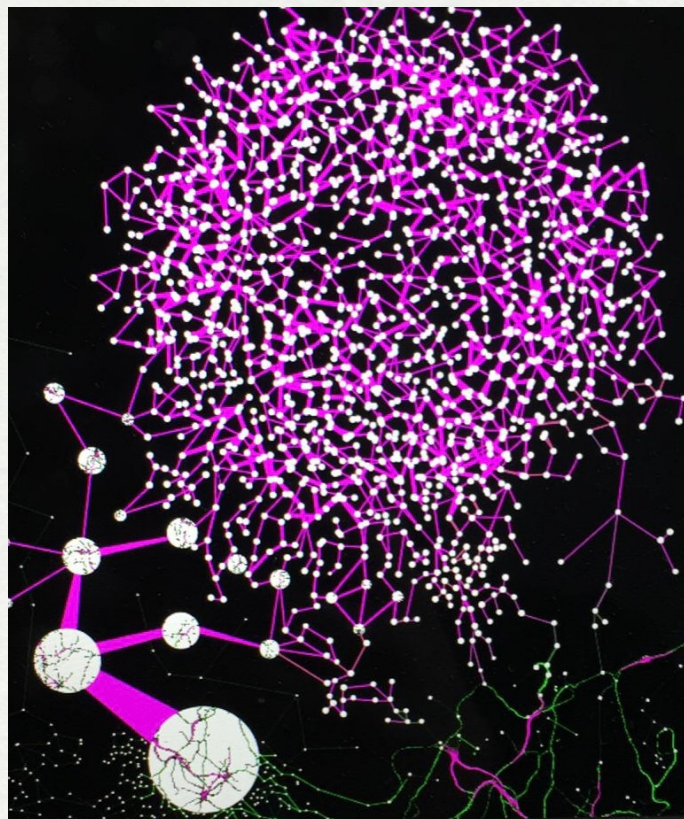
Paths Relit I

Tina Ghelani, Josef  
Liljegren  
*Berlin, Brussels*



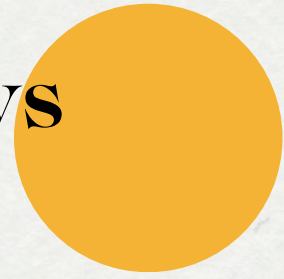
Paths Relit I

Tina Ghelani, Josef  
Liljegren  
*Berlin, Brussels*

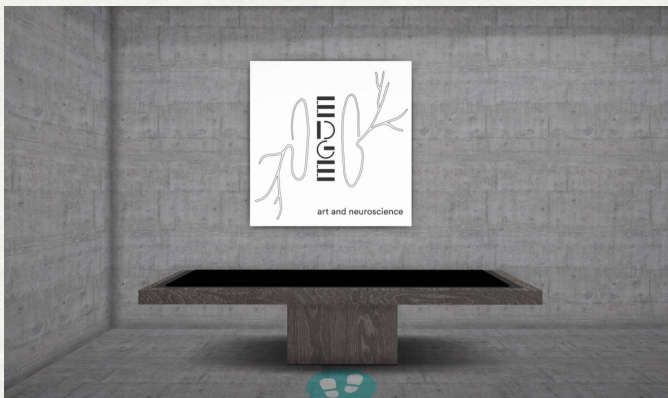


2020

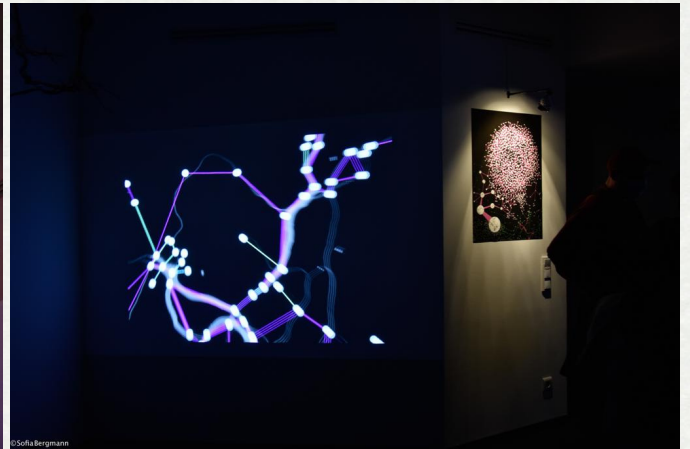
# 2020 Paths Relit shows



EDGE at the Eye Square Foundation, Berlin, 21st-28th July 2023 Vernissage Sensorialty workshop series.



EDGE at the Alte Munze, Berlin, and online on Artsteps, October 9 - November 01, 2020



EDGE at the *MIND Foundation*, Berlin on October 15-18, 2020

*Artists: Tina Ghelani, Josef Lilljegen, Karl Pannek*

*Biography: Dr. Tina Ghelani- Berlin-based Neuroscientist and artist working in the field of synaptic plasticity and the development of synapses*

*Josef Lilljegen - Economic historian (PhD), network analyst, and data visualizer based in Belgium.*

*Karl Pannek- Berlin-based programmer, music technology enthusiast, and LED tinkerer*

*Daniel Till-Berlin based Data Wrangler, Digital Loader Camera, Sound and Drone expert.*

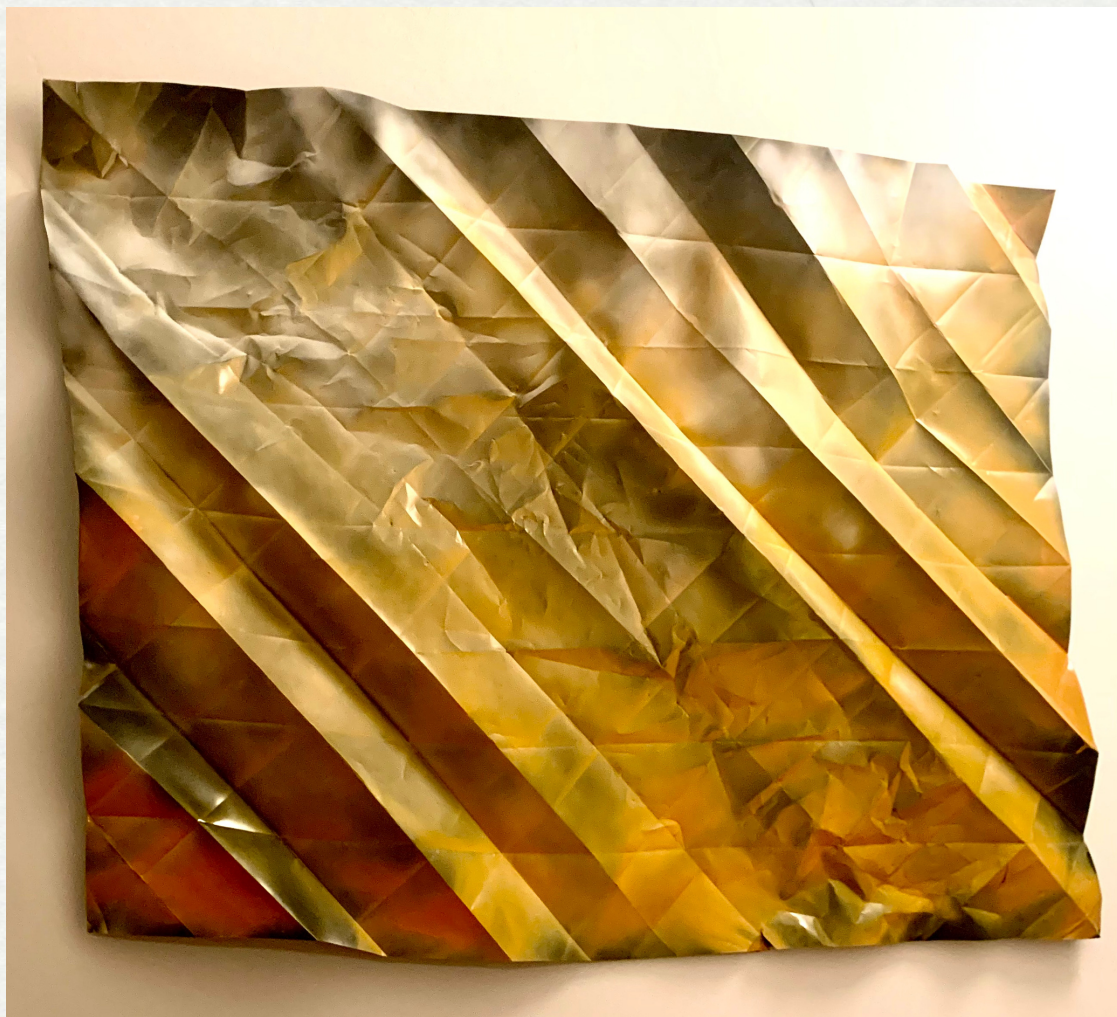
2020

2022

# Folded in Light



*My artistic research is developed around the interaction of light and form on the plane using different biomaterials that inherently bring about geometric, abstract, and volumetric pieces. I am trained as a super-resolution microscopist and have derived my own style, working with the possibilities that paper and spray paint allow. The work has only two variables, paper and spray. The paper is wrinkled or folded into origami, and painted in this state to highlight the manipulations of the paper and in doing so, its unique character speaking to direct the paint into a photograph of abstract topology. This work expresses an objective reality holding within the fluidly crumpled and intentionally folded paper, a sense of the infinite facets of marvel in folded light.*

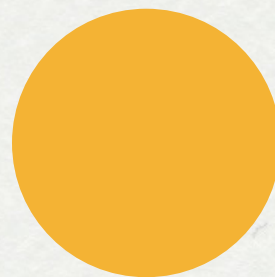


Folded in Light  
3D Painting/Sculpture  
100cm X 120cm  
Paper, Crushed Origami, Spray  
Paint  
Tina Ghelani  
kolkata, Berlin

2022

2023

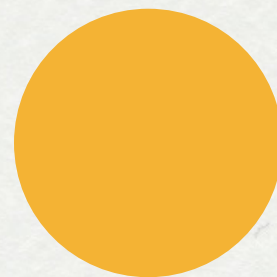
# Folded in Light



Folded in Light  
*3D Painting/Sculpture*  
100cm X 120cm  
*Paper, Crushed Origami, Spray  
Paint*  
Tina Ghelani  
kolkata, Berlin

2022

# 2022 Fungal musings



*Fungal Musings are a set of ceramic sculptures exploring the otherworldly character of the fungal world.*

*The pieces explore the swampy yet fluid quality of life of fungi that connects to the elements and creates its own flow through the elements of water, soil, decaying vegetation, and iron deposits.*



*Fungal Outgrowth  
17cm x 22cm x 5cm  
Ceramic  
Tina Ghelani  
Mallorca, Berlin*

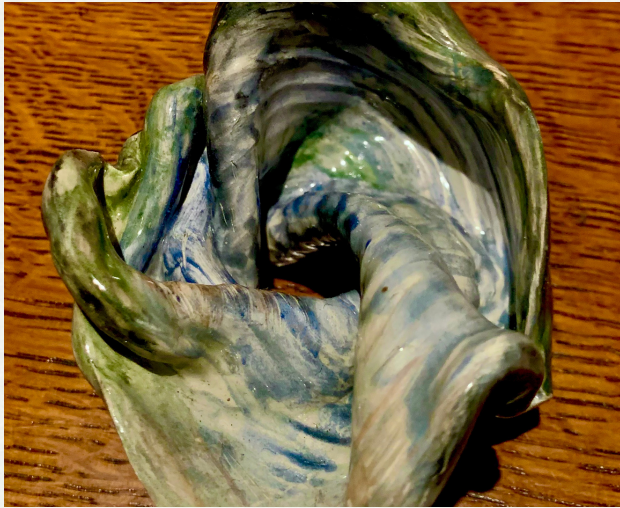
2022

# 2022 Fungal musings



*Fungal Musings are a set of ceramic sculptures exploring the otherworldly character of the fungal world.*

*The pieces explore the swampy yet fluid quality of life of fungi that connects to the elements and creates its own flow through the elements of water, soil, decaying vegetation, and iron deposits.*



Fluid Connection  
10cm x 11cm x 5cm  
Ceramic  
Tina Ghelani  
Mallorca, Berlin

# Microscopic Connections in Natural Light

2022

## Work in Progress

*Hippocampal Embryonic rat hippocampal structures were dissected and dissociated to individual neuronal cells which were then allowed to reconnect on a glass coverslip, proliferate and reform a network of neurons again. These neurons were tracked over time to study their development in culture and were visualised with fluorescent labels these cells. This neuroscientific technique is used create an in vitro model to study and visualise the subcellular localization and trafficking of neuronal and synaptic proteins, to ultimately understand the molecular mechanisms underlying the development of synapse formation and function.*

*The high resolution dual labelled fluorescent images were processed as cyanotypes using natural dyes, herbs, and natural UV light exposure. Though this process we have returned the visualisation of these beautiful microscopic cells that form the smallest functional units of our being, into a natural photographic method.*

*In doing so, the technique brings out new nuances of the natural characteristics of the fluidity of connection of individual brain cells. Some of the natural qualities of these networks harken to the natural patterns of interconnecting fungi or the networks of tree roots. We pair these natural connection designs of neurons in contrast to the grain of wood types and ultimately offer a new perspective on patterns of our natural biology.*



### Microscopic Connections in Natural Light

30cm x 40cm

*Microscope images, cyanotype printing on natural paper*

Tina Ghelani, Charlotte Thömmes

*Video of Dissociated Hippocampal Cultures DIV10-14*

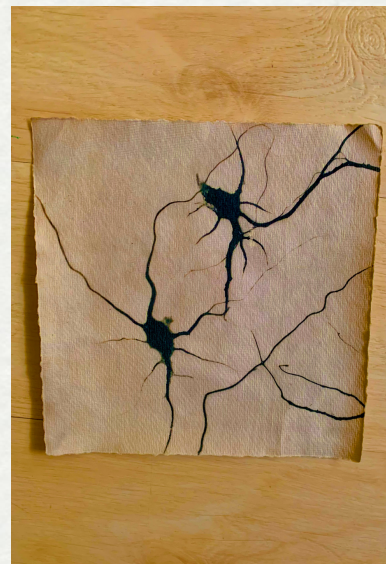
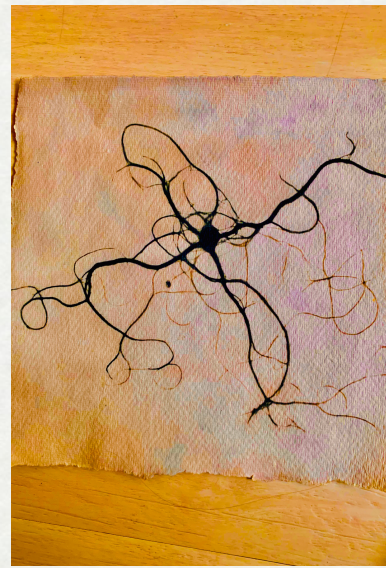
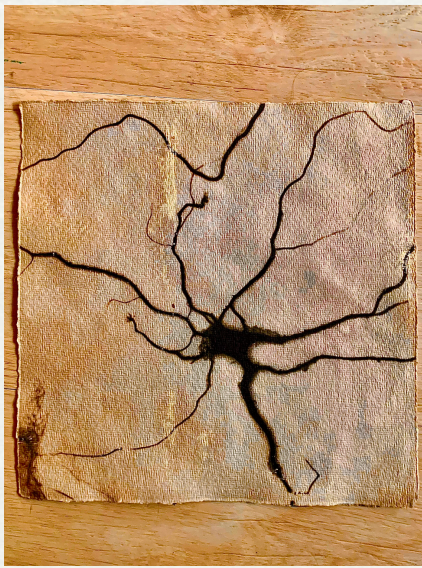
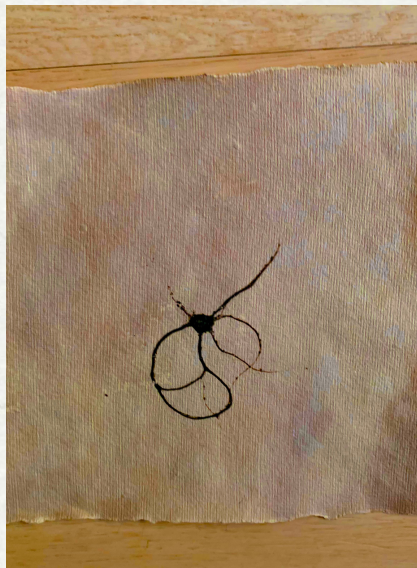
*Work in Progress*

Tina Ghelani

Berlin

2021

# 2022 Microscopic Connections in Natural Light



Microscopic Connections in  
Natural Light

*Prints*

*30cm x 40cm*

*Microscope images, cyanotype  
printing on natural paper*

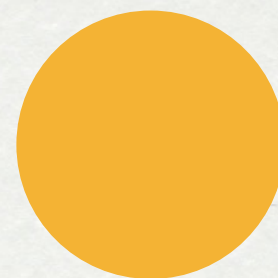
Work in Progress

Tina Ghelani,  
Charlotte Thömmes  
Berlin

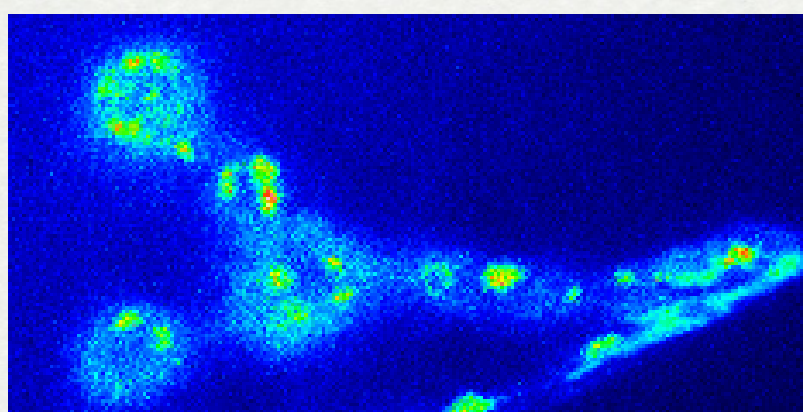
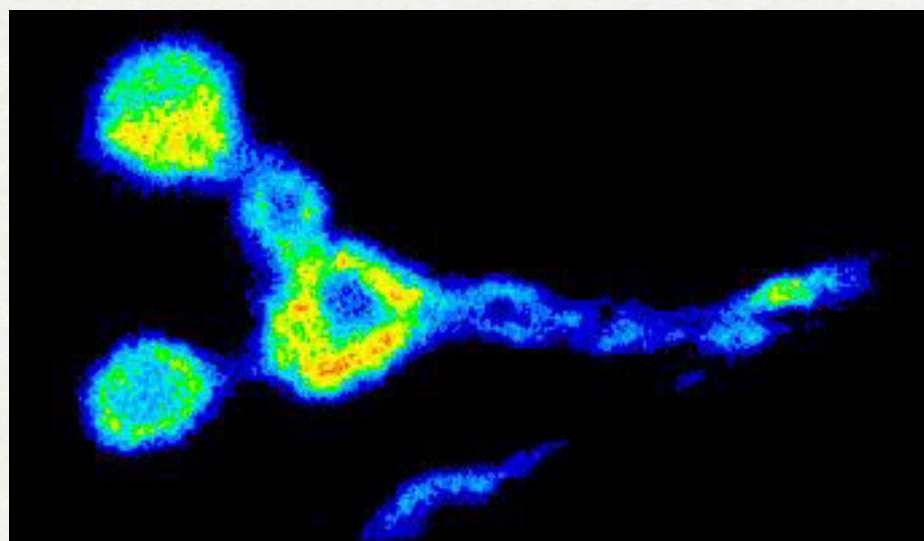


2019

# Live Decisions



*Live Decision was in an impromptu screening of a live synaptic terminal in the muscles of Drosophila Neuromuscular Synapses expressing presynaptic syn-GCaMP6f. GCaMP is one of the most widely used calcium indicators in neuronal imaging and calcium cell biology. When calcium is present, this GCaMP fusion calcium indicator undergoes a conformational change and GFP fluorescence is activated from quenched status. Ostensibly, here a blink is seen every time a functionally active presynaptic synaptic site, so to say, speaks to the postsynaptic site conferring exchange of information or a decision. Hence one-blink is a microscopic live screening of one decision being made by one synapse in real time. It was my goal to show the audience what a single decision looks like in a living nervous system and how millions of these together control our everyday behavior.*



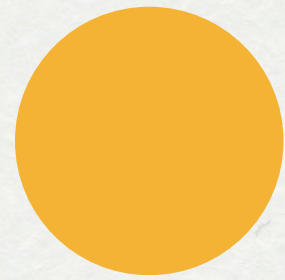
*Drosophila Neuromuscular Junction Live in vivo imaging of  
CacmEOS4b::synGcamp6F-1.5mM $Ca^{2+}$  and 4mM $Mg^{2+}$   
HL3.1 Solution  
Tina Ghelani TIRF imaging*

EDGE @ Heizkraftwerk Steglitz 27-28/7/2019  
<https://edge-neuro.art/blog/2019-exhibition-recap/>

2019

2024

# Exhibitions



Meet the Artists at the Sensoriality Vernissage  
Join us on the 21st July at 7 pm for the opening of the Sensoriality workshop series. We are pleased to...

**EDGE at the Eye Square Foundation, Berlin, 21st-28th July 2023**  
Vernissage Sensoriality workshop series.



## ART AS A GUIDE: ENGAGING WITH NEUROSCIENCE AT 'EDGE'

Art exhibition based in Berlin, featuring neuronal sculptures, synaesthesia-...

 SEISMA Magazine — Where sciences ...



### 2020 Virtual Exhibition

Click here to enter the exhibition After the spread of COVID in Berlin, we postponed our second 2020 exhibition we planned to held at a former mint in th...

**EDGE at the Alte Munze, Berlin, and online on Artsteps, October 9 – November 01, 2020**

<https://www.artsteps.com/embed/5fa1a6c4f6b7e90872946013/560/315>



### 2020 Exhibition Recap

Our 2020 exhibition took place from October 15-18, 2020 at the MIND Foundation in Berlin Friedrichshain. Over the weekend EDGE neuroscience & art e.V....

**EDGE at the MIND Foundation, Berlin on October 15-18, 2020**



### 2019 Exhibition Recap

4 days of exhibition in 2 locations, works from 17 artists and groups displayed, more than 100 attendees, 50 pizzas, and (more than) the required ...

**EDGE @ Heizkraftwerk Steglitz 27-28/7/2019**

2019