

OCCAM'S RAZOR. ART, SCIENCE, & AESTHETICS

These entwined ideas – which underlie Occam’s Razor – form a thread that links the realms of science and art. Scientists rely on Occam’s Razor, which holds that simpler explanations, all things being equal, are better than more complex ones, to refine their theories and experiments. With reference to Occam’s Razor, the interdisciplinary discourse presented in this exhibition by Propeller Centre for the Visual Arts and the !dea Gallery at the Ontario Science Centre, seeks to narrow the cultural divide between Art and Science.

Art is the elimination of the unnecessary.

PABLO PICASSO

Everything should be made as simple as possible, but not simpler.

ALBERT EINSTEIN

Occam's Razor | Art, Science And Aesthetics

EXHIBITION DATES

April 2 - 20, 2014

Propeller | 984 Queen Street West, Toronto

Opening Reception: Thursday April 3, 7-10pm

May 3 - June 1, 2014

the !idea gallery

The Ontario Science Centre | 770 Don Mills Road, Toronto

EVENT DATES

Wednesday April 9, 6 - 8:30pm

Gladstone Hotel | 1214 Queen Street West, Toronto

Ontario Science Centre's | Café Scientifique presents:

Art & Science Same Process, Different Products?

Sunday April 13, 2:00pm

Propeller | 984 Queen Street West, Toronto

Lecture

**Cosmos vs Canvas: Using Art To Reveal Science
In Astronomy Public Outreach Images**

DR. JAYANNE ENGLISH, ASSOCIATE PROFESSOR,
UNIVERSITY OF MANITOBA, DEPT OF PHYSICS AND ASTRONOMY

OCCAM'S RAZOR CURATORS

Kathe Merilovich,

Artist, Initiator of Occam's
Razor Project

Ana Klasnja, M.A.,

!idea Gallery,
Ontario Science Centre,
Invited Curator

Robin Kingsburgh, B.Sc., Ph.D.,

Faculty of Liberal Arts & Sciences/
School of Interdisciplinary
Studies, OCAD University and
Division of Natural Science,
York University

Stephen Morris, B.Sc., M.Sc., Ph.D.,

J Tuzo Wilson Professor of
Geophysics, University of Toronto

Michelle Letarte, Ph.D.,

Department of Immunology,
University of Toronto, and
Senior Scientist,
Hospital for Sick Children

OCCAM'S RAZOR

ART, SCIENCE & AESTHETICS

PARTICIPATING ARTISTS:

Sylvia Adamcik, Rahni Allan, Cecilia Basic, Kelley Bell, Karina Bergmans,
Penny Leong Browne, Julia Buntaine, Linda Chen, Morgan Chivers, Nicole Clouston,
Stephen Crosby, Kevin Dejewski, Andrew Drown, Gina Duque, Jayanne English and Willy
LeMaitre, Andrew Godsalve, David Griffin, Leeann Janissen, Gillian King, Julia Krolik,
Ania Machudera, Harry Mackay, Jason McKay, Zsuzsa Monostory,
Laurel Rath, Amy Rae and Chelsea Greenwell, Paul Roorda, Perin Ruttonsha,
Vjosana Shkurti, Morgan Skinner, Tosca Teran, Diane Tucker, Elaine Whittaker,
Ron Wild, Ross Winter

propeller

ARTISTS EMPOWERING ARTISTS

984 Queen Street West, Toronto, Ontario
416.504.7142 | www.propellerctr.com
Wed-Sat 12-6:00pm | Sun 12-5:00pm

**GALERIE
!idea
eepi
GALLERY**



**ONTARIO
SCIENCE
CENTRE**

www.ontariosciencecentre.ca

PARTICIPATING ARTISTS:

- 5 Sylvia Adamcik
Rahni Allan

- 6 Cecilia Basic
Kelley Bell
- 7 Kelley Bell
Karina Bergmans

- 8 Julia Buntaine
Linda Chen
- 9 Morgan Chivers
Nicole Clouston

- 10 Stephen Crosby
Kevin Dejewski
- 11 Andrew Drown
Gina Duque

- 12 Jayanne English and Willy LeMaitre
Andrew Godsolve
- 13 David Griffin
Amy Rae and Chelsea Greenwell

- 14 LeeAnn Janissen
Gillian King,
- 15 Julia Krolik
Penny Leong Browne

- 16 Ania Machudera
Harry Mackay
- 17 Jason McKay
Zsuzsa Monostory

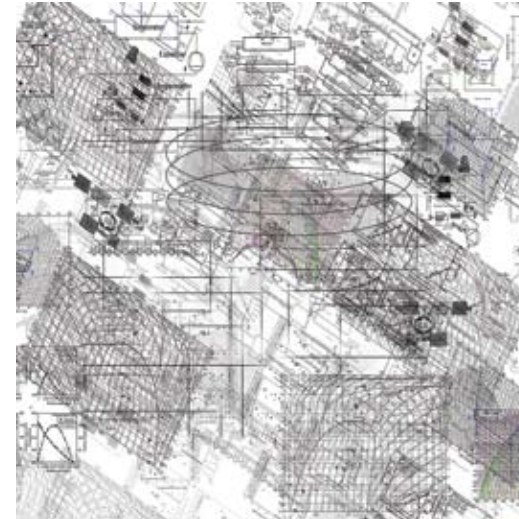
- 18 Laurel Rath
Paul Roorda
- 19 Perin Ruttonsha
Vjosana Shkurti

- 20 Morgan Skinner
Tosca Teran
- 21 Diane Tucker
Elaine Whittaker

- 22 Ron Wild,
Ross Winter

SYLVIA ADAMCIK

Toronto, Ontario
You Can See How It Ends With Electricity
Digital media | 20" x 20"
2013



The presence of human infrastructure within the global environment is the predominant theme in my work. Through my artistic practice, I explore human development patterns in the context of political systems, normative social values, development trends, natural resource dependencies and economic frameworks. I examine the processes of change and the preconditions needed to initiate change within the extant socio-politico-economic framework.

RAHNI ALLAN

Australia
Signalling the Stars
Digital video | 3:09
2011

My work is inspired by quantum physics. By investigating subatomic behaviour, scientists hope to unlock the biggest mysteries of the universe such as gravity, space, time and dark matter. Science can describe something as large and complex as the Big Bang by refining focus down to simplest and purest fundamental forces. Just as quantum physicists aim to demonstrate the macro cosmos through macro-cosmic experimentations, my practice attempts to resolve my own experience of self, within a potentially infinite and expanding universe.



CECILIA BASIC

Winnipeg, MB
Resonant Energy
Multi-media glass mosaic | 9" x 6"
2013

Occam advises that grout rivers be avoided in the aesthetic flow of mosaic. Here, a river filled with cello wire formed by glass between quadrupole rods depicts the path particles with mass-to-charge (m/z) 100 follow as they traverse a mass-discriminating electric field. Intentional violation of Occam in mosaic art thus captures Occam in the science of quadrupole fields: Only particles with m/z 100 can flow through the field. All others will be neutralized, and lost.



KELLEY BELL

Baltimore, MD
Inspiration and Realization: The Eureka Machine
Digital video | 2:10
2011

The term "pataphysics" refers to "an absurdist concept of a science dedicated to studying what lies beyond the realm of metaphysics, intended as a parody of the methods and theories of modern science and often expressed in nonsensical language." The Eureka Machine is an animated "device" that presents an allegorical summation of how creativity works—a unique pataphysical apparatus for the transmutation of abstract thought into concrete objects."



KELLEY BELL

Baltimore, MD
Where Ghosts Come From: The Kubler-Ross Device
Digital video | 1:15
2011

A video installation presenting an animated "device" explaining the Kubler-Ross Model, based on Elisabeth Kubler Ross' "Five Stages of Grief" in her book On Death and Dying. This device is a "miraculous modern mechanical marvel that transmutes the painful memory of a lost loved one to a joyful memory, allowing the deceased to shuffle off this mortal coil, and enabling the living to have the courage and intestinal fortitude to carry on.



KARINA BERGMANS

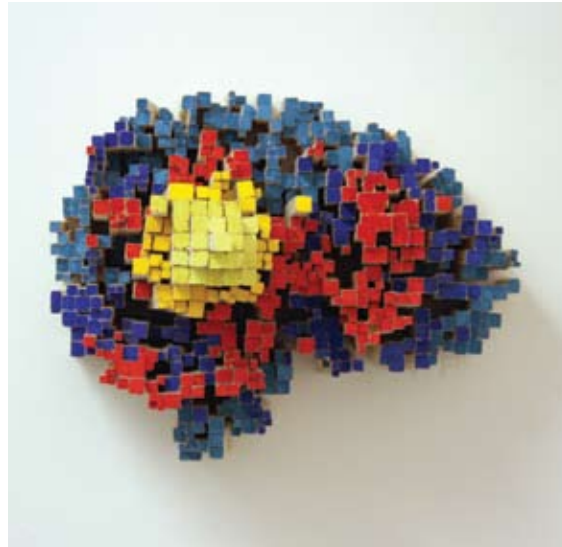
Ottawa, Ontario
Stomach Ulcer
Sculpture | 68" x 49" x 14"
2013

Stomach Ulcer is part of Ligaments and Ligatures, an exhibition that connects textile organ sculptures with word association to common diseases. My work presents a didactic opportunity exploring human fallibility and the infinite malleability of textiles in sculpture production.



JULIA BUNTAINE

New York City, NY
Empire State of Mind
Wood, paint | 1.5' x 1' x 1.5'
2013



fMRI, or “functional magnetic resonance imaging”, is a neuroscientific tool used to measure indicated brain activity. Much like an MRI, fMRI measures blood flow, and thus it becomes possible to observe the associated brain activity (the assumption of association between blood flow and activity is long held, but still debatable in the field). To indicate varying levels of activity, this imaging technique assigns colors to identify areas most active to least active.

Typically, the color scale used ranges from light yellow (most active), to light blue (least active), with dark yellow, red, and dark blue lying between, in descending order of activity level.

LINDA CHEN

Unionville, Ontario
Winter Terrain
Oil on canvas | 6” x 11”
2012



Nature, in all its most intricate variations, stems from the most minimal, single form, and from there everything evolves into more complex beings. My goal for this piece, inspired by foliage on the ground during wintertime, was to capture the layers of the earth (snow, leaves, branches) while also capturing their combined aura through eliminating details. Although my subjects are simple things to begin with, they, too, started as something even simpler and smaller.

MORGAN CHIVERS

University of Texas, Arlington
Untitled Cycle of an Unending Cosmos
Clear glass, insects | 6” x 11”
2012



Contemplating the big bang and potential big crunch, I introduced found insect remains into molten clear glass, boiling the body’s oils, waters, enzymes, and proteins, nullifying recognizability. Though the intense heat destroyed individuality, everything the organism was made of remains entirely present.

Incessant ecological cycles would have digested the constituent materials to build new, living bodies; this interruption hopefully germinates/fertilizes contemplation of what it means to be made of matter that used to be other beings.

NICOLE CLOUSTON

Victoria, BC
CRE
Polymer clay
Variable; each unit 2cm x 0.5 cm x 0.5 cm
2014



Inspired by images of gram-stained Carbapenem-resistant Enterobacteriaceae, CRE explores the bacterial sublime; the beauty of bacteria and the fear of its ability to infect the human body. According to the Centre for Disease Control, this antibiotic-resistant bacteria is an immediate public health threat that requires urgent and aggressive action

The disease is embodied sculpturally through a multitude of simple forms that come together to create a complex system that “infects” the space.

STEPHEN CROSBY

Toronto, Ontario

Aurora

Timelapse video | 1:09

2013



We have solar flares from the sun. Its active nature is what allows us to live. We can see the solar winds and energized stream of particles passing Earth as they bounce off our atmosphere. The *Aurora*. Finally, 100 Earth sun distances away the solar wind forms a boundary with deep space. It creates a protective bubble shielding our solar system from dangerous galactic radiation and cosmic rays called the Heliosphere. With this, we exist. "We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances. Therefore, to the same natural effects we must, so far as possible, assign the same causes." *Isaac Newton*

KEVIN DEJEWSKI

North Massapequa, New York

Transmissions

Video | 13:29

2013



Transmissions is a series of audio and video compositions generated from weather data received from a unique weather station and processed through custom computer programming. Sensor data is utilized to control various parameters of audio and video feedback. In response to growing awareness of climate change, *Transmissions* searches to visualize weather patterns and question our perception of the elements. This process allows one to visualize the intangible conditions that define a specific moment in time.

ANDREW DROWN

Toronto, Ontario

Inhabitants

Digital archival print | 24" x 16"

2012



Photographers strive to simplify, something intrinsic in the act of "putting a frame around the world." As a former marine biologist my experience shapes much of my art. The concept of the "extended phenotype" coined by Richard Dawkins, refers to the expression of an organism's genetics extending beyond its physical body. A simple relationship is evoked between the sea stars and people's homes, inhabitants of the west coast, both expressing their "extended phenotypes."

GINA DUQUE

Toronto, Ontario

Eukarya

Mixed media | 48" x 36"

2011

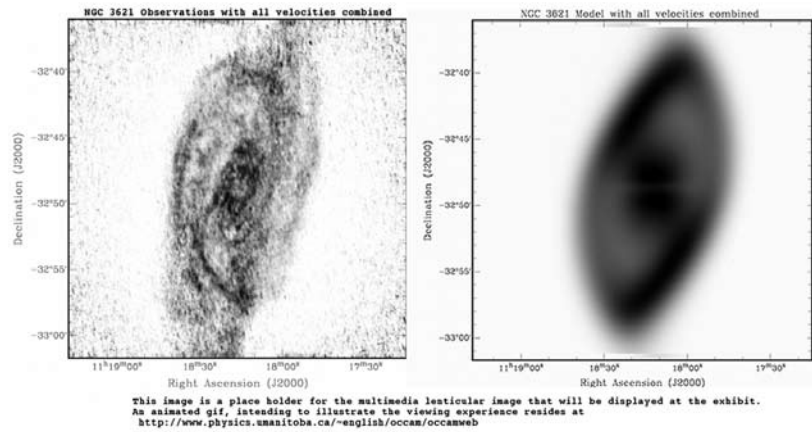


Inspired by microscopic images of Eukaryotic cells taken from medical imaging technology. These images can appear to be spiritual in nature. *Eukarya* explores the concept of the body and mind working as one to achieve optimal health. This interpretation of imagery highlights intuitive, yet structured, components of visualization that are present in both the scientific and spiritual realm.

JAYANNE ENGLISH & WILLY LEMAITRE

Winnipeg, Manitoba
*Simple but not simpler:
the model and its anomalies*
Lenticular print | 30" x 30"
2014

Galaxies spin! Radio telescopes capture this motion within a pseudo-volume: height, width and velocity (instead of depth). Images have been extracted from such a pseudo-volume, step by velocity step, and arranged into a lenticular image, juxtaposing imaging technologies from art and science. A simplified mathematical model of the spin, when applied as a mask to the observations, reveals complex gas streams. Scientifically, these complex streams expose how and why galaxies change with time.



ANDREW GODSALVE

Hinton, Alberta
Meta-lithics VI
Digital-photo composite image;
digital inkjet print | 60" x 40"
2013

Meta-lithics VI stems from my investigation into new ways of representing landscape in art, by using digital-photo compositing techniques to approach geological forms and processes. My composition is visually complex, but took shape simply from the interactions of two elements: the geological subject and the digital medium. Experimenting with this dynamic, I intend to provoke new thoughts on both components, sharing with science the goal of better understanding the tangible and intangible worlds we inhabit.

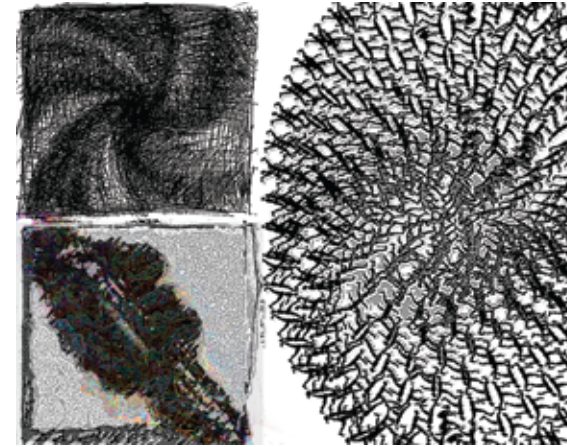


DAVID GRIFFIN

Toronto, Ontario
Multi-view Milky Way
Hybrid digital/analog drawing | variable size
2013

A multiDview projection drawing of the Milky Way galaxy. This is a composite ink and digital drawing showing a section, plan and auxiliary view.

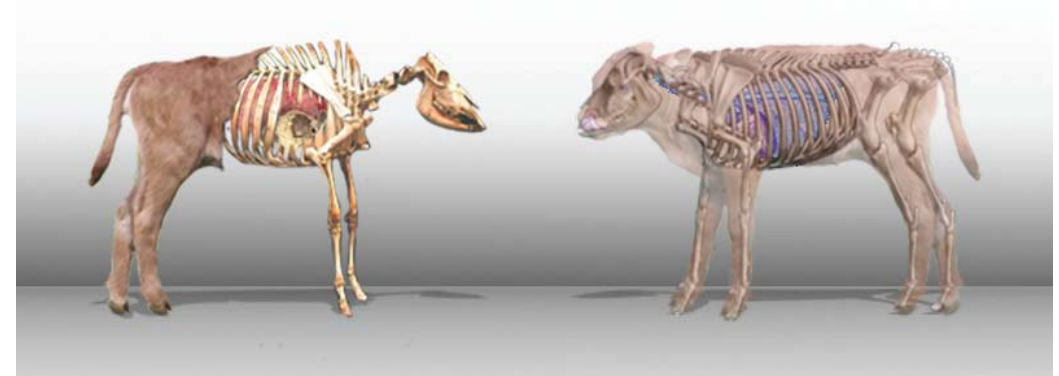
We use Drawing to enhance our abilities to process information, to gain understanding of experiences that are beyond our normal physical capacities. For example, drawing-out the strange implications of Quantum mechanics, in Bohr's atomic motion diagrams, we "hold in hand" things that otherwise impossible for us to grasp. This is a portfolio of simple drawings that attempt to bridge inconceivable physical relationships using the simplest of means



AMY RAE & CHELSEA GREENWELL

Windsor, Ontario,
VivoBovum
Animal product, 3D printed PLA plastic,
projected image | 7' x 3' x 2'
2014

Through the display of the "working body" of two calves, one natural and one digital, we analyze the potential for both the natural world and the digital world to illustrate scientific anatomy as an educational tool. BioArtists Chelsea Greenwell and Amy Rae respond to the educational intersection of art and science by juxtaposing the traditional technique of taxidermy with the new emergence of digital media through 3D rendering.



LEEANN JANISSEN

Toronto, Ontario
Emergence(1-9)
Ceramic | 8" x 8" x 4"
2013



Time flows in one direction: forward. We cannot "unbreak" the teacup. We cannot "unspill" the milk. The universe moves inexorably towards a state of maximum entropy or disorder. Yet ordered patterns do exist.

Emergence explores the spontaneous emergence of pattern and order from a substrate of apparent randomness. The scale could be microscopic or continental. Order may indicate life, may reflect an underlying inorganic process, or it may be a projection of meaning from a subjective viewer.

GILLIAN KING

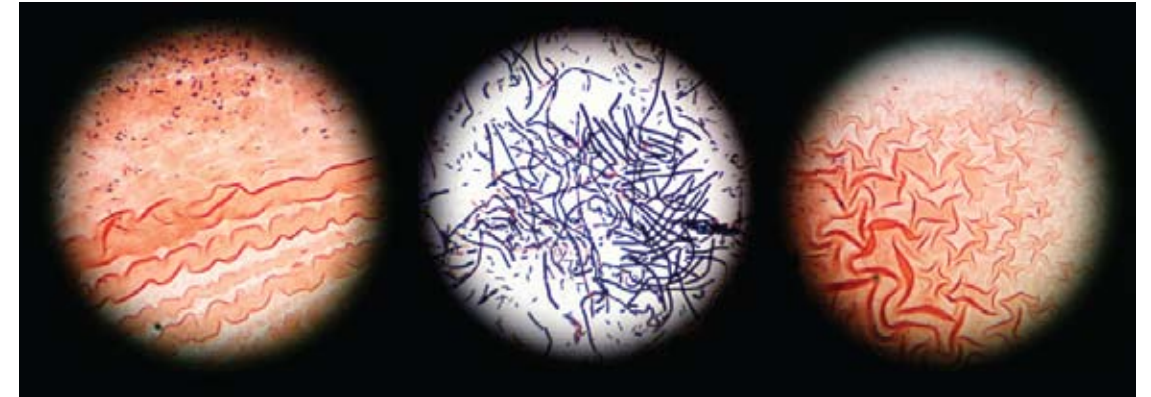
Ottawa, Ontario
Spliced Fowlers
Oil on canvas | 5' x 4'
2013



Spliced Fowlers features a combination of multiple fragmented images, including conjoined animals, spliced organisms, and gestation. Although the layering and references of the various images may not be obvious to the viewer, each reference plays a vital role in the final piece, taking on its own morphed reality based on the themes of animal experimentation, consumption, human destruction of nature, biological processes, birth, and death.

JULIA KROLIK

Kingston, Ontario
Microbiota
Photography
2010



Microbiota is a photographic installation that maps bacterial life. Blending microbiological protocols with artistic vision, the artist reveals invisible yet ubiquitous aspects of our shared environments. This collection of bacterial photographs were sampled, cultured, stained and photographed to raise public awareness of the unseen bacterial environment around us. While pathogenic bacteria are extensively studied and are of most concern, this installation places our environmental co-habitants in their own spotlight.

PENNY LEONG BROWNE

Toronto, Ontario
Faltering Methodologies Series A, No. 4 of 100
Ink on paper in bound book | 9.25 "x 1.25" x 6.25"
2011 - ongoing



The way in which I approach my art practice, through predetermined methodologies, and limited conditions of creative production (i.e.: habituality, repetition and seriality), I think, may be considered analogous to the way in which scientists proceed with their research. Through these processes, I investigate how art can offer different ways of knowing and subsequently how art may be situated as artifacts of research. As an artist, I am particularly interested in how these methodologies may shape an aesthetic that blends the visual fields of art and science.

ANIA MACHUDERA

Toronto, Ontario

Untitled 27

Acrylic on plexiglas | 46" x 46"
2012



The light shining on circles painted on transparent Plexiglas creates shadows on the wall suggesting an extension from the surface into an echoing world beyond the perceptive exterior. I use Optics, the branch of physics (which involves the behavior and properties of light and reflection) to collapse the notion of time as the most significant factor in human existence, and to shine light on the wheels of possibility of being human: simply in-between space.

HARRY MACKAY

Toronto, Ontario

Corona Radiata

Photograph | 11" x 17"
2013



The subcortical white matter is responsible for all of the long-distance communication that takes place within the brain. The fact that our brains are capable of anything at all has as much to do with this connectivity as it does with the structural and chemical properties of the neurons that are being connected. So named for its resemblance to a radiating crown, this structure has been an object of artistic interpretation from the days of crude dissection to the current work at the Human Connectome Project. I fashioned this piece from an outdated pharmacology textbook.

JASON MCKAY

Toronto, Ontario

Transmigration (Two Strands (Watson and Crick))

Multicoloured LED lights, wire, plastic tubing | 4' x 9'
2013



Two strands of Christmas lights are manipulated to form a double helix. The lights are presented so the original function is obvious while simultaneously being an illustration of a DNA molecule. The form of the Christmas lights transforms into a double helix and then back to their original form.

ZSUZSA MONOSTORY

Toronto, Ontario

The Caretakers

Clay | 15" x 14" x 12"
2013



This raku* fired wedge shaped ceramic vessel portrays four figures on the lid, three of whom hold animals. Their focus illustrates interest, observation, fascination and caring. That is at the root of all science.

The fourth figure, on the reverse side holds a book and a DNA strand, developing the understanding of those organisms on a different level. Our humanity informs the scientific curiosity that defines an ability to appreciate and care for the world.

*raku is a Japanese firing technique , originated from the 16th century

LAUREL RATH

Dartmouth, NS

Searise #1 - #9

Digital photographic series clear mounted on gallery board, sculptural wire | 11" x 14" 2013



Searise is a moment of reflection upon our shores. The title is a play on both sunrise and continuity. These contemporary landscapes with an abstracted subject, bleeding into infinity, suggest that shoreline, sea rise, and global warming are continuous. They are mounted on a driftwood-coloured stained board with a lit, sculptural, rusted wire in front. This wire represents the current shore where the photograph was taken, while the wire's shadow represents the historical shore.

PAUL ROORDA

Waterloo, Ontario

The Lorenz Butterfly

VIDEO

Butterfly wings, vintage drafting pen, barometer, string, and hardware in wooden box. 2013

In this kinetic sculpture, the barometer needle moves with a gentle breath of air over the butterfly wings. The sculpture links nature to technology and the participating viewer to the object under study. The simple thread joining the barometer to the butterfly belies the complexities of the scientific search for explanation. This work reflects the complicity of each individual in the unfolding of climate change and in the manipulation of the science that studies it as well.



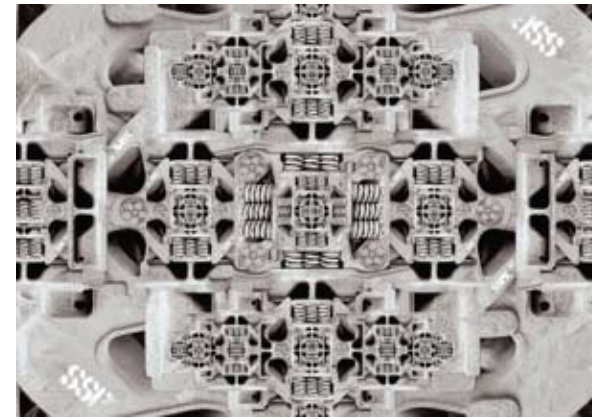
PERIN RUTONSHA

Toronto, Ontario

Building Blocks, Series II:

Machine Man, Succession

Photography | 31.25" x 24.25" 2013



They begin in neutral. The position wherein all schemes remain open. An ocean of viscous matter morphing through many states; quietly animated particles ready to coalesce; skimming each option to find connection — each a 1° turn from discrete expressions. A configuration defined: recognized as pattern, coded as symbol, denoting understanding. Their single choices compound in assembly. Given purpose through formation, their identity binds as one; individual qualities interlacing to spawn a yet unseen kind.

VJOSANA SHKURTI

Toronto, Ontario

Sundown

Digital video | 5:53

2013

Electrical light weighs upon your eyes with its unnatural demand for attention. When the power is out, we experience a freedom to return to simpler and gentler ways of illumination. This return, though nurturing and devoid of excess, is only temporary as we are ultimately forced to accept the irreversibility of technological complexity. *Sundown* depicts this experience in a minimal setting, using Occam's Razor not only as a conceptual guide but also as a stylistic one.



MORGAN SKINNER

Toronto, Ontario

And Now I Can Begin to Tell You What I Do

Mixed media | 36" x 30"

2014



And Now I Can Begin to Tell You What I Do is an exploration of the aesthetic beauty and physicality of the mathematical work produced by my brother. While the experience of the exploration is made complex through familial relations and unfamiliar languages of communication, the piece is simple in that it relies on the aesthetics properties of the work in my brother's notebook.

TOSCA TERAN

Windsor, Ontario

Teran (detail)

Glass | 12" x 12"

2013



This work draws from my fascination with the artistic representation of natural history, and my interest in microscopic invertebrates: Melethallia, Phytoplankton and Radiolarians.

If we can say that the world of science is synonymous with truth and the world of art with that of fiction, I want to tread a middle ground that is unusual and seemingly beyond belief, yet also familiar.

DIANE TUCKER

Cookstown, Ontario

Aquanomaly

Cibachrome print | 11" x 17"

2005



This photograph poses a simple, yet profound question: Why do the water droplets follow the curve of the glass? It is taken the old way with no manipulation at all. The water droplets demonstrate surface tension because water molecules are more attracted to each other than to air, causing an inward force which results in its surface appearing to be covered with a stretched elastic membrane. Gravity causes the droplets to stretch down into ovals.

ELAINE WHITTAKER

Toronto, Ontario

Infect Me

Petri dishes, halobacterium sp.

Nrc-1, mylar, fax carbon, pins | 75" x 49"

2012



We live in porous bodies, in a porous world. Microbes and language know no boundaries. Infection terrifies us.

Petri dishes line the wall containing carbon commercial messaging from faxes, and teem with live Halobacterium sp. NRC-1 in various stages of desiccation and crystallization.

Our bodies have become a site of contamination. Infected by the language of advertising. Enveloped in a miasmatic swirl of microorganisms.

The convergence of art and science.

RON WILD

Toronto, Ontario

OncoMap

Chromogenic original on panel | 48" x 36"
2012

The *OncoMap* painting was produced by a Mathematical Physicist doing cancer research at MaRS, and a Digital Art/Science Collaborator artist. Ron Wild's artistic process consists of folding, pulling, transforming and combining graphical elements until a coherent and lively image emerges. Joseph Geraci employs a similar mental process in his medical research work, where he combines mathematics, chemistry, physics, biology and computer science in order to unravel the workings of our molecular circuitry.



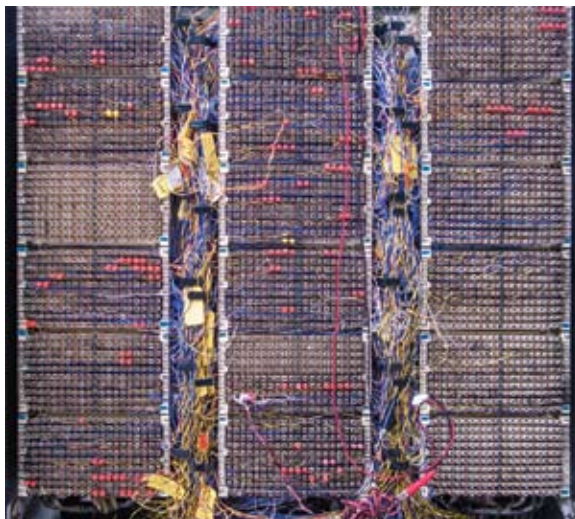
ROSS WINTER

Toronto, Ontario

Wired - Telephone Box

Archival pigment print | 24" x 24"
2013

It was a wired world. The Great Eastern laid a cable across the Atlantic allowing Morse Code communication between Europe and North America. Electrical wires brought light to homes and still do. Alexander Graham Bell invented the telephone. And 'land lines', which were never named before wireless communication, still provide service. When the guts are visible, they are art - geometric, colourful, abstract.



propeller

ARTISTS EMPOWERING ARTISTS

Propeller Centre for the Visual Arts is a member-run gallery supporting innovative, sustainable programming, and providing community building, networking, and partnership opportunities. PCVA has garnered critical acclaim and engaged public interest by supporting the creative, curatorial, and commercial endeavours of artists.

Exhibition support: Katie Micak (PCVA Gallery Director),
Laura Dobson, Cate Hopkins and Propeller's membership.