

# Kate McCallum

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## Summary

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I teach at the Pacific Northwest College of Art and at Portland Community College, with a focus on practice as a form of enquiry, community and environmental engagement, and bringing scientific and mathematical concepts to an artistic audience. Originally trained in sculpture, the themes of my practice and curatorial work have included AI, artistic ethnography and socially engaged art.

I recently completed a practice-based PhD in linguistics (communicative ethnography) and fine art at the University of Brighton; my PhD was funded by the Arts and Humanities Research Council TECHNE consortium. My work consists in practice-led ethnographic research using art as a method of enquiry and presenting outcomes through a variety of interactive digital presentations. My art-theoretical and interdisciplinary research has been published in *Philosophy of Science*, *Review of Philosophy and Psychology* and the *Journal of Artistic Research*. My research career has led me to work with scholars in many different disciplines, and in my teaching I love to encourage an experimental, interdisciplinary outlook in students.

## Education

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2020 – PhD – University of Brighton – Linguistics and fine art with practice-based component  
Projected title: *Situating Mathematical Communication: An Artist's Ethnography of Research Mathematics*. An ethnographic study of communication in research mathematics, informed by Relevance Theory and ideas from the situated cognition paradigm and using fine art practice as a research method.  
Advisors: Tim Wharton, Ole Hagen and Andrew Fish

2016 – Masters in Research, Arts and Cultural Research – University of Brighton (Distinction)

2010 – BA, Fine Art Sculpture– University of Brighton (First Class Honours)

2006 – Foundation Diploma, Art & Design – University of Hertfordshire - (Distinction)

## Selected Teaching and Student Workshops

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*Assistant Professor, Pacific Northwest College of Art, 2021 onward.*

- Research for a Creative Practice: a class for upper division students to contextualise their final thesis project.
- Narratives of Migration and Movement, a section of Perspectives on Society and Culture: a class with the goal of giving students an introduction to a range of disciplines from the humanities and social sciences.
- Visual Mathematics: an introduction to systematic visual reasoning and the processes of abstraction that bring mind-bending concepts into graspable range.

*Community Education Instructor, Portland Community College, 2021 onward.*

- Exploring Science Through Artistic Experiments: a practical class exploring innovative science-based methods of making.
- The Cutting Edge of Science and Art: A Curated Exploration: a course exploring online and virtual reality works of sci-art.

*Summer School Teacher, Art World School, July – August 2021.* I taught a broad range of art classes to elementary-age students at schools across Beaverton as part of a summer school programme, working with a variety of media and techniques including ceramics and painting.

*Lecturer, University of Brighton, 2017-2018.* Paid lecturer position as research dissertation supervisor for third-year students on Fine Art Critical Practice at the University of Brighton, giving individual tutorials to help students to develop their final research essay for assessment. I also had responsibility for marking these dissertations and taking part in the committee moderation process. I supervised one student through a prize-winning essay on the intersection of art and quantum theory.

### Visiting teaching

“Interdisciplinary and Practice-based Research”, workshop on interdisciplinary and practice-based research methods with students in the “Interdisciplinary Seminar” class at Pacific University, 26<sup>th</sup> February 2021

“To the nth Degree”, experimental workshop in working with representations and digital interactive environments, Pacific University, 13<sup>th</sup> November 2019

Field trip with Pacific University to see various aspects of professional practice beyond education. Visit to an artists’ warehouse with a group of art majors as part of the professional practice aspect of a studio arts seminar, including studio visits with artists working in various analogue and digital media, followed by a visit to a prominent commercial gallery specialising in selling virtual art with a talk from the gallery manager about curation, commercial aspects of the art world and careers in arts organisations. 20<sup>th</sup> September 2019

“Diagramming: Medium and Message”, exploratory diagramming workshop with students in the “Concepts” studio arts seminar at Pacific University, 3<sup>rd</sup> April 2018

**Representation and Abstraction: When Artists and Mathematicians Meet**, University of Brighton centre of CEM, Brighton, January–March 2018. I directed and curated this project and exhibition to bring undergraduates in different disciplines together in collaboration, with an emphasis on experimental and exploratory approaches.

“Art Practice as Research”, workshop with third-year students of Fine Art Sculpture at the University of Brighton, 28<sup>th</sup> December 2017

“Artists’ Diagramming and the Problem of Representation”, workshop with first-year students of Fine Art Sculpture at the University of Brighton, 3<sup>rd</sup> December 2017

“Curating a Gallery Show”, talk and seminar for first-year undergraduates in Fine Art Sculpture at the University of Brighton, 11<sup>th</sup> March 2015

## Selected Work Experience

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*Freelance Art Project Lead, partnership with The Immigrant Story, December 2020 – present.* I am working toward a grant as lead artist on a project named the Quilt of Oregon in partnership with The Immigrant Story, to highlight the continuity of immigration stories shaping our state.

*Freelance Digital Content Producer, November 2020 – present.*

Yale Center for Business and the Environment: I produce Audiograms for the promotion of the Financing and Deploying Clean Energy certificate program (FDCE), animating quotes from the program’s Ambassadors.

Yale School of the Environment: I produce social media Audiograms using After Effects to promote the work of graduates, for use in the School’s communications.

The Immigrant Story: I serve as a part of the communications team producing promotional copy for exhibitions and crafting a new social media strategy, using art and storytelling to share the stories of immigrants to combat xenophobia and promoting our up-and-coming podcast.

Wingham Farms: I manage the communications strategy for this local sustainable farm, including regular social media posts, managing a subscriber base and producing a monthly newsletter.

*Art Projects Coordinator, Elisabeth Jones Art Center, 2020.* I coordinated two international projects exploring long-distance collaboration: The International Mural by Mail, which is a long-running project in which artists collaborate remotely on 8ft x 16ft murals, and The View from Here, a response to COVID-19 in which artists share their experiences of the shutdown. As well as liaising with artists and exhibition planning, I handled publicity and print and digital exhibition publications.

*Digital Intern, Royal Institution, 2018.* I carried out an internship funded by the Arts and Humanities Research Council at the prestigious Royal Institution, an organisation world-famous for science communication and the Christmas Lectures, developing media for public engagement. This had me develop podcasts and YouTube videos with the Digital Team, developing ideas from the ground up and putting together exciting multimedia presentations to engage a diverse audience with developments in science and technology.

## Community, Volunteering and Sustainability Work

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*The Immigrant Story, December 2020 onward* – I run the organisation’s social media accounts and strategy, posting daily with a defined visual and communications design. I am also part of the graphics team, designing posters,

programmes and other communications materials for the organisation's events and exhibitions, including a long-term exhibition at Oregon Historical Society.

*Wingham Farms*, June 2021 onward – I handle social media and communications for this small-scale farm committed to ethical, sustainable, community-integrated farming, including design work and a monthly newsletter.

*Brighton Women's Centre*, September 2013 - January 2015 – volunteer supporting women to access information about services and the law, including a paid role with the Financial Inclusion project. This role involved training in ethical practice, sensitivity to many aspects of diversity, and active listening as a support method.

I lived and worked in a small reoccupied village in Aragón, Spain, from 2011-2013, with a small group living off-grid, growing food, and working toward complete self-sufficiency. During this time I learned a lot about sustainability and collaborative small-scale organic cultivation, as well as engaging in several building projects using sustainable and recycled materials and working on off-grid infrastructure such as water collection and solar power setups. My proudest achievement was a large mud and bottle wall partitioning off a new room in a house.

## Selected Publications

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### Peer-reviewed journals

“Mathematics, relevance theory and the situated cognition paradigm”, under review at *Pragmatics and Cognition*

“The Aesthetics of Theory Selection and the Logics of Art”, co-authored with Ian O'Loughlin, *Philosophy of Science*, 2019.

“Cognition, emphasis, and the viewer's experience of fine art”, co-authored with Scott Mitchell and Thom Scott-Philips, *Review of Philosophy and Psychology*, 2019

“FanFutures”, *Journal for Artistic Research*, an experiment in AI writing as a tool to make sense of troubled times, co-authored with Kate Monson and Majed Al-Jefri 17, 2019

“Untangling Knots: Communication, and Practice in Knot Theory Diagramming”, *Journal for Humanistic Mathematics*, 19 (1), 2019

“Strange Tools Indeed: Alva Noë and Art as Reorganisation.” *Essays in Philosophy* (on-line), 19, 2018.

“Mathematics, manifest: a review of *Mathematics: the Winton Gallery*”, *Bulletin for the British Society for the History of Mathematics*, 2017

### Book chapters

“Hushed Tones: Art and Ceremony as a Perspective Shifter”, co-authored with Scott Mitchell, *Beyond Meaning*, 2021.

### Peer-reviewed conference proceedings

“Making Sense of the Incomprehensible: A Serendipitous Encounter with Naivety as a Tool for Telling Tales in Troubled Times”, *AISB 2018 Symposium: Cybernetic Serendipity Reimagined*, University of Liverpool, Liverpool, United Kingdom, April 4<sup>th</sup>-6<sup>th</sup> 2018, co-authored by Majed Al-Jefri and Kate Monson. **Winner of Best Paper award.**

“Reimagining the Mathematical Paper”, *Proceedings of Bridges 2018: Mathematics, Music, Art, Architecture, Culture* (2018), Pages 651–658

“Why Do Mathematics Presentations Sometimes Sound Like Cookery Shows?” *Proceedings of Bridges 2016: Mathematics, Music, Art, Architecture, Culture* (2015), Pages 591-594

“Shape in Mathematics Discourse: An Artist Explorer in Mathematics”, *Proceedings of SHAPES 3.0* (2016), Pages 75-80

“Linguistic Oddities: An Artist Explorer at Mathematics Conferences”, *Proceedings of Bridges 2015: Mathematics, Music, Art, Architecture, Culture* (2015), Pages 503–506

## Catalogues edited

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*Bridges Art Exhibition Catalog*, edited alongside Conan Chadbourne, Robert Fathauer, and Nathan Selikoff, Tessellations Publishing, 2014-2018.

## Selected Talks

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### Conference presentations

“Making Sense of the Incomprehensible: A Serendipitous Encounter with Naivety as a Tool for Telling Tales in Troubled Times”, *AIISB 2018 Symposium: Cybernetic Serendipity Reimagined*, University of Liverpool, Liverpool, United Kingdom, April 4<sup>th</sup>-6<sup>th</sup> 2018 —co-presenting with Majed Al-Jefri and Kate Monson. **Winner of Best Paper award.**

“FanFutures”, *Artificial Lives*, University of Sussex, 1<sup>st</sup>-2<sup>nd</sup> December 2017—co-presenting with Majed Al-Jefri and Kate Monson

“Hushed Tones: the Modern Art Gallery as Intensifier”, *Beyond Meaning*, Athens, Greece, 13<sup>th</sup> – 15<sup>th</sup> September 2017—co-presenting with Scott Mitchell

“Gestalt and Anomaly: the aesthetics of theory selection and the logics of art”, *International Conference for the Philosophy of Science*, Lisbon, Portugal, 14<sup>th</sup>-16<sup>th</sup> December 2016—co-presenting with Ian O’Loughlin

“An Embodied Approach to Diagramming in the Field of Mathematics”, *Embodied Methodologies*, Royal Holloway, University of London, 4<sup>th</sup>-5<sup>th</sup> November 2016

“Guided Interpretation in Mathematical Diagramming”, animation-based film showed at *Memory and Perception*, Rich Mix, London, 3<sup>rd</sup> November 2016

“Doing Mathematics: Content and Practices in Situated Abstraction”, *Ninth Meeting on Embodied and Situated Language Processing*, Pucón, Chile, 6<sup>th</sup>-9<sup>th</sup> October, 2016—co-presenting with Ian O’Loughlin

### Invited talks

“Thinking out loud: A situated account of collaborative sense-making”, invited talk at *Mathematics and the Imagination*, Tallinn University of Technology, Estonia, 28<sup>th</sup> August 2019

“Making Sense of Mathematics: a Situated Account of Collaboration”, invited talk at *Cultures of Proving*, University of Loughborough, April 2019

“Art as Inquiry”, invited talk at Boise State University, Idaho, 7<sup>th</sup> December 2018

“Materials and Practices in Mathematical Communication: An Artist's Ethnography of Research Mathematics”, invited talk at the University of Hamburg, 18<sup>th</sup> June 2018

“Situating Mathematical Communication: An Artist's Ethnography of Research Mathematics”, invited talk at *Mathematical Collaboration II* at St. Andrew's, Edinburgh, 8<sup>th</sup> April 2018

“Situating Mathematical Communication: An Artist's Ethnography of Research Mathematics”, invited talk at the *University of Brighton Postgraduate Research Forum*, 21<sup>st</sup> February 2018

“Situating Mathematical Communication: an Art Practice Approach to the Settings, Interactions and Material Practices of Contemporary Mathematical Research”, invited colloquium at the University of Brighton, 12<sup>th</sup> May 2017

“Situating Mathematical Communication”, invited colloquium at Pacific University, Oregon, USA, 4<sup>th</sup> April 2017

Invited panellist at *Knots in Science and Art*, a Leverhulme-funded event with Sir Michael Atiyah filmed for online public broadcast, at the University of Edinburgh, 30<sup>th</sup> November 2016

## Selected Exhibitions and Curation

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### Curation

**Making Representations**, Phoenix Gallery, Brighton, March 2019

Interactive diagramming workshop exploring themes of representation and description. Part of a three-day project at Phoenix Gallery Brighton, including a one-day symposium and exhibition opening, organised with four other TECHNE artist-researchers whose work touches on questions of representation.

<https://www.phoenixbrighton.org/events/making-representations/>

For the last four years I have co-curated the **Annual Exhibition of the Bridges Conference for Mathematics and the Arts** ([bridgesmathart.org](http://bridgesmathart.org)), which has taken me to Canada, Finland, the United States and South Korea.

**A Conjecture on Space**, the Rose Hill, Brighton, January 2018, subsequently exhibited at Newhaven Fort for the prestigious sound art and music event *Fort Process*, September 2018 <https://fortprocess.co.uk/>

In collaboration with Karl M. V. Waugh, an interactive audio-visual installation exploring attitudes to mathematics and the limits of control

**Surface and Knowledge**, ONCA Gallery, Brighton, August 2016

A collaboration with Jesse Benjamin, showing work that has played a part in practice-based research projects. A showcase of practice-based methods brought to bear on research into the hidden structures of social media and on abstracted communication.

<https://infiltratemathematics.wordpress.com/2016/08/28/surface-knowledge/>

**(in)commensurable**, Gallery 40, Brighton, December 2015

A cross-disciplinary exhibition exploring five artists' encounters with mathematics.

[www.incommensurable.org](http://www.incommensurable.org)

**CORRESPONDENCE**, Prestamex House, Brighton, February 2015

A large show of 14 emerging artists that took place across real and virtual platforms, exploring accessibility and the arts and the politics of representation on different platforms. Awarded £500 funding from IdeasTap. This exhibition took over an entire floor of the Prestamex building in Brighton with a large-scale show that was mirrored by a component in Second Life.

<https://correspondencearchived.wordpress.com/>

**Scale**, Art Nouveau, Brixton, February 2013

Co-curated exhibition and short film night exploring scale and relativity, curated with Jacob V Joyce, an emerging artist whose work explores queerness and de-colonisation.

### Projects

*Fan Futures* - interdisciplinary collaborative project using AI and natural language processing in the creation of art objects that grapple with the question of the future of humanity. Winner of the Opposites Attract competition at the University of Brighton, with Majed Al-Jefri and Kate Monson. April 2017-

*Speculative Fictions workshop series*, ONCA gallery, Brighton. Workshop series exploring climate change, sustainability and collaborative writing, developed by the University of Brighton in collaboration with the One Network for Conservation and the Arts gallery. This year-long, five-workshop series explores collective imaginings of possible futures in a damaged environment, inspired by the work of Donna Haraway and Anna Tsing. October 2017-2018

### Exhibitions and participatory artworks

“Reimagining the Mathematical Paper”, workshop held at **Bridges Conference for Mathematics and the Arts**, July 2018 in Stockholm. This workshop consisted of exercises designed to encourage new and experimental engagements with mathematical papers and reconsider the possibilities in their presentation. Participants were given a number of prompts for creative engagements with existing published papers, physically taking the texts apart and finding new ways to put them back together.

**Imaginative Objects: Reading the Image in Research**, University of Brighton, May 2019. Exhibiting photographs of the workspaces of mathematics, taken from my PhD research. Part of the Brighton Fringe Festival.

<https://www.brightonfringe.org/whats-on/imaginative-objects-reading-the-image-in-research-exhibition-135980/>

**Marks Make Meaning**, University of Brighton main gallery, March 2018. Exhibiting chalkboard animations investigating the role of diagramming in thought, in an exhibition featuring work by Anthony Gormley and Rachel Whiteread

<http://arts.brighton.ac.uk/whats-on/gallery/gallery-exhibitions-2018/marks-make-meaning-drawing-across-disciplines>

**Fort Process**, Newhaven Fort, 22 September 2018. Collaboration with mathematician Karl M V Waugh. Generative sound and light installation exploring chalkboard communication in mathematics, at a one-day sound art and music event that utilises the extraordinary resonant spaces of Newhaven Fort.

<https://fortprocess.co.uk/>

**Flow and Flux: TECHNE exhibition**, Chelsea College of Art, February 2018. Participatory sculpture exploring the nature of the mathematical paper.

## Funding and awards

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Awarded a 3-month AHRC-funded placement at the Royal Institution in London, the foremost institution for the communication of science and home of the famous Christmas Lectures. This placement will see me joining the existing media team at this prestigious organisation and working on evening events, YouTube content and podcasts communicating complex contemporary scientific advances to a public audience. April – July 2018 worth £6200

Highly competitive AHRC funding from the TECHNE consortium for my PhD research, an art practice-led approach to diagramming and mathematics communication, awarded June 2016, worth £60,000

Awarded funding by IMAGINARY.org for the IMAGINARY conference, Berlin, July 2016, worth £500

Awarded the first ever McLaren Bursary from the University of Brighton to pursue my MRes research, September 2015, worth £3000

June and Sidney Crown University-Wide Dissertation Prize 2010 awarded to “Art and the Mathematical Theorem: When Parallel Lines Meet”, worth £1000. Also the subject of a feature in Spindle magazine.

## Service to the field

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Student representative member of the University of Brighton College Research and Ethics Committee 2016 – 2017

Reviewer for the *Journal for Mathematics and the Arts* and *Journal of Visual Art Practice*