

# RE:ACTION

## The Art of Artificial Intelligence

A showcase of the breadth and depth of Southampton's world-leading AI related research and enterprise activity

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### AI POWERHOUSE

Southampton leads UK wide project on responsible AI

### RICH HISTORY

Dame Wendy Hall on why Southampton is so well equipped to lead on the future of AI

### AI AND THE ARTS

Winchester School of Art on creative engagement with AI

### CLOSING THE GAP

How Southampton is bringing together AI and geospatial experts to fill the skills gap

“We aim to open up the public conversation between AI and the Arts, to unlock a critical conversation through creative engagement with AI,” said Winchester School of Art’s Professor Sunil Manghani.

# CREATIVE CONVERSATIONS



**Above:** Professor Sunil Manghani

**Right:** Professor Ed D'Souza

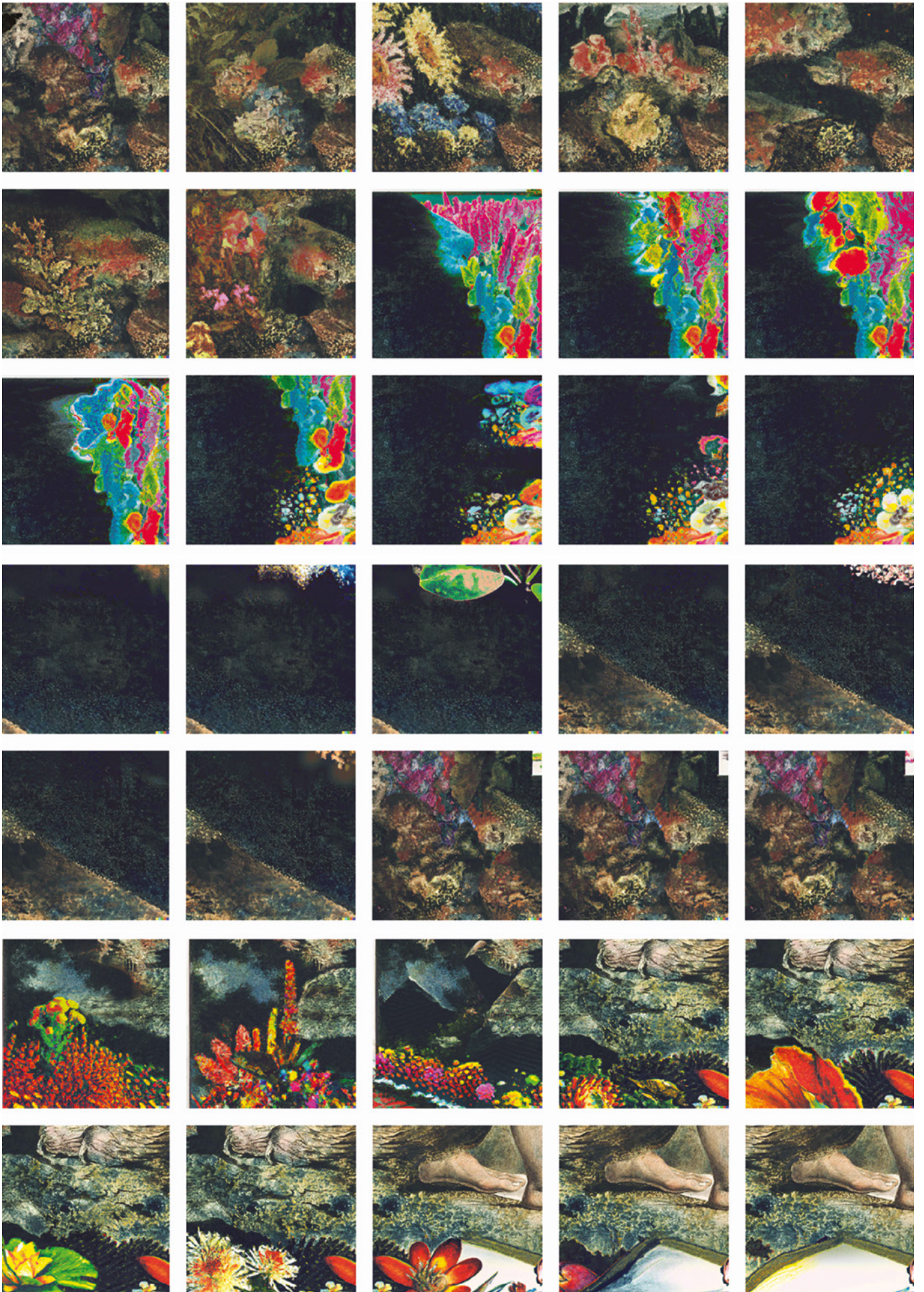
**Opposite:** Sequence of image results based on text prompting using image diffusion software from a detail of William Blake's image *Newton*.

Sunil is at the forefront of the School’s developing expertise in ‘AI and the Arts’. He is Professor of Theory, Practice and Critique and sits on the Academic Advisory Board of the University’s Web Science Institute.

As a Fellow of the Alan Turing Institute and member of its AI and Arts Interest Group, Sunil has been revisiting Structuralism as a framework to explore the absence of memory or cultural context when we use generative AI. The mid-Twentieth Century structuralist movement has been defined as ‘the search for the underlying patterns of thought in all forms of human activity’.

Collaborating with Tate Britain, Sunil and Professor Ed D'Souza are investigating the opportunities that AI might offer to marginalised groups. Ed, who is Professor of Critical Practice and co-director of Winchester School of Art (WSA)’s Social Practices Lab, is also looking at the potential for visualising ‘big data’ to unlock valuable social impacts.

Together, this work is about “questioning the whole archive” that AI and large language models are trained on, explained Sunil. In both projects ‘social practice’ – art which focuses on engagement through human interaction or social discourse – offers what Sunil describes as “making as inquiry”, or “learning through making, through collaboration, through needing to solve problems”



## SOCIALLY USEFUL

**“Everyone talks about AI and data in terms of economic impact, but it can also be something socially useful,”** said Ed. **“We are interested in the impact that freeing up data, which is collected from us all but mainly used for commercial purposes, might have on everyday people and issues.”**

‘Mapping Social Impact’ is a new project using mapping technology to aggregate data on social enterprises, projects, activities, people, and organisations in Winchester and Southampton. By developing a map interface, where people can input search terms on, for example, environmental groups or healthy eating, “you allow people to visualise that data, see where things are happening and understand how it could be useful to them,” continued Ed.

“You can start to add different data sets, such as health data, to show areas of deprivation and where there are resources that could be brought to bear to develop projects or improve access.”

Creative, collaborative solutions to developing interfaces can allow the public to more easily engage with complex data. ‘Smart data’ can be visualised to allow for meaningful engagement with communities, places, issues, needs and services.

**Right** Clipdrop AI-generated artwork, extending from William Blake’s *Newton*, created at the ‘Beyond the Frame’ workshop

**Opposite left** William Blake, *Newton* (1795–c.1805). Held in the Tate Collection.

**Opposite right** Clipdrop AI-generated artwork, extending from William Blake’s *Newton*, created at the ‘Beyond the Frame’ workshop

# MAKING MEMORIES

**“Claude Lévi-Strauss was one of the central figures of structuralism,”** explained Sunil. **“Through his work on myths, he identified that, although the characters, context and form of stories might change, there were certain elements that recurred across cultures.”**

“Lévi-Strauss spent hours in the New York Public Library, with the components of stories on index cards, which he would move around on wooden boards to work out what the common elements, or ‘invariants’ were. He could track them across thousands of myths,” continued Sunil. “In one of his essays, he said, “imagine what I could do if I had IBM equipment”, meaning a computer.

“That line came back to me when I was thinking about my Turing Fellowship. Lévi-Strauss was doing a form of pattern recognition, a sort of handmade artificial intelligence. AI large language models (LLMs) are doing a very similar operation, but over many more parameters.”

LLMs and image generation AIs are machine-learning neuro networks trained on billions of parameters to predict what should come next, based on probability. They can create articulate, plausible new texts or images, but they lack the means to navigate what Sunil refers to as a “cultural archive”.

“When humans talk, we tend to be referring to specifics or to someone. AI can evoke the notion of a person in a sentence, but a

few sentences later, it is just a new iteration of that person, there is no substantive connection,” continued Sunil. “That creates a strange feeling when you’re using these LLMs: they make perfect sense, but they don’t seem to have any memory.”

Working with colleagues at the Alan Turing Institute, Sunil has been analysing myths and trying to train an AI on these data sets to disaggregate stories and understand the significance of certain elements, in the same way that Lévi-Strauss did.

“We are trying to give the AI this sense of memory, or what I call a ‘second order signification system’, in the way it makes meaning,” said Sunil.

“If AI could start to make sense of stories and hold on to key components, you are giving it an ability to find connections and make inference. If it can hold a larger contextual reading of a situation, generative AI models can start to produce more meaningful outputs.”

**Find out more**  
<https://structuralism.ai>



# BEYOND THE FRAME WITH TATE BRITAIN



Questions of representation and diversity have been discussed in art for some time and are, increasingly, also being raised in the context of AI.

For a public art collection such as Tate Britain, engaging with their local community and young people who may be disenfranchised from art and culture is a priority. A collaboration with Winchester School of Art, 'Electronic Life', is using AI to address both issues.

The Tate invited Professor Sunil Manghani and Professor Ed D'Souza to collaborate with the Tate Collective Producers to develop a series of public workshops. This group of 16-25-year-olds from the museum's local area is involved in programming, including the renowned 'Late at Tate' events.

With the Collective, the Tate and industry partner Stability AI, Ed and Sunil developed the idea of inviting visitors to use AI imaging software to manipulate digital versions of works in the newly rehung Tate collection, to engage with the art and ask questions about representation. Stability AI provided free access to their software, which allows the user to 'clean up' or 'uncrop' sections of an image or add new elements using text prompts.

The first event, 'Beyond the Frame', took place in June as part of the LGBTQIA+ *Queer*

and Now festival and included an artist's talk from Whiskey Chow, a Queer artist invited to use the software to produce new works on queer identity.

"I am interested in the kind of affordances that technology might give, enabling marginalised groups to connect, express themselves and engage," explained Ed.

Text prompt interfaces are allowing people to use AI without having technical knowledge. In being able to use the skills they do have, in language, imagination and creativity, "AI can be emancipatory," continued Ed.

The project aims to build AI capabilities in the Tate Collective Producers and the museum staff and, by inviting the visitors to use the technology, to diversify the public conversation and foster new stakeholders in AI.

A key theme emerging is that of representation within large language models (LLMs).

LLMs 'learn' by scraping the internet for data. This means they learn from the 'majority data' that they find there, so that the experiences of marginalised groups can be lost.


"The Tate Collective Producers, a very diverse group of young people, found it hard to be able to describe some of their cultural experience through the AI software," explained Ed.

"One of the Producers was trying to describe the Notting Hill Carnival, but the software lacked the understanding of the language she was using and was unable to visualise the diversity of people for her."

Stability AI sent a developer to learn from the young people's experiences of using the platform. It is this kind of dialogue with AI that Sunil and Ed want to promote.

"There is a need for more diversity and engagement with AI and LLMs to enrich these models," noted Ed. "The more diverse the people who can engage, the more diverse the data feeding into these models."

This project will also feature in next year's Kochi Biennale, India.

 **Find out more**  
[www.tate.org.uk/whats-on/tate-britain/queer-and-now-2023/beyond-the-frame](http://www.tate.org.uk/whats-on/tate-britain/queer-and-now-2023/beyond-the-frame)