

ART MACHINES / 2
ART MACHINES / 2
ART MACHINES / 2
ART MACHINES / 2

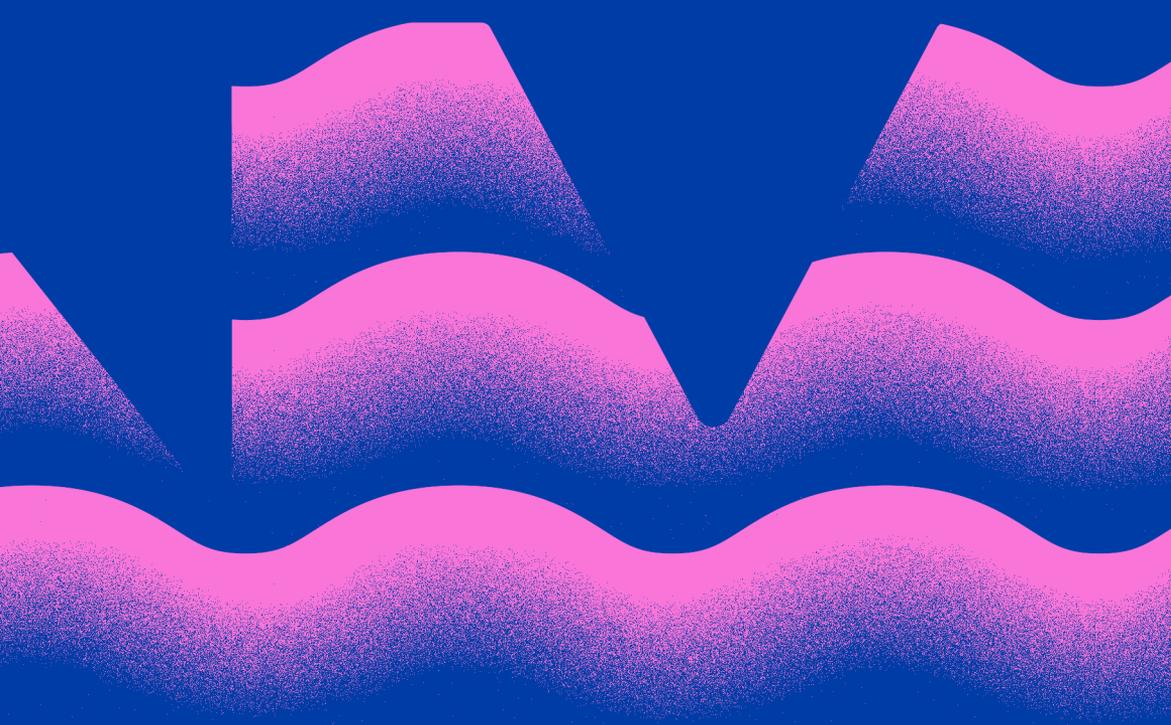
藝術儀貳

INTERNATIONAL
SYMPOSIUM ON
MACHINE LEARNING
AND ART 2021

PROGRAMME



10 - 14 JUN 2021



Conference
Schedule





©John Gollings

About the School of Creative Media

School of Creative Media, the region's first such institution, was founded to nurture a new generation of entrepreneurial, interdisciplinary artists and creative media professionals, and to be a hub of innovation for the creative industries in Hong Kong, Mainland China, and abroad. Now, over two decades later, SCM is recognized to be an international centre for discovery and innovation in digital media. At SCM, creative media art meets technological innovation to build the future of art tech development in Hong Kong for the 21st Century. Our students are trained across a range of disciplines spanning photography, animation, film, interactive media, gaming, installation art and digital media that synthesize art with technology, and traditional with new media. Our internationally recruited faculty members are amongst the foremost artists and researchers in the field of digital media, art and technology, media, social and cultural studies and computer science. Our graduates have consistently demonstrated high employability, with over 90% of those who graduated now working as artists and professionals in the creative industries such as film, advertising, web development, publishing, and media production. Many have won prestigious international and local awards for creative and technical innovation.



Message from the Provost

Welcome to this second conference on Computational Media Art organized by CityU's School of Creative Media.

This conference reverberates the core values of this university: interdisciplinarity—here the interplay between art and science, intellectual discourse at the frontiers of knowledge—here an embodiment of artistic expression into machines, knowledge discovery based on a deep understanding of the subject disciplines, and a fresh look at academic endeavours, commensurate with the ambitions of a young and thriving university. CityU is less than 30 years old, and the School of Creative Media has been with us for 21 years. During this time, the School has earned an international reputation for leadership in media art through the accomplishments of its award-winning faculty and students, and its engaging displays of artistic work in Hong Kong, the region, and the world.

Art Machines, a juxtaposition of the creative—art, and the routine—machines, uniquely reflects our Zeitgeist, with machine intelligence influencing the entire spectrum of academic activity. Against this background, academics, artists, and professionals in computational media art provide their own interpretation of the impact of the technological developments on our lives and our world.

The School of Creative Media has once again assembled a fascinating collection of presentations and exhibits from leading thinkers and creators worldwide, including our own. I congratulate Dean Richard Allen and the School on organizing this conference for the second time and wish all the participants a stimulating and successful conference.

Prof. Christian Wagner
Provost
Chair Professor of Social Media
City University of Hong Kong



Message from Conference Director

Wherever you are, I wish you all a very warm welcome to *Art Machines 2: International Conference on Machine Learning and Art 2021 (AM2)* which follows our successful inaugural conference *Art Machines* in 2019.

There is no doubt that since our inaugural conference, *Art Machines*, the topic of Machine Learning Art has only grown in significance and importance. Machine learning algorithms now inform every aspect of our lives, while at the same time they have emerged as a medium for artistic creativity and expression. Machine Learning Art offers the possibility for new pathways of computationally mediated expression and understanding; indeed, for some, it offers the promise of taking us beyond a human-centered view. Equally Machine Learning Art also offers a way for the artist to directly reflect upon, by intervening in, our algorithmically-mediated world. But only if we can understand the tools that we use.

This year, our conference is being run in a hybrid format due to COVID-19, which combines both online and in-person presentations. *AM2* features papers by both scholars and artists which are freely mixed together in the open call panels, and it accompanied by a new, open call art exhibition, as well as our regular student salon. It features distinguished guest speakers who are contributing either as plenary panelists to our core theme or as keynotes addressing broader topics. I would like to thank all the participants whether in-person or online and hope that you find this a rewarding academic community to be engaged in.

The organization of this conference was a great team effort. Dr. Harald Kraemer and Dr. Tobias Klein took charge of the artistic abstracts, Dr. Damien Charrieras, the scholarly abstracts, and Dr. Hector Rodriguez, the machine learning proposals, while I led the full paper reviews. Dr. Tobias Klein and Rodrigo Guzman Serrano curated the open call exhibition. Dr. Bryan Chung, Dr. Linda Lai, Dr. Tomas Laurenzo, Dr. RAY LC, Dr. Can Liu, and Dr. Elena Sherstoboeva participated in the review process. Anton Dragan Maslić, Rodrigo Guzman Serrano and Park Ji Yun organized the student salon.

AM2 received a generous financial contribution from the U.S. Consulate General of Hong Kong & Macau and The Croucher Foundation for which we are thankful. Thanks, too, to former Provost Alex Jen and current Provost Christian Wagner at CityU for their support. *AM2* would not be possible without the seasoned administrative leadership of Malina Siu. A big thank you to her! Our production team of Danny Cheng, Antony Chan, Alan Tse, smoothly implemented the online platforms and Fion Ng expertly coordinated the staging of the Art exhibition and student salon. Thanks also to Tobias Tang, Candy Tso and Sureshika Piyasena for their assistance and to Dr. Olli Tapio Leino for his help in publishing the proceedings.

Prof. Richard William Allen
Conference Director, *Art Machines 2*
Dean, School of Creative Media
Chair Professor of Film and Media Art
City University of Hong Kong

13.00–14.00	Registration → L1 Lobby	
14.00–14.15	Welcoming Remarks → M3017 L3 by Richard William Allen, Dean of School of Creative Media and Conference Director	
14.15–14.30	Break	
14.30–16.30	Paper Session 1: Digital Design Phenomenologies Session Chair: Ashley Wong → Shun Hing Lecture Theatre M3090 L3 Landscape Forms: Machine Learning, 3D Form and Figuration Peter Nelson, Roberto Alonso Trillo, François Mouillot, Daniel Shanken, Mathis Antony, Ryan Au, Maya Duan and Jianming Mai Mesh2Matter, Rendering New Materialities George Simms Tree and Vanishing Islands: Visualizing Epochs in 3D and Interpreting Fragments in GAN Art Tengchao Zhou Alien (Post)phenomenologies of Synthetic Media Jussi Holopainen and Philip Carlisle	Paper Session 2: Culture/History/Memory Session Chair: Elena Sherstoboeva → Future Cinema Studio M6094 L6 Flux Garden—a Poetic Memory of a Lost Garden in VR Benjamin Seide, Elke Reinhuber and Ross Williams Robin Hood Gardens: Rewound Eddie Wong and Nathan Bayliss Visualising Agent-Based Canoe Journeys in a Real-time Computation Virtual Environment Andrew Burrell and Ali Chalmers Braithwaite Working Towards a Data-Driven History of China: Three Examples from Digital Humanities Explorations Lik Hang Tsui
16.30–17.00	Coffee Break → M6042, M6075 L6	
17.00–18.30	Introductory Keynote Lecture 1 → M3017 L3 Crisis, Critique and Technological Understanding Hector Rodriguez Session Chair: Richard William Allen	
18.30–19.15	Conference Reception → M3017 L3	
19.15–20.00	Dinner → M6042, M6075 L6	
20.00–22.00	Paper Session 3: Transformative Practices Session Chair: Daniel Howe → Shun Hing Lecture Theatre M3090 L3 Countering Misinformation with Neural Networks Derek Curry and Jennifer Gradecki Decolonising AI: A Close Look at the Work of Stephanie Dinkins Proiti Seal Acharya Hatred Apparatus: A Sculpture for the First Half of the 21st Century Fabrizio Augusto Poltronieri, German Alfonso Nunez and Nicolau Centola AIMADE Celyn Bricker and Arturo Muela	Paper Session 4: Engaging with Biological Systems Session Chair: Mariana Pérez Bobadilla → Future Cinema Studio M6094 L6 Qatipana: Becoming and Individuation of a Meeting between Technical Apparatus and Natural Systems Renzo Filinich Orozco Procedural Growth Kin-Ming Wong Mimicry Lingdong Huang and Ziwei Wu Neonate (6e656f6e617465) (2019-2021) Chok Si Xuan
22.00–22.30	Coffee Break → M6042, M6075 L6	
22.30–00.00	Keynote Lecture 2 → M3017 L3 Space In the Mind of A Machine Refik Anadol Session Chair: Maurice Benayoun	

12.30–13.30	Registration → L1 Lobby	
13.30–15.00	Keynote Lecture 3 → M3017 L3 Oscilloscopes, Slide Rules and Nematodes: Perceptions of the ImageNet Observer Adrian Mackenzie and Anna Munster Session Chair: Damien Charrieras	
15.00–15.30	Coffee Break → M6042, M6075 L6	
15.30–17.30	Paper Session 5: Selfies and Snapshots Session Chair: Elke Reinhuber → Shun Hing Lecture Theatre M3090 L3 Buttonless Cameras and the Machine-made Snapshot Aesthetic Michal Šimůnek The Art of Data Portraiture: Enabling a Public Debate on Self-surveillance Ralph Kenke, Elmar Trefz, Mark Roxburgh and Mario Minichiello Finding the Relational Image Marty Miller	Paper Session 6: Design Architectures Session Chair: Tobias Klein → Future Cinema Studio M6094 L6 Control and Communication: A System Study of Platform Economics and Digital Archives in Architectural Design Provides Ng Meta-Evolver: Evolutionary Strategy for Architectural Intelligence Karolína Kotnour and Robert B. Lisek Cognitive Assemblages: Spatial Generation Through Wave Function Collapse and Reinforcement Learning Alessandro Mintrone and Alessio Erioli An Information Theory Application to Bio-design in Architecture: UnSESUS Provides Ng, Baha Odaibat and David Doria
17.30–18.00	Coffee Break → M6042, M6075 L6	
18.00–19.00	Paper Session 7: Back to the Future - Film and the Digital Session Chair: Louisa Wei → Shun Hing Lecture Theatre M3090 L3 Exploring B-Movie Themes in Virtual Reality: The Woman Who Fell to Earth and Met the Pontianak Benjamin Seide and Benjamin Slater Alphaville: Our Future City of Digital Surveillance Kenny K.K. Ng	Paper Session 8: Animation and CGI Session Chair: Mike Wong → Future Cinema Studio M6094 L6 Expanded Stereoscapy: Developing New Aesthetic Forms for 3D Films Max Hattler The Synthetic Cameraman Series: A Practice-based Research Case Study Lukasz Mirocha
19.00–20.00	Dinner → M6042, M6075 L6	
20.00–21.45	Plenary 1: The Politics of Machine Learning → M3017 L3 Archival Loops Stephanie Dinkins New Optical Regimes Adam Harvey Session Chair: Linda Lai	
21.45–22.15	Coffee Break → M6042, M6075 L6	
22.15–00.00	Plenary 2: Creativity and Access → M3017 L3 AI Just Wants to be Average Janelle Shane Machine Learning as Creative Design Tool Rebecca Fiebrink Session Chair: Bryan Chung	

13.30–14.30	Registration → L1 Lobby
14.30–16.15	Screening: CODED BIAS → M6094 Future Cinema Studio L6
16.15–16.30	Break
16.30–18.30	<p>Paper Session 9: Interspecies Research and Becoming Animal Session Chair: Olga Timurgalieva → M3090 Shun Hing Lecture Theatre L3</p> <p><i>Ghost in the Cell—Synthetic Heartbeats</i> Georg Tremmel</p> <p><i>ISCR: Communicating Between Two Alien Intelligences Through Art</i> Maggie Roberts and Stephanie Moran</p> <p><i>Microbial Emancipation</i> Maro Pebo</p> <p>Environmental Machine Learning in Multispecies Agency: A Case Study of Random Forests Park Ji Yun</p>

18.30–19.30 Dinner → M6042, M6075 | L6

19.30–21.00	<p>Paper Session 10: AI and Ethical Action Session Chair: Linda Lai → Shun Hing Lecture Theatre M3090 L3</p> <p>How Can Artists Use AI Responsibly? Claire Leibowicz, Emily Saltz and Lia Coleman</p> <p>AI Biases in the Art Sector through the Lenses of European Union Law Francesca Prandi and Harshad Pujari</p> <p>Women Reclaiming AI B Aga & Coral Manton</p>	<p>Paper Session 11: Digital Game Formations Session Chair: Olli Tapio Leino → Future Cinema Studio M6094 L6</p> <p>Becoming-animal in Everything: Posthuman Affect in Computer Gameplay Yu Hao</p> <p><i>The Moving Maze—System and Units</i> You Wang and Yujie Wang</p> <p>Pretty & Random: Anime-style Meta- narratives in the Age of Social Games Chen, Qian Jason</p>
-------------	--	--

21.00–21.30 Coffee Break → M6042, M6075 | L6

21.30–23.15 **Plenary 3: Biology and Algorithms** → M3017 | L3
Many-Headedness Jenna Sutela
Towards a Natural Intelligence Tega Brain
 Session Chair: Lam Yun Wah

23.15–23.30 Coffee Break → M6042, M6075 | L6

23.30–00.30	<p>Paper Session 12: Climate Change Art Session Chair: Zheng Bo → Shun Hing Lecture Theatre M3090 L3</p> <p>This Infinitesimal Moment of Now: Ice-Time Clea T. Waite</p> <p>Heat Angela Ferraiolo</p>	<p>Paper Session 13: E-Textile Session Chair: RAY LC → Future Cinema Studio M6094 L6</p> <p>GAN Generated Knitted Pattern Punch Card Designs Virginia Ellyn Melnyk</p> <p>Embodiment of Environmental Legacy: Walking in E-Textiles and Thoughts from my Basement Jackie Donovan</p>
-------------	---	--

15.00–16.00	Registration → L1 Lobby
16.00–18.30	<p>Plenary 4: Science and Creativity → M3017 L3 Creativity in Machine Learning Research David Ha Eavesdropping on Human Behaviors: Lessons from Engineers Rosa H. M. Chan Life is a Mess: Towards a Gene-eccentric and Post-teleological Discourse in Bio-art Lam Yun Wah Session Chair: Lam Miu Ling</p>

18.30–19.30 Dinner → M6042, M6075 | L6

19.30–21.30	<p>Paper Session 14: Machine Learning Curation Session Chair: Harald Kraemer → Shun Hing Lecture Theatre M3090 L3</p> <p>The Next Biennial Should be Curated by a Machine—Machine Curation and Visitor Interaction Liverpool Biennial 2021 Joasia Krysa and Leonardo Impett</p> <p>MUSEUM OF SYNTHETIC HISTORY Egor Kraft</p> <p>Copies as Transitional Objects: Loss, Grief and Reckoning after the Fire of Museu Nacional do Rio de Janeiro (Brazil, 2018) Pedro Telles da Silveira</p> <p>On Content Aware and Other Case- Studies: Historical Investigations at Blazing Ultra Resolution Egor Kraft and Ekaterina Kormilitsyna</p>	<p>Paper Session 15: Practical AI Session Chair: PerMagnus Lindborg → Future Cinema Studio M6094 L6</p> <p>Listen to Reason: In Conversation with a Computational Critic Daniel Chávez Heras and Alfonso Sánchez López</p> <p>Evaluation of AI Reverberation on Guitar Manni Chen and PerMagnus Lindborg</p> <p>Let's Shake—Music is Fun Kelvin Lee kai-wah</p> <p>I Believe In AI's Artistic Ability: Perceived Creativity of Machines and the Evaluation of Their Artistic Performance Joo-Waha Hong</p>
-------------	--	--

21.30–21.45 Coffee Break → M6075 | L6

21.45–23.45	<p>Paper Session 16: Sound Art Session Chair: Ryo Ikeshiro → Shun Hing Lecture Theatre M3090 L3</p> <p>Exploiting Swarm Aesthetics in Sound Art Mahsoo Salimi and Philippe Pasquier</p> <p>An Exquisite Corpse of Musical Cryptograms via BCMI Bryan A. Crumpler</p> <p>Re Sound Art Machines and Aesthetics Stefano Kalonaris</p> <p>Co-creating Musical Compositions with an Artificial Agent: Time-travel through Machine Learning Vicky Fung and Giovanni Lion</p>	<p>Paper Session 17: Towards Creativity in AI Session Chair: Damien Charrieras → Future Cinema Studio M6094 L6</p> <p>Inquiring the Backends of Machine Learning Artworks: Making Meaning by Calculation Mercedes Bunz and Eva Jäger</p> <p>Information Particles: Tracing the Ambiguities of the Creative AI Dejan Grba</p> <p>The Interpretation of (Deep) Dreams Kwan Q Li</p> <p>Nishida's Logic of Creation Joy Zhu</p>
-------------	--	--

19.00–20.00

Registration → L1 Lobby

20.00–22.00

**Paper Session 18:
Thinking about Machine Learning**

Session Chair: Hector Rodriguez

→ [Shun Hing Lecture Theatre](#)
M3090 | L3**As If They Were Thinking:
New Aesthetics of "Thought" in
Machine Intelligence**Shuyi Cao, Remina Greenfield and
Ross M. McBee**Ersatz Intelligence:
Implications of Machine Learning for
the Generation and Interpretation of Art
and Artifacts**Daniel Shanken, Roberto Alonso
Trillo, François Mouillot, Peter Nelson,
Mathis Antony, Ryan Au, Maya Duan and
Jianming Mai**Infinite Descriptor:
The (Un)Predictability of Prediction**

Monica Monin

**Machine Learning Writing Tools as
Oracle and Glitch**

Carolyn Lau

**Paper Session 19:
Digital Performance**

Session Chair: Koala Ip

→ [Future Cinema Studio](#)
M6094 | L6**Playing with Soma:
Speculating on the Physical Body and
Somatic Practice of AI**Eugenia S. Kim, Jayson Haebich, Christian
Sandor and Alvaro Cassinelli**Lu Yang: Delusional World—A Live
Virtual Motion Capture Performance in
the Global Pandemic**

Ashley Lee Wong

**Re:Melt:
A Dance Film about a Human-Algorithm
Interaction**

Eugenia S. Kim and Sojung Bahng

22.00–22.15

Coffee Break → M6075 | L6

22.15–23.45

**Paper Session 20:
Digital Experience and Affect**

Session Chair: Richard William Allen

→ [Shun Hing Lecture Theatre](#)
M3090 | L3**Self:Nous:Space—Visual and Textual
Metaphors of Digital Experience**

Angeliki Malakasioti

01_LOVE

Yenyi Lee and Hsiangwen Chen

Smile, Please

Winnie Yoe

**Paper Session 21:
Facial Recognition and Surveillance**

Session Chair: Hector Rodriguez

→ [Future Cinema Studio](#)
M6094 | L6**Platform AI Art and the Naturalization of
Facial Recognition**

Nicola Bozzi

Extralegal Portraiture and Surveillance

Monica Steinberg

The Zombie Formalist:**An Art Generator that Learns**

Ben Bogart

Student Salon

System Dreams

10–15 June 2021

12.30–22.00

16–20 June 2021

11.30–19.30

VenueM9001, L9,
Run Run Shaw
Creative Media Centre

Kasiterit (film still), 2019, Riar Rizaldi.

SYSTEM DREAMS is an exhibition coordinated and organized by PhD students of the School of Creative Media, City University of Hong Kong. It is a collateral program to the *Art Machines 2* Symposium and it is intended as space where current doctoral and MFA students can showcase their artwork, research, and other projects.

The exhibition features works and research projects that invite us to reassess our relationship to technology in view of the current cultural and socio-political climate. The works presented in this exhibition, whether explicitly or subtly, tap into the complex and at times oneiric impact technological systems and digital media have had or potentially will have on our lives. Diverse practices are presented including performance, animation, cinematic VR, interactive installation and sound art. *SYSTEM DREAMS* also welcomes all kinds of interaction, conversation and sharing at online and offline platforms as an open space/platform.

The exhibition showcases featured works by Kay Mei Ling BEADMAN, LIU Chang, Riar RIZALDI and selected works by FONG Ka Sin, Florence LEE Yuk Ki, Lukasz MIROCHA, YANG Hao & Cody CHOW Chi Hang and ZHANG Yujia & WAN Hu.



systemdreams.scm.cityu.edu.hk

Keynotes Speakers

Crisis, Critique and Technological Understanding



Dr. Hector Rodríguez
Associate Professor
School of Creative Media
City University of Hong Kong

A foundational theme in contemporary critical theory is the close relation between critique and crisis. This talk describes the introduction of computational technologies, and more specifically machine learning algorithms, into artistic practice as a historical crisis, which fundamentally puts into question the relation between making and understanding. From the standpoint of the artist, the question concerns the extent to which she understands the technologies that she is using. The artist often employs technical means whose internal mechanisms are obscure to her. But in art, means and ends are essentially intertwined. Any opacity in the means extends to the ends for which they are used, and so potentially threatens the integrity of artistic agency. Similar concerns about the opacity of technology have been raised, outside the artworld, in the scientific community itself, giving rise to discussions about how to render machine learning interpretable or explainable. The prevalence of these discourses suggests that the obscurity in question is not a matter of individual ignorance. It pertains to the historical constitution of the technologies themselves in their essential character as formal systems, and to their formative role in what has been described as a society of hyper-control.

Space In the Mind of A Machine



Mr. Refik Anadol
Media Artist

In taking the data that flows around us as his primary material and the neural network of a computerized mind as his collaborator, Refik paints with a thinking brush, offering a radical visualizations of our digitized memories and expanding the possibilities of architecture, narrative, and the body in motion. In this talk, he shares his studio's recent site-specific parametric data sculptures, live audio/visual performances, and immersive installations which take many forms, while offering a dramatic rethinking of the physical world, our relationship to time and space, and the creative potential of machines.

Oscilloscopes, Slide Rules and Nematodes: Perceptions of the ImageNet Observer



Prof. Adrian Mackenzie
Professor of Sociology
College of Arts and
Social Sciences
Australian National University

In 2019, an artist and an academic released an app that attached "labels" to "images of peoples" faces across social media platforms, where profile images proliferate. The app, ImageNet Roulette, which used ImageNet's "person" classes and associated images to train on, had a brief viral uptake. As Kate Crawford and Trevor Paglen, who designed the app as a research tool, noted, the bizarre labelling that the seemingly "neutral" tasks of object detection perform reflect the wider social and political problems that accrue to the misrecognition that classification of images in AI produces. In this paper, we likewise take up the image orderings performed by ImageNet but from a different angle. When machine-learning and neural-based AI models "observe" the world they fundamentally, if arbitrarily, name it as a world of things in such a way that objectifying misrecognition becomes normal. But what happens if we conceive the situation not as one in which perception is radically erroneous, because it is objectively wrong, but rather that "perception" is transformed because it is affected by many other images?



Prof. Anna Munster
Professor in Art and Design
Deputy Director of National
Institute for
Experimental Arts
University of
New South Wales

In our marginal experiments, carried out upon a database fashioned from arXiv scientific papers—which include research into machine learning, computer vision and AI—the assembly of 20,000 object-based categories deployed by ImageNet no longer steadies experience. Instead, the experiments delegate to the objects the power to state something about how we know them. When, for example, we ran a standard deep learning classifier, pretrained on ImageNet, on the many scientific figures of graphs and diagrams in arXiv, where we saw a graph, it observed "oscilloscope," and where we saw a flow chart, it named a "slide rule" or even "nematode." Such egregious "mistakes" prepare us for statements not of our own making but both about and beyond our own making. A making of experience that cannot simply be fitted to arbitrary names and objects cuts across such nominalism.

Artist and Writer

We ask what is empirically playing out in the observational processes of deep learning architectures that cannot be accounted for by either its apparent nominalism or its claims to objective realism? How might we value the forms of "perception"—observation, classification, detection, recognition—performed by AI as entangled with yet differentially propagating from human ones. Experience, as William James suggests, passes along paths of perception that shade off in gradients of anticipation, and intermediate shoals of memory and habit. It is at once ongoing, diverging, accumulating, partially organized but always incomplete. We suggest that a radical empiricist approach to machine learning, drawing on James, might be useful in getting us beyond critiquing the (human) epistemological biases of AI, and some way toward an understanding of the relationality of its modes of "perception."

Plenary Speakers

AI Just Wants to be Average



Dr. Janelle Shane
Research Scientist and Writer

As today's machine learning algorithms get better at imitating human text and images, they also get better at being boring. How do you produce art if your tool is optimized to copy clichés? At Aiweirdness.com, Dr. Shane specializes in drawing the unusual out of utilitarian algorithms.

Machine Learning as Creative Design Tool



Dr. Rebecca Fiebrink
Reader
Creative Computing Institute
University of the Arts London

Recently, there has been an explosion of interest in machine learning algorithms capable of creating new images, sound, and other media content. Computers can now produce content that we might reasonably call novel, sophisticated, and even compelling. When researchers, artists, and the general public discuss the future of machine learning in art, the focus is usually on a few basic questions: How can we make content generation algorithms even better and faster? Will they put human creators out of a job? Are they really making "art?" This talk will propose that we should be asking a different set of questions, beginning with the question of how we can use machine learning to better support fundamentally human creative activities. The talk will present examples of how prioritizing human creators—professionals, amateurs, and students—can lead to a new understanding of what machine learning is good for, and who can benefit from it. For instance, machine learning can aid human creators engaged in rapid prototyping of new interactions with sound and media. Machine learning can support greater embodied engagement in design, and it can enable more people to participate in the creation and customization of new technologies. Furthermore, machine learning is leading to new types of human creative practices with computationally-infused mediums, in which a broad range of people can act not only as designers and implementors, but also as explorers, curators, and co-creators.

Archival Loops



Photo by Jay Adams

Ms. Stephanie Dinkins
Associate Professor
Department of Art
Stony Brook University

Artist

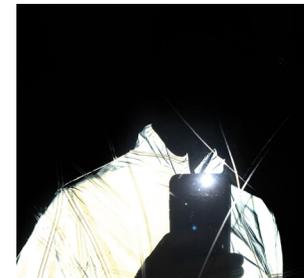
An archive is a system or collection of historical documents or records that provides information about places, institutions, individuals or groups of people.

A feedback loop is a part of a system in which some piece of that system's output is used as an input to organize future outcomes.

Archives and feedback loops are part and parcel of the binary calculations and algorithms the systems in which they exist are founded on.

The algorithms that run the structures we depend on are complex, inscrutable and entangled in every facet of our lives. With each encounter, we empower these systems with the trail of information we leave behind. This data is often used to watch, assess and control us as people. Our needs, hopes, dreams and desires are calculated to serve the status quo. Because binary calculations are inadequate to assess us, *Archival Loops* asks: How can we create less reductive systems that encourage generous, nurturing and nuanced understandings of our lives?

New Optical Regimes



Mr. Adam Harvey
Artist and Researcher

Harvey will discuss his past work on developing countersurveillance technologies and why artificial intelligence changes the dynamics of how artists should think about creating work. The role that artists have played in creating data is largely hidden, and the role that artists could play in the future is still largely unexplored. Harvey will present his recent research on two opposing sides of this topic: *exposing.ai*, a project about the origins of datasets and *vframe.io*, a project about creating new ways of seeing with data.

Plenary Speakers

Many-Headedness



Photo by Ellie Lizbeth Brown

Ms. Jenna Sutela
Artist

Jenna Sutela often works with words, sounds, and other living materials, such as the single-celled yet “many-headed” species of slime mold, *Physarum polycephalum*; a symbiotic colony of bacteria and yeast in a kombucha tea ferment; and the bacterium *Bacillus subtilis natto*. Sutela has also collaborated with artificial neural networks. This talk will share ongoing artistic research on biological and computational systems.

Much of Sutela’s recent work looks at, or looks for the ghosts in the intelligent machines that are increasingly shaping our reality. On the one hand, it is about getting in touch with the nonhuman condition of the computers that work as our interlocutors and infrastructure. On the other hand, it is about the computers getting in touch with the more-than-human world around them.

Following alternative cybernetics, Sutela believes that the world is not a closed jar but an open ecosystem of intelligence, always changing. She believes that our brain is not the limit of consciousness and that understanding oneself as interconnected with the wider environment, organic and synthetic alike, marks a profound shift in subjectivity: one beyond anthropocentrism and individualism.

Towards a Natural Intelligence



Ms. Tega Brain
Assistant Professor of
Integrated Digital Media
Tandon School of Engineering
New York University

Artist

What kinds of intelligences should automate decisions in our technological and infrastructural systems? How should intelligence be defined and recognized? The *Solar Protocol* web platform relies on an intelligence that emerges from earthly dynamics: specifically that of the sun’s interaction with the Earth. It is an experimental network of solar powered servers that directs internet traffic to wherever the sun is shining. Our lives have always been directed by a range of natural logics that emerge from the intermittent dynamics of our shared environment. Weather, seasons, tides and atmospheric conditions all dictate our behavior, enabling and constraining our movements, production and cultures. *Solar Protocol* uses these logics to automate decisions about how the network operates and what content is shown at different times of the day. How can we learn or relearn to design with natural intelligence? *Solar Protocol* is a collaboration between Tega Brain, Alex Nathanson, Benedetta Piantella and a group of volunteers who are stewarding the project’s servers around the world.

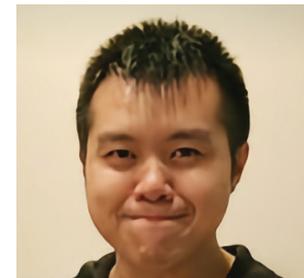
Eavesdropping on Human Behaviors: Lessons from Engineers



Dr. Rosa H. M. Chan
Associate Professor
Department of
Electrical Engineering
City University of Hong Kong

Engineers have observed users for centuries to build better machines. Observable user patterns, particularly movements related, have been utilized in establishing design requirements. Movements reflect the users preferences, choices and decisions, as manifest in their facial expression, gait and posture, hand gesture, location, keypress, and voice. With the advancement of science, we can better understand the basis of these muscle-driven movements and use sensor technologies to study behaviours other than movements. For example, wearables with surface electrodes allow us to measure electrical signals related to information transmission in the nervous system. Together with exponentially improving computational capacity, algorithms are now capable of finding patterns with minimal prior assumptions. This talk will review tools that engineers are using to better understand human behaviours.

Creativity in Machine Learning Research



Mr. David Ha
Research Scientist
Google Brain

This talk will discuss some of David Ha’s personal experience with getting neural networks to do interesting things as part of his life as a researcher. For example, it will show how we can get untrained neural networks to generate high resolution computer art. This presentation will also discuss experiments that involve collaborative sketching with artificial agents, and how such tools can also make their way into analyzing Japanese literature and writing systems. Finally, it will consider some works about getting artificial agents to play video games by “dreaming.” At the end of the talk, the audience can have a feel of how machine learning systems can be used, and have a sense of their capabilities and also their limitations.

Life is a Mess: Towards a Gene-eccentric and Post-teleological Discourse in Bio-art



Dr. Yun Wah Lam
Associate Professor
Department of Chemistry
City University of Hong Kong

The use of anthropometric and engineering metaphors in biology has been an old fixation, but the idea of “life as algorithm” is quickly becoming a mainstream. It is said that an organism can be reprogrammed with the editing of one or few genes, just like a programme can be debugged by changing a few lines of code. Dr. Lam argues that this algorithmic narrative is premature (given our biological knowledge), reductionist and even delusional. Human-built machines are designed around explicit functions, and progress is defined by the refinements towards a purpose. Evolution, however, is aimless, driven by the provision of randomness to deal with unpredictable challenges in future. Studying biology in purely algorithmic terms is therefore dangerously human-centric. Instead of thinking “organisms as algorithms,” we should imagine the genome of an organism as fragments of collective memories collected throughout its evolution.

Art Gallery

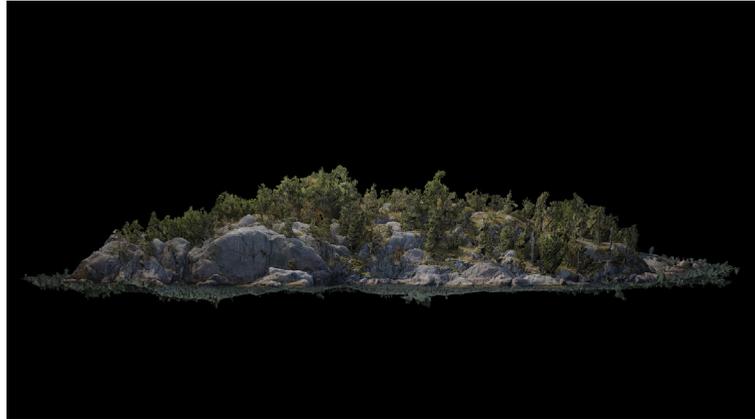
Constructing Contexts

10–15 June 2021
12.30–22.00

16–20 June 2021
11.30–19.30

Venue

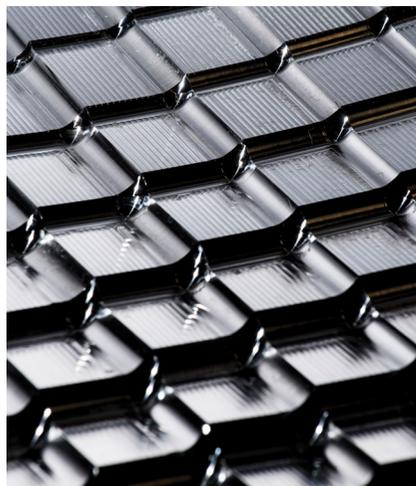
Singing Waves Gallery,
L3, Run Run Shaw
Creative Media Centre



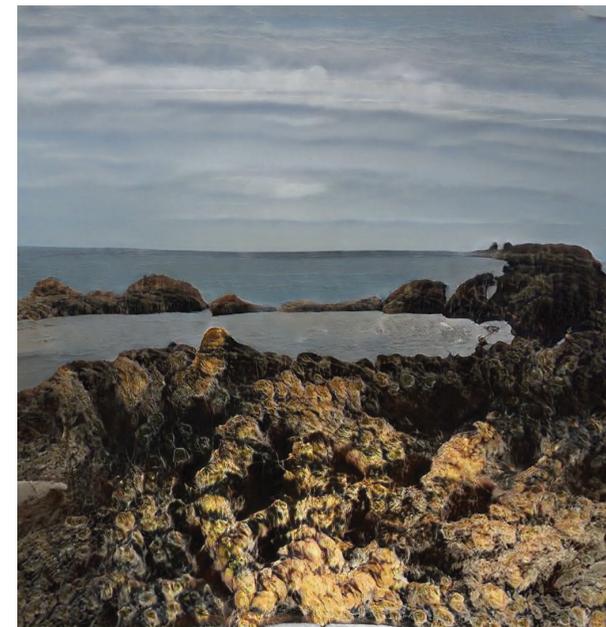
Models for Environmental Literacy (video still), 2020, Tivon Rice.

One of the key emerging ideas behind machine learning is the notion of generative adversarial networks, or GANs, where at least two neuronal networks are set in a competition, forming a framework of rules in which learning can take place. The more neuronal networks are involved, and the more references are presented to discriminate and learn from, the better and more complex the outcome.

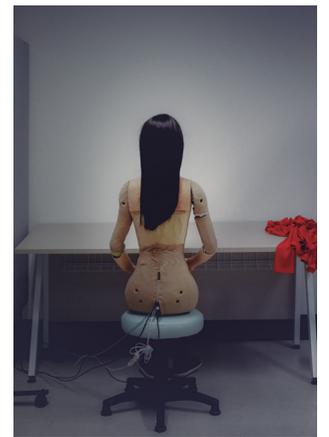
However, one problem that arises in this scenario is the question of context. If a context is solely constructed around art, understood as technique and visual representation, then the result tends to be discussed and analyzed in terms of such a context. If the context of a painting, for instance, is only its visual reference, image quality, and the strokes of the paintbrush, then key aspects of what defines art as a search for questions of being may be ignored or even misunderstood. The visual output of an artwork cannot be neglected, yet it does not represent art alone.



Reflective Geometries, 2019, Mariana Rivera & Sara Zaidan.



POSTcard Landscape from Lanzarote I (video still), 2021, Varvara & Mar.



Actroid Series II—Figure Study, 2020, Elena Knox.

Within the framework of the *Art Machines 2* Symposium, the Art Gallery thus acts as a spatial condition, a field in which artworks are not seen on their own or showcased in a vacuum devoid of meaning and critical perspective. Instead, we bring together 27 artworks to form a context in which art is evolving and through which we can articulate further frames of understanding. This context, therefore, allows us to establish a new and more advanced discourse, one less based less on stylistic mannerisms or medium, and more on how essential cultural questions and societal concerns can be re-evaluated and rearticulated through the lenses of emerging technologies and computational tools.

Though small in size, our “training set” in this exercise includes works of bio art, digital fabrication, sound art, style GANs, works concerned with the definition of landscape, nature and our global environment, explorations of new urban conditions, political realities in media art or the lack thereof, emotional and emancipatory relationships and, ultimately, what it means to be human within such contexts.

Tobias Klein and Rodrigo Guzman Serrano
Exhibition Curators

Participating Artists

Refik Anadol & Maurice Benayoun | Nirav Beni | Ben Bogart | Derek Curry & Jennifer Gradecki | Angela Ferraiolo | Varvara Guljajeva & Mar Canet Sola | Daniel Howe & Bill Posters | Sue Huang | Ryo Ikeshiro | Ivan Iovine | Elena Knox | Kwan Queenie Li | Javier Lloret | Lukasz Mirocha | Peter Nelson | Provides Ng, Joteva Eli, Nzi Ya & Artem Konevskikh | Maro Pebo, Malitzin Cortes & Yun W. Lam | Juan Manuel Piña & Andrés Cedillo Chincoya | Afroditi Psarra, Audrey Desjardins & Bonnie Whiting | Tivon Rice | Mariana Rivera & Sara Zaidan | Vincent Ruijters & Ray LC | prOphecy Sun, Freya Zinovieff, Gabriela Aceves-Sepulveda & Steve DiPaola | Antti Tenetz | Georg Tremmel | Ziwei Wu & Lingdong Huang | Lan Zhang



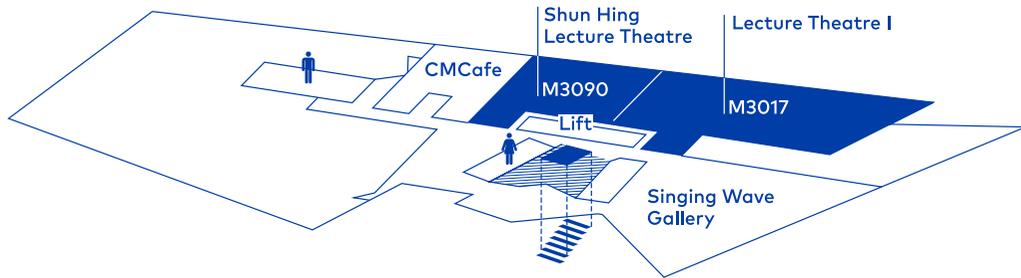
constructingcontexts.scm.cityu.edu.hk

Floorplan

L3

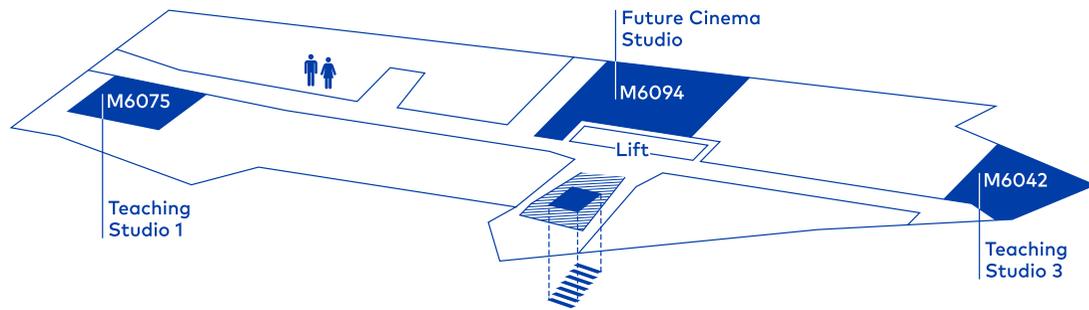
M3090
Shun Hing Lecture Theatre

M3017
Lecture Theatre I



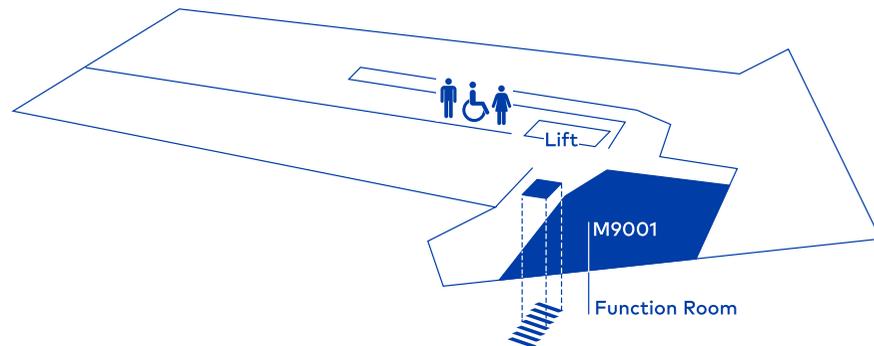
L6

M6094
Future Cinema Studio



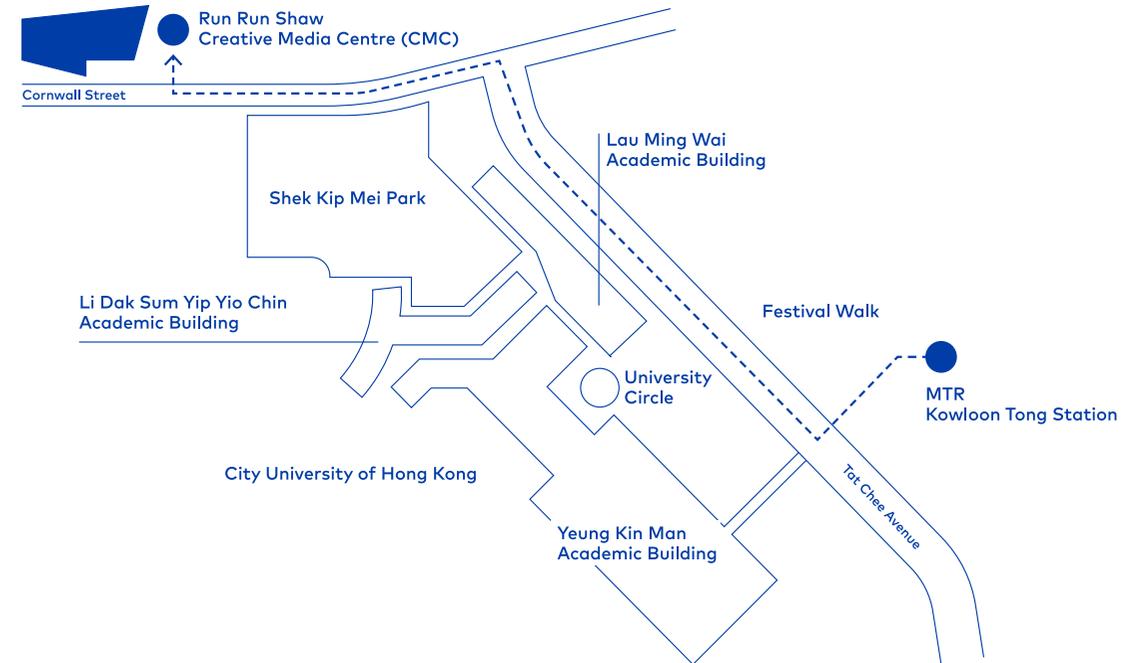
L9

M9001
Function Room



Venue Access & Contact

Run Run Shaw Creative Media Centre | CMC
18 Tat Hong Avenue, Kowloon Tong



Website www.cityu.edu.hk/artmachines2
Email smiscma@cityu.edu.hk
FB / IG ArtMachines2

Art Machines 2: International Symposium on Machine Learning and Art 2021 Organizing Committee
School of Creative Media, CityU

Conference Director

Richard William Allen

Conference Associate Director

Hector Rodriguez

Damien Charrieras

Tobias Klein

Harald Kraemer

Exhibition Curators

Tobias Klein

Rodrigo Guzman Serrano

Student Salon Curators

Anton Dragan Maslić

Rodrigo Guzman Serrano

Park Ji Yun

Conference Organizing Committee

Bryan Chung

Linda Lai

Can Liu

RAY LC

Tomas Laurenzo

Fion Ng

Elena Sherstoboeva

Malina Siu

Conference Proceedings

Olli Tapio Leino

Malina Siu

Conference Coordinator

Tobias Tang

Candy Tso

Presented by



School of Creative Media

香港城市大學
City University of Hong Kong

Sponsored by



Croucher Foundation
裘槎基金會



U.S. Consulate General
Hong Kong and Macau