School of Creative Media
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Introductory keynote lecture by Dr. Hector Rodriguez

DEAN'S NOTES
ART MACHINES 2:
AN INTERNATIONAL SYMPOSIUM ON
MACHINE LEARNING AND ART 2021

In June of this year, SCM hosted *Art Machines 2: International Symposium on Machine Learning and Art 2021* (AM2). AM2 featured numerous international keynotes and plenaries, 21 panels featuring scholarly papers and the presentation of art projects, a major art exhibition of 27 artworks based on machine learning protocols called *"Constructing Contexts,"* and a student salon entitled *"System Dreams,"* which opened out beyond machine learning to embrace a creative range of digital and performance arts practices by SCM students Lee Yuk Ki Florence, Kay Mei Ling Beadman, Fong Kasin, Zhang Yujia and Wan Hu, Lukasz Mirocha, Yang Hao, Chow Chi Hang Cody and Xing Tong, Liu Chang and Riar Rizaldi.

AM2 was a follow up to SCM's very successful inaugural conference, *Art Machines,* which we hosted in 2019, and featured a major international exhibition, Algorithmic Art, curated by Dr. Linda Lai at Hong Kong City Hall. A lot of water has passed under the bridge since that first conference both globally and here in Hong Kong and to some extent it feels like we are inhabiting altogether a new era. Circumstances required that we run the conference over a period of five days as a hybrid format from 12pm to Midnight in order to cover all the time zones. This meant a loss in terms of collegiality and conference atmosphere but a gain in terms of the number of participants (over 180) and the global outreach of the event. The last panel of the conference I chaired on "Digital Experience and Affect" featured participants from Athens, New York and Taipei as well as here in Hong Kong. *Art Machines 2* was an opportunity not only to rebuild connections and continuities amidst change and uncertainty, but also to consolidate a sense of academic and creative mission and purpose around the possibilities and prospects of machine learning art.

Since Non-fungible tokens (NFTs) burst on the scene, AI Art or Machine Learning Art seems somewhat old news already. However, AM2 demonstrated that against the backdrop of the pervasive use of machine learning algorithms in shaping the choices and decisions in everyday life, and the ethical challenges posed by uses and abuses of machine learning, the promise and challenges of creating meaningful Machine Leaning Art are ever more vital. Machine learning algorithms, in case you didn't know, are computational systems that learn inductively from large bodies of data rather than deductively from programming. They allow increasingly refined predictive modelling and often work on an on-going iterative basis. Their genius is that they can identify patterns in data that human beings have not discerned which opens intriguing creative and curatorial possibilities. Machine-learning algorithms enable new previously unknown samples of a given type to be generated leading to novel, though admittedly often banal, applications and sometimes spurious claims of AI creativity. What became clear in AM2 is that the value of machine learning for artists, like any medium for the creation of art, depends entirely upon how that medium is used, and attendees were introduced to some fascinating possibilities and prospects for the creation of meaningful art.

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Art Machines 2 featured a series of brilliant keynotes and plenaries which focused on different aspects of creating with machine learning. Hector Rodriguez kicked off the conference with a tour de force lecture on the scientific and philosophical underpinnings of Machine learning in a statistical regime of knowledge and this was complemented by the contribution of Professors Adrian Mackenzie and Anna Munster who reflected on nature of the bizarre misclassifications that were produced when ImageNet's dictionary of data samples were trained by a deep learning classifier upon a database of arXiv scientific papers. These themes were picked up in a number of panels including "Design Architectures" and "Thinking through Machine Learning." A third keynote given by AI designer Refik Anadol, showcased his jaw-dropping digital projections using AI and big data, which he created in collaboration with the Los Angeles Philharmonic.

Anadol also collaborated with Professor Maurice Benayoun on *DïaloG* (2021), a large scale interactive abstract dual screen projection installation in which each artist contributed one part. The screens were placed opposite to one another in the entrance lobby of SCM so that all who entered the conference and exhibition passed through them. Anadol's square work consisted of an elaborate morphology of shifting colour movements driven by machine learning algorithms. As the visitors walked past the screen, their profile was incorporated within the digital array both transforming and transformed by it. Benayoun's projection on the other hand, formed a circle projected as a half sphere, containing a morphing and colour shifting swirl of large densely packed particles which also reacted to the movements of the visitor. More complexly still, each of the works responded to the movements or the other, thus creating kinetic dialogue not only between the works and the visitor but between the works themselves.

The Plenary Panel on "Creativity and Access" featured talks by two accomplished scientist-artists. Janelle Shane is an optics research scientist by profession but on the side she runs a popular science blog called AI weirdness, where she trains machine learning algorithms in weird, wonderful, and very amusing ways. Rebecca Fiebrink of the University of the Arts London shared her work in developing the machine learning application *Wekinator,* a tool for creativity. Another plenary featured artists who engage with the social abuses of AI data gathering, and the institutional discrimination that AI enshrines. American based artist Stephanie Dinkins showcased her wonderful work countering bias with small AI composed from the experiences of generations of her own family, while Adam Harvey tackled issues of data scraping and surveillance and spoke about his projects that are designed to repurpose machine learning to socially desirable ends such as his project *VFrame,* which allows the detection and identification of munitions. Several panels focused on related topics including "Transformative Practices," "AI and Ethical Action," and "Facial Recognition and Surveillance."

Science Plenary Panel by David Ha (on screen), Dr. Lam Yun Wah (right) and Dr. Rosa Chan (center), moderated by Dr. Lam Miu Ling (left)

A paper session on AI and Ethical Action, moderated by Dr. Linda Lai

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ART MACHINES 2

DialoG, 2021, Maurice Benayoun and Refik Anadol

Two important artworks in *Constructing Contexts* engaged deep fake technologies. Derek Curry and Jennifer Gradecki's *Going Viral* invites people to share informational videos about Covid-19 that counter the misinformation shared by media influencers, and uses those very same influencers to deliver the informational stories. Whereas Gradecki and Curry purposely distorted the delivery of the media influencers to comment on fakeness, Daniel Howe and Bill Poster's *Big Dada: Public Faces* pursued a different strategy. Here celebrities deliver a message about the artist's award winning installation, *Spectre,* which is critical of fake news, with pitch perfect vocal delivery and uncanny lip-synching, deep fake accuracy.

A third plenary focused on the relationship of machine learning to biology and the environment where Berlin-based artist Jenna Sutela showcased her artworks combining machine learning with biological processes and New York-based computer scientist and artist Tega Brain presented an ambitious environmental art project, *Solar Protocol,* that seeks to challenge the occlusion of environmental concerns in contemporary infrastructures by creating a platform network calibrated to the global distribution of solar power. Environmental action was also featured in the panel "Climate

Change Art" and two other panels at the conference, "Engaging with Biological Systems" and "Interspecies Research and Becoming Animal," focused on the burgeoning domain of algorithmically inspired BioArt.

A number of artworks engaging non-human life were featured in *"Constructing Contexts."* Antti Tenetz's *Perihelion* presented a speculative exploration of alien life using machine learning algorithms to imagine new life forms on a screen projection, while in an incubator, metal clustering bacteria was placed in a forced evolution test with nano fluidic gold. Maro Pebo, Malitzin Cortes and Yun Wah Lam's *Microbial Emancipation* explored mitochondria, which, while essential to human life, were once a free bacterium. A reliquary held mitochondria from the artists' blood, while a screen projection animation dramatized the violent extraction of mitochondria from a cell. Finally, in Ziwei Wu and Lingdong Huang's *Mimicry*, cameras recorded plants in real time and from this data a machine learning algorithm generated "virtual insects" whose shape and color evolved over time to eventually merge with their surroundings. The installation was a hommage to the feedback loops of media art pioneer Nam June Paik.

Art Gallery *Constructing Contexts*, curated by Tobias Klein and Rodrigo Guzman Serrano

In the "Science and Creativity" Panel, biologist Lam Yun Wah introduced a cautionary note on Machine Learning BioArt by arguing that, in spite of the fashion for conceiving biology in algorithmic terms inspired by the advances in gene editing, biological organisms are irreducible to engineering metaphors, for biological life is essentially random and without purpose. Alongside Dr. Lam, David Ha of Google Brain presented a deep dive into his research practices in the field including collaborative sketching with artificial agents and the creation of games played by artificial agents. The panel was rounded out with a talk by CityU research engineer Rosa Lam which explored the possibilities and prospects for using sensor driven technology and engineering tools to understand and augment human behaviours.

Overall *Art Machines 2* presented an invaluable opportunity to take stock of current directions and practices in the field and look towards a future which will undoubtedly open into hitherto unthought territory. With this mind the organizers hope to build *Art Machines* into a permanent institution in Hong Kong, perhaps through collaboration with colleagues at Hong Kong Baptist University's Augmented Creativity Laboratory whose research was featured at the conference. It remains for me to thank conference organizers: Hector Rodriguez, Damien Charrieras, Tobias Klein, Harald Kraemer, Bryan Chung, Linda Lai, Tomas Laurenzo, RAY LC, Can Liu, and Elena Sherstoboeva; the curators of the art exhibition: Tobias Klein and Rodrigo Guzman Serrano; and the student salon team: Anton Dragan Maslić, Park Ji Yun, and Rodrigo Guzman Serrano. *Art Machines 2* received a generous financial contribution from The U.S. Consulate General of Hong Kong and Macau and The Croucher Foundation and it was made possible through the outstanding administrative leadership of Malina Siu, the tech support of Danny Cheng, Antony Chan and his IT team, and exhibition co-ordinator, Fion Ng. Conference proceedings were published by City University of Hong Kong Press with the help of Malina Siu and Olli Tapio Leino.
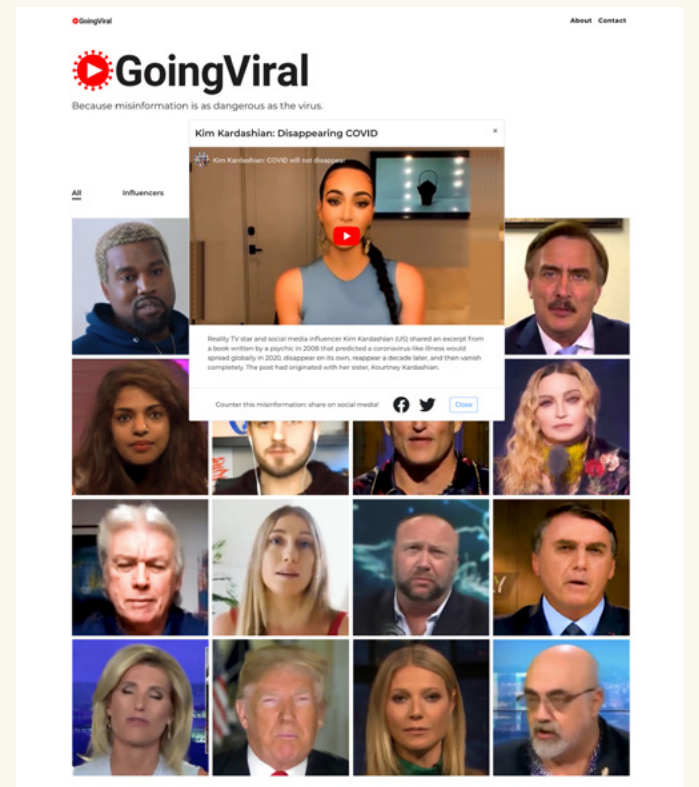
Going Viral-web inferface (screenshot), 2020-ongoing, Derek Curry and Jennifer Gradecki

Microbial Emancipation, 2020, Maro Pebo, Malitzin Cortes & Yun W. Lam
Photo credit: Lucas D'Ambrosio / MM Gerdau-Museu das Minas e do Matal

Mimicry (detail), 2020, Ziwei Wu and Lingdong Huang

ART MACHINES 2

Student salon *SYSTEM DREAMS*, an exhibition coordinated and organized by SCM MFA and PhD students

(Back, from left): Kexin Zheng (former undergraduate intern), Shaoyu Cai (current PhD student), Hugo Chan (former research assistant), Xianshan Xu (former postgraduate intern)
(Front, from left): Lantian Xu (current PhD student), Kening Zhu (Associate Professor, School of Creative Media)

藝術儀貳：
機器學習與藝術2021國際研討會

今年6月，創意媒體學院在艾朗宏院長的領導下，舉辦了「藝術儀貳：機器學習與藝術2021國際研討會」，這是繼承學院在2019年極之成功的首屆「藝術儀」會議的後續。「藝術儀貳」以混合線上視訊會議與線下實體會議的形式進行，參與者來自世界各地，包括21個以學術論文和展示藝術項目為特色的小組；一個由27件遵循機器學習協定的藝術作品組成的大型藝術展，名為「構建脈絡」，以及名為「系統夢想」的學生沙龍，開發超越機器學習的範圍，包攬了創意媒體學院學生多元的數碼和表演藝術實踐。

「藝術儀貳」的亮點包括多個精彩的專題演講，當中 Hector Rodriguez 博士（香港城市大學）、Adrian Mackenzie 教授（澳大利亞國立大學）和 Anna Munster 教授（新南威爾士大學）以及著名人工智能設計師 Refik Anadol 在使用機器學習進行創作方面帶來多元化及不同角度的分析；另外一系列由藝術家和科學家所組成精闢的專題小組發表多個主題演講：「創意與進路」邀來 Rebecca Fiebrink（倫敦藝術大學）和 Janelle Shane；「生物與環境」邀來 Tega Brain（紐約大學）和藝術家 Jenna Sutela；「機器學習的政治」邀來 Stephanie Dinkins（石溪大學）和藝術家 Adam Harvey；「科學與創意」邀來人工智能與機器學習專家 David Ha（谷歌）、林潤華和陳皓敏（香港城市大學）。我們期盼藝術儀終究能成為學術領域恆常的特色。

HAPTIC HCI
KENING ZHU

SCM faculty, Kening Zhu received his PhD degree from the National University of Singapore, and his bachelor degree in Computer Science from Huazhong University of Science and Technology, China. His research interests cover various topics in multimodal and embodied human-computer interaction (HCI), including haptics, gestures, tangible user interfaces and rapid prototyping. Zhu has published his research in numerous conference proceedings and journal publications, including CHI, UIST, SIGGRAPH, SIGGRAPH Asia, IEEE VR, IEEE TVCG, JEEE Robotics and Automation Letters, International Journal of Human-Computer Studies, International Journal of Human-Computer Interaction, and Interacting with Computers. He received the Bronze medal in Inventions Geneva 2021, the Best Paper Audience Choice Award in ICAT 2020, the Best Paper Award in AsiaCHI 2020 and UIST 2019, and the first prize in Nokia Ubimedia MindTrek Awards in 2011.

As a DIY maker, Zhu actively participates in Maker activities such as Singapore Mini Maker Faire to present his work to the public. He also serves on the advisory board of Let's Code, a Hong Kong NGO, to promote kids coding and STEAM (Science, Technology, Engineering, Art, and Mathematics) education. When asked what motivates him

he replies, "While there is a lot of visual and audio content, there is little that is accessible through touch sensation and this is especially important for disabled people who are visually impaired or hearing impaired. So I am now looking into touch- and gesture-based human-computer interaction." With the support of research grants, Zhu has been able to create prototypes that help the disabled. "We spent time with visually impaired people to really find out what could help them and improve their lifestyle," he explains.

Together with his PhD students and faculty collaborators, Zhu has been working on a series of projects in haptic human-computer interaction. In collaboration with his PhD students, Shaoyu Cai and Pingchuan Ke, and Takuji Narumi who is the Associate Professor in the University of Tokyo, Zhu has created a pneumatic glove called the ThermAirGlove, which provides thermal feedback for users to support the haptic experience of grabbing objects of different temperatures and materials in virtual reality. The user studies on VR experience showed that using ThermAirGlove in immersive VR could significantly improve users' experience of presence.
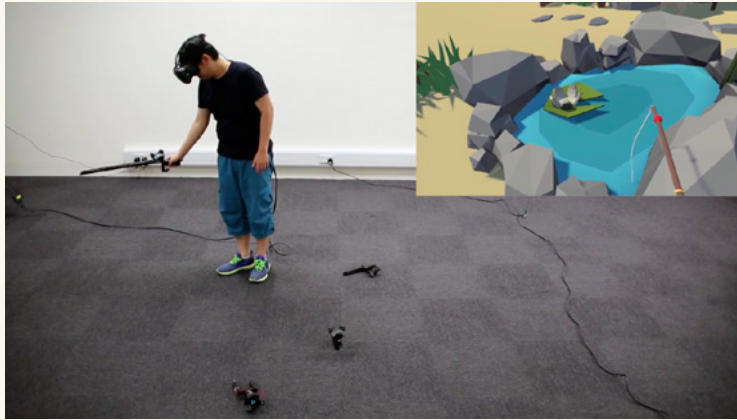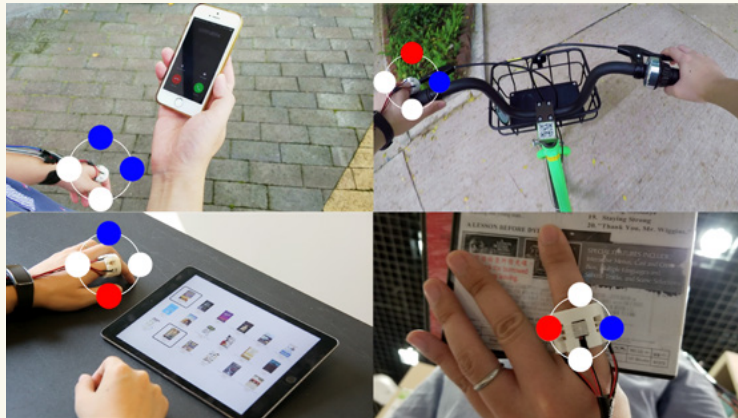
Using HapTwist, the user creates the haptic proxies for multiple virtual objects in a VR gardening game

HapTwist allows the user to create the proxy object to play a first-person-shooting game in VR

The user touches the door handle made of copper in VR, with ThermAirGlove on his hand. He can then feel the cooling feedback of touching metal just like in the real world

The thermotactile feedback on the ThermalRing can represent different types of information, such as incoming call, navigation direction and artefact comparison

To investigate the usability of BIS (*Bezel-Initiated Swipe*) on round smartwatches, together with Pui Chung Wong, Hongbo Fu, and Xing-dong Yang, Zhu designed six different circular bezel layouts, by dividing the bezel into 6, 8, 12, 16, 24, and 32 segments. The user performance of BIS on these layouts was evaluated in an eyes-free situation. The results showed that the performance of BIS is highly orientation dependent, and varies significantly among users. The performance of personal and general Support-Vector-Machine (SVM) models was compared, and results showed that personal models significantly improve the accuracy for 8-, 12-, 16-, and 24-segment layouts.

Currently Zhu is exploring gesture input in virtual reality and wearables: "As of now you have to press buttons on the VR device, so we are looking at how we can use hand gestures on it." He is also working on some machine learning data driven ideas about generating haptic feedback.

More detailed and updated research could be found on the website of Zhu's Multimodal and Embodied Interaction Lab (MEI Lab): https://meilab-hk.github.io/.

CodeRhythm is a multimodal educational toolkit to support visually-impaired children to learn computer-programming concepts. It provides simultaneous audio and tactile feedback

Multimodal and Embodied Interaction Lab (MEI Lab)

In the HapTwist project, Zhu, together with his PhD students, Taizhou Chen, and research assistants, Feng Han and Yi-Shiun Wu created a series of studies on using Rubik's Twist, a type of low-cost twistable artefact, to create interactive haptic proxies for various hand-graspable VR objects. The user studies showed that HapTwist was easy to learn and use, and it significantly improved user performance in creating interactive haptic proxies with Rubik's Twist. Furthermore, HapTwist-generated haptic proxies achieved similar VR experience as the real objects.

Visual programming toolkits are widely used to nurture computational literacy in the young generation. However, novice learners with visual impairment have been neglected as these toolkits are primarily designed for sighted students, and mostly rely on visual cues in the whole manipulation process. To fill this gap, Zhu, along with his research team, Zhiyi Rong, Ngo Fung Chan, and Taizhou Chen invented CodeRhythm, which is a tangible programming toolkit for engaging blind and visually impaired students to learn basic programming concepts by creating simple melodies. This was presented at Asian CHI Symposium 2020 and it won the best paper award.
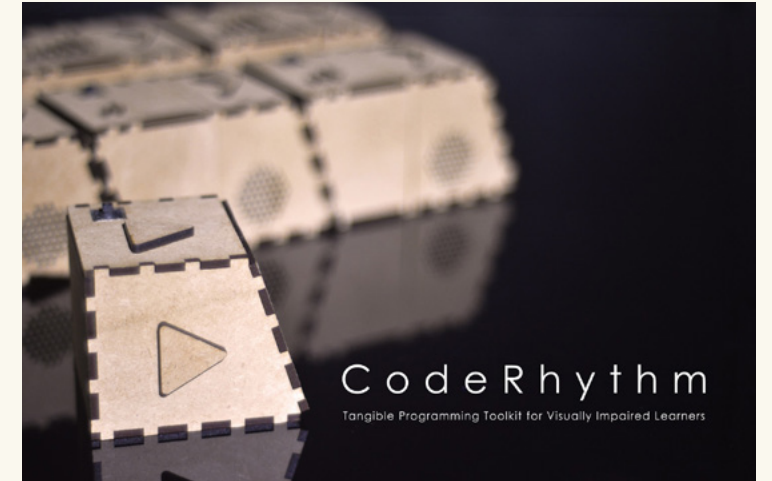
In ColorTact, which was created in collaboration with Arshad Nasser, Taizhou Chen, Can Liu, and PVM Rao, Zhu designed a novel offset-clicking method to achieve an unobstructed tactile reading experience by maintaining the tactual perceptivity of the fingertips. The use of the ColorTact system can potentially reduce the volume of traditional tactile textbooks and also increase the efficiency of diagram reading.

Zhu's project with Simon Perrault, Taizhou Chen, Shaoyu Cai, and Roshan Peiris investigated the use of thermal feedback on a smart ring with multiple thermoelectric coolers (TECs). The prototype aimed to offer an increased expressivity with spatial thermal patterns. Three design workshops were conducted, involving six product/interface designers, and the designers suggested different mappings between the given thermal patterns and the information that demonstrated the possibilities of using spatial thermal patterns in smart rings not only for message and call notifications but also for other everyday activities.

觸覺人機互動
朱克寧

朱克寧是創意媒體學院的副教授，他在新加坡國立大學取得博士學位，是中國華中科技大學計算機科學理學學士。朱博士的研究範疇涵蓋與多模態及體感人機交互相關的各種課題，包括觸覺、手勢、實體用戶介面和快速原型設計。朱博士在許多國際學術會議和期刊均有發表他的研究成果，包括CHI、UIST、SIGGRAPH、SIGGRAPH Asia、IEEE VR等國際研討會；IEEE TVCG、IEEE Robotics and Automation Letters、International Journal of Human–Computer Studies、International Journal of Human Computer Interaction以及Interacting with Computers等期刊。他曾獲得日內瓦國際發明展2021銅獎、ICAT 2020的最佳論文讀者評選獎、AsiaCHI 2020和UIST 2019的最佳論文獎，2011年諾基亞Ubimedia MindTrek獎項的一等獎。

朱博士與他的博士生和學院協作團隊，一直致力探討觸感人機互動的研究。這一系列的研究項目包括：ThermAirGlove，一款具有溫度觸感反饋的手套，在虛擬實境中讓使用者感應不同材料的熱力反饋；HapTwist，一款低成本的可變形介面，為各種手抓的虛擬物件設計互動的觸覺替代品；以及CodeRhythm，是實體的程式設計工具組件，讓視障人士通過創造簡單的旋律來學習基本程式設計概念。目前朱博士正在研究虛擬實境環境下的手勢識別和可穿戴的配件，以及由機器學習數據所驅動而產生觸覺反應的方法。

FILMMAKER AND ARTIST RITA HUI

Rita Hui is a film director, teacher and artist from Hong Kong. Hui graduated from the Hong Kong Academy for Performing Arts, Department of Film & Television with a Bachelor of Fine Arts. She received a Master of Arts in Women's Studies from The Chinese University of Hong Kong in 2004 and a Master of Fine Arts jointly offered by the Hong Kong Art School and RMIT University (Australia) in 2007. Hui founded the company Rabbit Travelogue in Hong Kong in 2007, which aims to produce independent films and artistic video works. "The symbol of the rabbit is from *Alice in Wonderland*," she explains.

Over the past 15 years, Hui has explored the possibility of creating alternative forms of story-telling and experimental forms of representation and expression in film. In 2009, with the funding from the Hong Kong Arts Development Council, she completed her debut feature film *Dead Slowly* and participated in the 2009 Busan Film Festival *New Current* section. The film is hailed as the first feature-length experimental film in Hong Kong's history. The story is a dark and sexually explicit metaphysical thriller involving adultery and murder that starred Joman Chiang. Her second feature film, *"Kenning Woman"* (2013), was selected by various international film festivals, including Busan International Film Festival, Seoul Independent Film Festival, Hong Kong Independent Film Festival and South Taiwan Film Festival. It is a film about a young woman who finds her consciousness undergoing a spiritual journey, after she begins to lose her sense of self at a farewell for a recently departed family friend. *Pseudo Secular* (2016) is Hui's third feature film, which reflects upon the conditions of existence of life in Hong Kong over a three hour format. The film opened the Southern Taiwan Film Festival in 2016 and was selected for the Turin Film Festival in Italy. Her most recent film, *Decameron* (2021) is her first documentary feature, with its world premiere at Rotterdam International Film Festival. It is constructed as a three-dimensional mosaic structure which weaves together protest art and responses to Hong Kong's crises while also looking back to the past.

Hui has also regularly created shorter video works and installations. Her first video installation *XX* was shown at the Macau Old Ladies House for "Wo…man" Feminine Art festival. Other video works include *IdoLetHerMyHeadHave* (2004, short film), *Red Riding Hood* (2005, short film) and *RED* (2006, installation), the latter being her RMIT Master programme final project. Other films and documentaries include: *Subway* (1997, short), *Alice in the Wonderland* (1999, short), *Wave* (2010, short), *Two Cases* (2011, installation), *New Age in Blue* (2011, short), *Lau fung shan* (2012, short), *Elegy* (2014, short), *In the Wild* (2017), and *Project Next Wave* (2020, short). In 2001, she made a foray into theatre, creating *Tango of Water Sleeves and Beautiful Project,* and a short video work *Chionanthus Retusus*. Her works have received numerous accolades and awards from the Hong Kong Independent Short Film and Video Awards.

She is currently working on a number of new projects. One of them is called *Leaving Home* which is a fictional documentary film about 2021 Hong Kong. *The Forbidden Tongue* is another project that she is working on which is a creative journey about female choreographers in Hong Kong in 2019. She is also working on *Loop of Jade* which is a VR Dance film, based on Dream of the Red Chamber, West Chamber and Peony Pavilion. *No Image in Ten Directions* is an experimental video about empty theatre and cinema.

Hui was also part of the collaborative all-woman team that created *A Thousand Plateaus* at West Kowloon in August 2021. *A Thousand Plateaus* integrated virtual and real onsite stories and experiences. It was presented without live actors, instead half the audience was immersed in VR experience while the other half listened to audio. The audience came together at the end to co-create the final experience. *A Thousand Plateaus* was inspired by the work of French philosophers Deleuze and Guattari, and dramatist Antoine Artaud's concept of "a body without organs"— the notion that a body unbound by conventional norms and manipulation is able to tap into a vast reservoir of freedoms and desires and generate an infinite flow of potentialities.

Rita is one of the founding teaching staff of the School of Creative Media having joined SCM as a teaching Assistant in 2000. Now she is teaching Video Production, Creative Writing, and Global Cinema. "I'm trying to combine the course Global Cinema with a new VR experience and I am experimenting with this now," she says.

Leaving Home, 2021

A Thousand Plateaus, 2021
Photo credit: West Kowloon Cultural District Authority

Pseudo Secular, Screenplay
(co-written by Dorothy Cheung and Rita Hui), 2016

Decameron《日常》, 2021

ATLAS OF MARITIME BUDDHISM

The exhibition *"Atlas of Maritime Buddhism,"* curated by Jeffrey Shaw (SCM), Sarah Kenderdine (EPFL), and Marnie Feneley (Acadmeic University of New South Wales, Australia) at the Indra and Harry Banga Gallery from the 7 July 2021 - 3 October 2021, presents for the first time in visual form the compelling story of the spread of Buddhism through the seaports of Eurasia. Using the latest interactive and immersive technologies for museological display, the exhibition traces Buddhism's development out of India and across Asia following the maritime route where travelling monks accompanied fearless traders to disseminate the new religion. Lesser known than the overland road, the maritime route was as important for the Silk Road as the overland one and the exhibition reveal's the maritime route's contribution to the diffusion of Buddhism and the promotion of cultural exchange across the continent.

The *Atlas of Maritime Buddhism* exhibition is an exemplary instance of the documentation and staging of cultural history through the use of new media and technology. Virtual immersive and interactive installations transport viewers directly into the sites, drawing on thousands of images accumulated over five years of research, travel and explorations. The resulting installations not only embed the visitor in three-dimensional versions of the sites, but also surround them with the sights and sounds of associated rituals in which the viewer seems to be participating. Since all these sites are reconstructed in the same virtual space, the viewer can navigate at will between them, thereby recreating across virtual space the connectivity and diffusion that characterized the Silk Road, as it linked ports over thousands of kilometers.

The exhibition features an interactive immersive 360-degree 3D presentation screen that integrates archaeological data with panoramic 3D imagery of significant sites found along the Asian maritime routes. This installation is accompanied by two smaller i-Domes, 180 degree spherical interactive installations, which allow the viewer at the press of a button to immersively inhabit the interiors of the Buddhist rock hewn, cave temples at famous heritage sites such as Dunhuang (China) and Ajanta and Ellora (India), and to experience on site Buddhist rituals. In addition, a linear navigator allows the viewer to traverse immersive images of 90 different Buddhist sites. In addition to these digital installations, nineteen sculptures, carefully chosen from among the most influential and well-known Buddhist artworks, are displayed on screens in 3D, rotating format, based on scanned originals.

The idea of the atlas itself, which grew out of the research of Dr. Lewis Lancaster, Emeritus Professor at the University of California Berkeley, is of great academic importance for it provides the first comprehensive picture of the path of Buddhism entrepreneurship in an expansive network of trade through pan-Asian maritime countries. The digital exhibition featured at CityU is an adaptation of the Buddhist Maritime Silk Road permanent exhibition that Professor Kenderdine and Professor Shaw conceived and directed for the Fo Guang Shan Buddha Museum in Taiwan, in collaboration with the Venerable Ru Chang, Director of the Museum, which opened on 16 May 2021 and will run for five years. A distinguishing feature of the CityU exhibition is the way in which the photogrammetry of Buddhist sites has been supplemented by an exhibition of 38 physical

bronze and wooden sculptures of the Buddha and Bodhissatvas drawn from private and museum collections in Hong Kong, which enter into a dialogue with the immersive exhibits.

The techniques of new media employed in this exhibition grow out of a long history of artistic experiment and innovation going back to the 1980s when Shaw began his research into interactive and immersive experiences in works such as *The Legible City* (1989) and *The Virtual Museum* (1995). Shaw and his associates subsequently developed the first 360-degree and hemispheric projection systems at the iCinema Center, UNSW Australia. Simultaneously, Kenderdine began pioneering large scale interactive immersive experiences for cultural heritage, such as the award-winning *Virtual Olympia* (2000) for the Olympic Games in Sydney, Australia, which established new frontiers for museological experience. Over the years, Kenderdine and Shaw have developed numerous pioneering museological installations, such as those for the Hampi heritage site in India and the Mogao Grottoes at Dunhuang that garnered wide international acclaim. Past exhibitions at the Indra and Harry Banga Gallery, including *ANiMAL* (2018) and *300 Years of Hakka Kung Fu* (2016 and 2018), have been exemplary in their use of innovative new media to tell their stories. At the heart of all these museological and cultural heritage installations is the intention to fully engage the viewer in an embodied experience of cultural heritage, so that history can come alive in the present. To that end, The *"Atlas of Maritime Buddhism"* is especially resonant as a proleptic reminder of the importance of the Silk Road, revived today in the Belt and Road initiative, which is stimulating economic, social and cultural development across Asia.

Linear Navigation with panoramic photos of Buddhist sites

Viewers can journey through 7 countries and discover each unique historical sites' Buddhist art by navigating the Panoramic Navigator

iDome Interactive Installation with Buddhist caves

Installation view at *Atlas of Maritime Buddhism* Exhibition showing photogrammetric and actual sculptures

海上佛教地圖集
邵志飛

由邵志飛（創意媒體學院）、莎拉·肯德丁（瑞士洛桑聯邦理工學院）和范娜驪（新南威爾士大學）策展的「海上佛教地圖集」展覽，於2021年7月7日至10月3日在殷哥展覽館舉行，為首次以視覺形式，展示佛教由歐亞大陸海港傳播的精彩故事。是次展覽使用最新的互動和沉浸式技術進行博物館展示，追溯佛教從印度擴展到亞洲各地的海上路線，行腳僧如何隨同無畏的商人傳播新宗教。與陸路相比，海路鮮為人知，但海路對絲綢之路的重要性不亞於陸路，展覽揭示了海路對佛教傳播和促進整個大陸文化交流的貢獻。挑選自超過五年來研究、旅行和探索所積累的數千張圖片，虛擬沉浸式的互動裝置把觀眾直接帶進主要的佛教場所。這樣的裝置不僅將參觀者嵌入到三維建築景觀中，而且更以相關佛教儀式的景象和聲音環繞著他們，令參觀者仿佛置身其中參與。由於能夠在景象之間隨意導航，觀眾可以在虛擬空間中重構絲網路上的連繫和擴散，就像絲路曾經連接數千公里之遙的港口。

Morgan Wong received the Award for Young Artist (Media Arts) in 2021 at the 15th HKADC Awards continuing SCM's outstanding success in this category. His creative talent is exemplified in his diverse and powerful artworks which explore the themes of time, space, and history, and his recognition by the art community has been manifest in the various exchange programmes and residences he has been invited to both locally and overseas, including most recently the Asian Cultural Council New York Fellowship in 2019.

Graduated from the School of Creative Media, City University of Hong Kong, and Slade School of Fine Art, University College London, Morgan Wong works in the media of performance art, sculpture, and video art. Among his many exhibitions in Hong Kong and overseas are *"A Story of an Eel Chef,"* Sapporo, Japan, 2010, *"Filing Down a Steel Bar Until a Needle is Made,"* Tintype, London, 2013, and *"Time Isn't Our Border,"* Goethe Institute, Hong Kong, 2019. He has been invited for a number of biennales including the 18th Videobrasil (2013) and the 8th Shenzhen Sculpture Biennale (2014). Wong won the Silver Award in the 13th Hong Kong Independent Short Film & Video Awards (2008), he has been shortlisted in the Sovereign Asian Art Prize (2013), and his works are included in collections at M+ Museum and Mill6 CHAT.

Speaking of his recognition by HKADC, he says: "This award is significant to me. It represents the art community's recognition of my works." He added, "I'm thankful to my mentor, Dr. Linda Lai, who invited me for a few exhibitions when I had just graduated from SCM. From this I embarked on my career in the arts, connecting with local art groups like Videotage and ParaSite. These early exchanges help sharpen my art. In the future, I would like to keep promoting public engagement and cross-disciplinary collaboration."

MORGAN WONG
HKADC AWARD
FOR YOUNG ARTIST

Untitled — Zen Garden, Outdoor Installation, 2020
Exhibition view at Hong Kong Zoological and botanical Gardens

Got Time, Sculpture, 2013
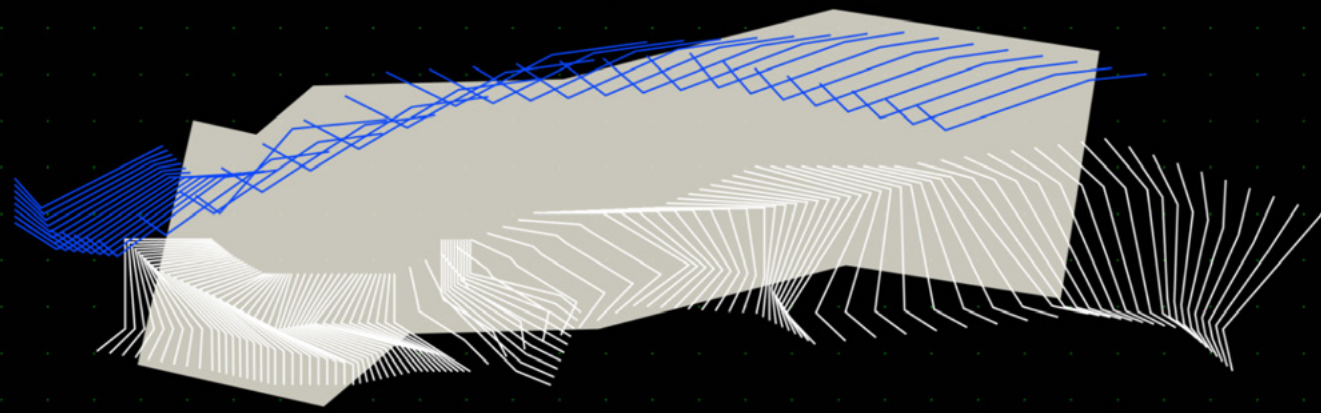Exhibition view at the 8th Shenzhen Sculpture Biennale, OCAT Shenzhen

Time Needle Series, Sculpture, 2019 Exhibition view at *Minimalism: Space. Light. Object Exhibition* at ArtScience Museum, Singapore
Photo credit: ArtScience Museum, Marina Bay Sands

D - NORMAL / V - ESSAY 平地數碼

Articulate: re-inventing the video essay 多向創作，持續發表

"In days of isolation, sharing thoughts is therapeutic."

「在隔離的日子裡，能與人分享想法是一種療癒。」

D-Normal/V-Essay Expanded Program – Sound Workshop, Fieldtrip and Screenings

FLOATING PROJECTS:
WHAT PARTICIPATORY ART CAN BE

Linda C. H. Lai initiated *Floating Projects* (FP) in 2015 to commence her long-term research-experiment in participatory art. Together with 13 SCM and other art graduates, the collective occupied a 170m² site in the Wong Chuk Hang industrial area to explore new models of art association beyond the commercial gallery system and public funds-dependent charity models. In August 2018, *Floating Projects* moved into a new repurposed industrial building in Shek Kip Mei's JCCAC where FP 2.0 was launched, which expanded the idea of participation to international collaboration and networking. In FP 3.0 (renewal of lease at JCCAC) the questions of survival, sustainability and the principle of co-individuation—collaboration that highlights individual autonomy—remain at the core of Lai's investigation.

Floating Projects is conceived as an interdisciplinary and intermedial practice of art making in a collaborative environment that supports both individual and group projects. It is a space for artists of various generations to meet and work together, engage in conversations and to think about what they do, and to collaborate in workshops and pop-up exhibitions. Members of the Collective uphold rigorous mutual critique and an approach to art making that views a work as always a work in progress, which has the generative potential both to be developed further and to inspire and interact with works made by other artists. FP welcomes projects that do not conveniently fall into established categories, thus it has sound instrument-making for on-site playing, re-invention of obsolete media, experimental toy shows, sound performance with objects, low-cost stop-motion workshops using smart-phones, and an auto-biographical exhibition of zines to examine the artist as a social being.

Starting with FP 2.0 (2018), all members contribute to the monthly rent and general expenses instilling a new sense of ownership and accountability. While Wong Chun-hoi, Jess Lau, Kin-choi Lam (SCM 2012), Hugo Yeung, Andio Lai, Kel Lok (2015), Winnie Yan (2016), the group Moving Moving Image (2015), John Chow (2019) and Andy Li (2018) persist as key-players, the latest FP 3.0 (2021.09) welcomed Martha Hatch (2021), Winsome Wong (2018), Michael Leung and RAY LC to bring in new visionary elements.

Three publishing projects have sustained and expanded the purview of *Floating Projects*. *Floating Tea Time* is a writing platform on the FP website edited by Linda Lai, which publishes art and research field notes, critical features and creative writings. The platform promotes writing methods and styles that are not confined to the binary opposite of journalistic versus academic writing. For more information about *Floating Tea Time*, please visit http://floatingprojectscollective.net/teatime/

Motion Picture Film Workshop

Two major project grants awarded to Linda Lai by the HKADC (a total of HK$750,000) enabled FP to develop recently two further impactful publications. *D-Normal/V-Essay*, running since November 2020, is a quarterly video zine that publishes video essays, expressive journaling, and documentation of art works and performances. The fascinating works range from explorations of online culture and experiments in dance video to environmental and multispecies activism. So far roughly 60 videos have been published in 3 zine issues from all over the world including Eastern Europe and Latin American. For more details, please visit http://d-normal-v-essay.floatingprojectscollective.net

Our Manifestos 2: Videography, Documentary Impulses (2018-2021), is a 368-page book project with 60+ videos from 49 artists gathered by open call, multiple on-line workshops and critique, manifesto-writing and rewriting and preparation of video components. *Our Manifestos 2* moves beyond conventional documentary practice and like D-Normal, it aims at preserving the space of free artistic expression and builds cross-regional communities using on-line communication platforms.

Visitors to *Floating Projects* are welcome to chat, hang out, use the *Floating Projects* library or access its on-site digital archive, everyday 2.00-8.00pm except Mondays.

相遇於小誌小文學
Publishing (to Find Each Other)

Publishing (to Find Each Other) – a hybrid exhibition showcasing zines, video essays, posters and research papers of PhD student Michael Leung


Our Manifestos II: *Videography, Documentary Impulses* - a 365-page bilingual book, which includes 49 local and overseas videographers' manifestos, and a total of 67 digital files of video works

據點 ‧ 句點
黎肖嫻

黎肖嫻在2015年創立「據點。句點」(FP) 項目，由此開展她在參與式藝術的長期研究與實驗。團隊成員包括13位創意媒體學院和其他藝術科系的畢業生，在佔地170平方米的黃竹坑工業區場所，一起探索嶄新的藝術結合模式，是有別於商業畫廊系統和依賴資金的公共慈善運作模式。2018年8月，「據點。句點」搬進石硤尾賽馬會創意藝術中心一棟重新規劃的工業大樓，FP 2.0在此啟動，參與的理念也擴展到國際協作和網路聯繫。自賽馬會創意藝術中心的場地續租後，「據點。句點」現已進入FP 3.0，這第三度捲土重來，成員陣容更加壯大，並有數個新設的線上出版項目。

「據點。句點」的構想為跨學科和綜合媒體的藝術創作實踐，在鼓勵個人和團體創作的協作環境進行。這裡提供一個空間，讓不同年代的藝術家相遇和一起工作、對話和思考創作內容，並在工作坊和隨興的展覽攜手合作。團隊成員堅持嚴格的相互評論，亦認同藝術實踐的取向：藝術作品是永遠的進行狀態，有待進一步發展的潛力，且能激發其他藝術家的作品並與之互動。
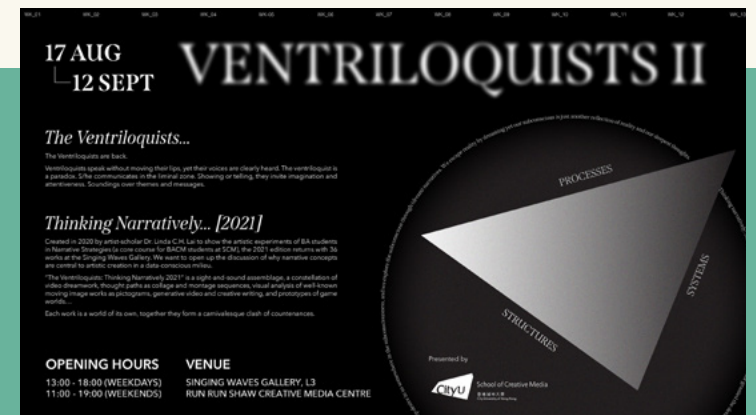
The Ventriloquists 2021 An exhibition with 36 works by BACM students of School of Creative Media

Manifesto 2: Artists' Online Workshops

OUTSTANDING ALUMNI
MARTA PANG

Marta Pang, originally from Hong Kong, is a fine art and portrait photographer based in Berlin, Germany. She is the Head of Photography at Stay Cold Apparel in Berlin. Her work focuses on alternative aesthetics with surrealism and conceptual art, bringing her unique emotions to photography. She is preoccupied with the charm of weirdness in mind and life. She is infinitely passionate about art and always has a desire to create, seeing photography as a way to bring imagination to life.

After completing the Bachelor of Art in Creative Media at City University of Hong Kong in 2012, she worked as an intern at Digital Broadcasting Corporation Hong Kong Limited. Then she worked as a trainee photographer at East Eighteen in Hong Kong. She joined the Central Academy of Fine Arts in 2014 to study photography. Subsequently, she worked at a print and video production house, handling commercial and fashion campaigns such as Samsonite, Levi's, Shanghai Disneyland, AXA and ICBC and also as a videographer in Japan at Cool Japan TV.

In 2015, her group Exhibition *"On the Road"* was exhibited at the Run Run Shaw Creative Media Centre, Hong Kong. In 2018, she received an Honourable Mention at the 11th Julia Margaret Cameron Awards in Spain, and was the finalist in the Group Exhibition category at the EyeEm Photography Awards in Germany. She also won the merit Prize at the Photoblog.hk Annual Photo Contest in Hong Kong. In 2019, she received an Honourable Mention at the Tokyo International Foto Awards, Japan and won first place in Advertising at the International Photography Awards, USA.

About her days at SCM, she reminisced, "Throughout my time at the School of Creative Media, I was exposed to a diverse range of cultures, digital technology and media practices. Being able to use the resources and be free to experiment and explore various media enabled me to foster my interest in photography, which led to the career path I am on now.

Flower You, 2018

Photography work for OPPO x EyeEm, 2020
Project name: PPO Find X2 Pro x EyeEm

Nike Air Max Commercial, 2018

TOMMY NG

Tommy Chung Kai Ng is the Founder and Director of Point Five Creations in Hong Kong, that creates animation content for commercials and exhibit usage. Graduating from the School of Creative Media in 2003, Tommy has directed several award-winning animations such as *Tale of Rebellious Stone* (2013), *Shear Marks* (2015), and *Another World* (2019), earning high acclaim as an emerging animation director in Hong Kong. His works have been selected for animation festivals in Asia, Europe and USA. He is also actively involved in making creative commercials such as *Assassin's Creed* (2017) and *Nike Air Max* (2018). In 2017, he worked in an animation film project *Implosion: ZERO_DAY* as Executive director and contributed to animating the Hong Kong movie *Zombiology: Enjoy Yourself Tonight* (2017).

"SCM gave me the perfect place to learn and improve my animation skills," he told us, "All the teachers are experienced. They have great technical skills and vision that influenced me a lot. The knowledge I gained from SCM makes my career grow smoothly. Besides that, I think the bonding of SCM students is very strong. Graduated students are willing to hire undergraduate students. We got so many opportunities to work in the industry before graduation. SCM is really a great place to study in."

Zombiology Enjoy Yourself Tonight, 2017

NEW FACULTY: YUTAKA TOKUDA

SCM welcomed Yutaka Tokuda this summer. Tokuda creates and investigates spatially augmented reality display and new media interface technologies that blur the boundary between physical and digital media. In particular, he is interested in exploring 3D floating display systems and programmable materials that control the appearance, sound and tactile feeling of holographic or physical 3D objects. He has worked on multidisciplinary display and interface design projects in both academia and industry, including The University of Tokyo, University of Sussex, Utsunomiya University, Microsoft Research, Google and Panasonic. He completed his PhD from The University of Tokyo in March 2020 under the supervision of Prof. Michitaka Hirose.

Tokuda has won many awards and accolades such as The Augmented Human 2021 Special Recognition Award and the Anglo-Japanese Foundation grant. He won the best paper award at International Display Workshops, 2015 and in IEEE VSMM, 2010, and while still a student he was a semi-finalist at SIGGRAPH 2008 in the student research competition. He has also attained two patents for a Display Device and Display method for aerial image, and for the control of polarization diffractive resolution in retro-imaging systems.

Tokuda is a Founding Member of the Tokyo Interaction Center (TinC). He has served as an industry-academia collaboration researcher for Nippon Carbide Industries and BMW in Tokyo, Japan and supported new business development in floating display technologies. As Research Associate at the University of Sussex, he has led a research project named "Shape-changing 3D Fog Displays." He has also developed novel shape changing interface projects, called "Breaking the Glass: Multimodal, Malleable Interactive Mobile surfaces for Hands-In Interactions" in collaboration with Swansea University research groups.

This research has led to many publications on a variety of topics including visual-tactile displays based on electrochemical locomotion of liquid-metal Janus droplets, 2D shape drawing of highly conductive liquid metals in a dynamic electric field, floating image displays, and polarized aerial imaging.

Tokuda says "SCM is an exciting research environment to be a part of. I have been discussing research projects with a few colleagues and I look forward to my time here." He will be teaching classes on physical computing in Semester A.
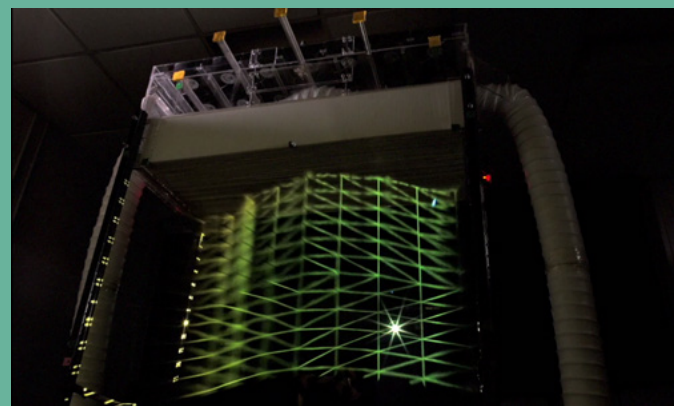
MistForm - Adaptive Shape Changing Fog Screen (CHI 2017)

Tree Shaded Screen (Cyber Arts Japan - Ars Electronica 2010)

COMPUTER SCIENCE PHD RESEARCH AT SCM

One of the core research areas in the School of Creative Media is computer graphics and human computer interaction (HCI). We have probably the largest group of graphics and HCI researchers in Hong Kong. Currently, there are eight faculty members who are active graphics/HCI researchers and are willing to take PhD students in these areas. SCM is known for its interdisciplinary approach to teaching, learning, as well as research. This not only provides inspiration to our computer science researchers but also leads to more practical solutions to real-world problems.

There are a total of 10 PhD students working in the sub-fields of graphics and HCI. Most of them have their bachelor and/or master degrees in the science/engineering related disciplines. They have been exploring new algorithms and devices to enable new content creation tools and make easier communication between humans and computers. The research projects led by our PhD students have appeared in the top HCI conferences such as CHI and UIST and in the top graphics journals such as ACM Transactions on Graphics and IEEE Transactions on Visualization and Computer Graphics. They have received many awards, including UIST 2019 Best Paper, AsiaCHI Symposium 2020 Best Paper, Inventions Geneva 2021 Bronze Medal. Here, we present some of our cutting-edge researchers.

Hui Ye is supervised by Hongbo Fu and will graduate in 2022. One of Ye's co-authored papers was published in ACM TOG which is one of the best graphic journals and this was presented at SIGGRAH 2020. Another paper will be published by IEEE TVCG which is another well-known Graphics journal. She has also been awarded a Research Tuition Scholarship in 2019/20 at CityU. Her main research focus is on designing and developing novel mobile AR prototyping tools for 3D contents and interactions.
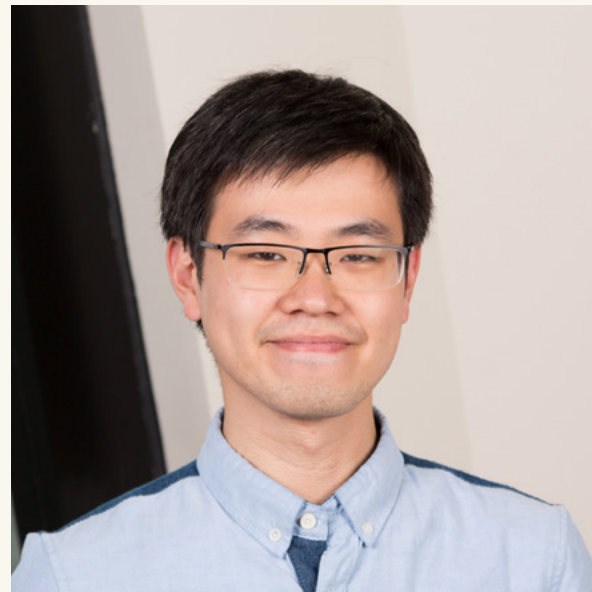
ARAnimator, a system that allows users to move an AR-enabled mobile device to directly control and animate a virtual character situated in real-world scenes
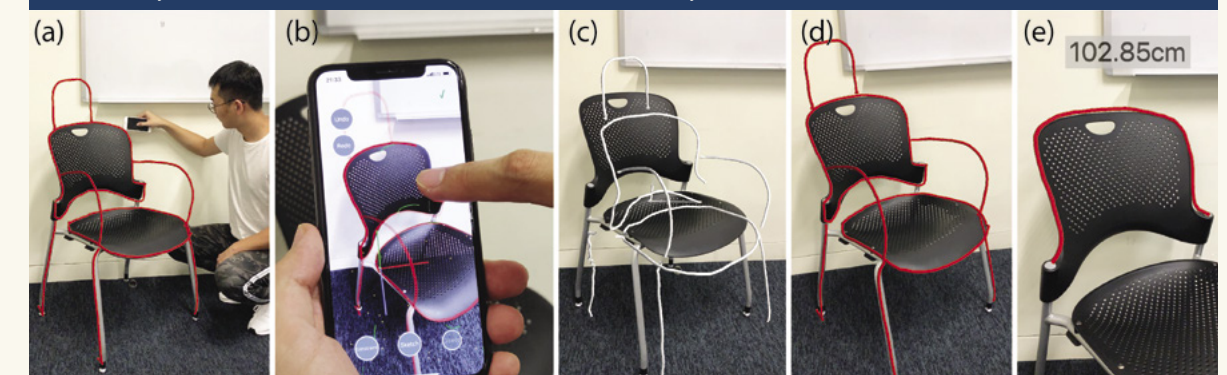
A tool for direct 3D curve creation with an AR-enabled mobile phone as a 3D pen, and interactive correction of 3D curves with tracking errors

Pui Chung Wong is a researcher interested in Human-Computer Interaction (HCI) and novel input method. He completed his PhD in Creative Media, advised by Hongbo Fu and Kening Zhu. After his studies, he became a postdoc in Alvaro Cassinelli's Augmented Materiality Lab. His work focuses on different topics in HCI, designing, building, and evaluating novel input and interaction for wearables and mobile devices. He believes that by exploring the parameters of different interaction methods more natural interaction can be developed that will improve daily living. He has presented and published many papers and won the best paper award at UIST'19.

A user types with a circular keyboard by performing an eyes-free bezel-initiated gesture when experienced in a VR environment
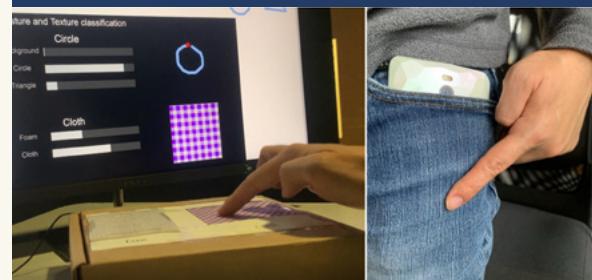

A prototype capable of identifying the gesture and the texture simultaneously with acoustic sensing (left). A possible application of interacting with a smartphone in the pocket by performing gestures on a textured surface (right)
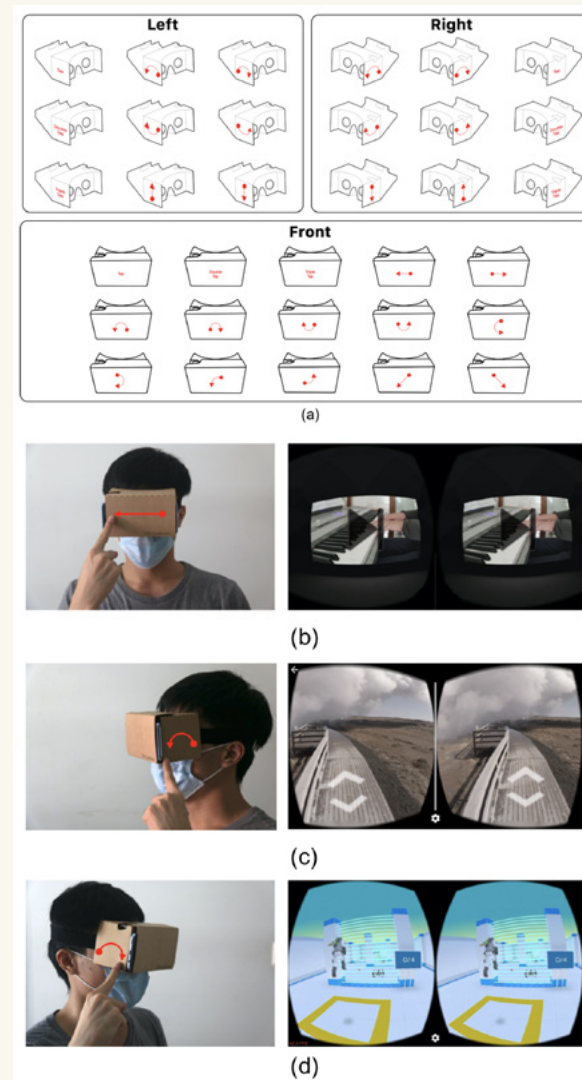
GestOnHMD: Enabling Gesture-based Interaction on Low-cost VR Head-Mounted Display
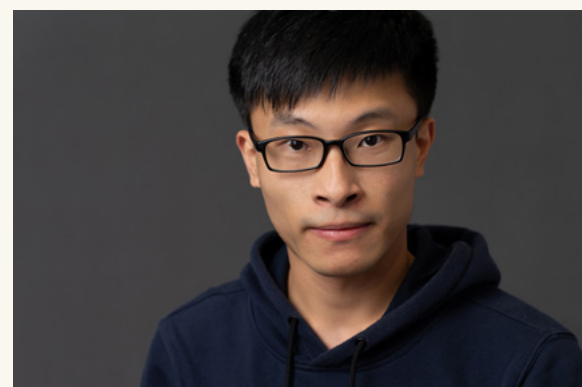
Taizhou Chen began his PhD in 2018, supervised by Kening Zhu and will be graduating in 2022. He has publications in conferences such as CHI, IEEE VR, INTERACT, VRST, and HCII, and journals such as TVCG and IJHCS. He also received a Research Tuition Scholarship from CityU in 2021. His paper at AsiaCHI Symposium 2020 won the best paper award. His research interest lies in the intersection of HCI and applied machine learning, and he is currently investigating sensing technology, leveraging deep learning algorithms.
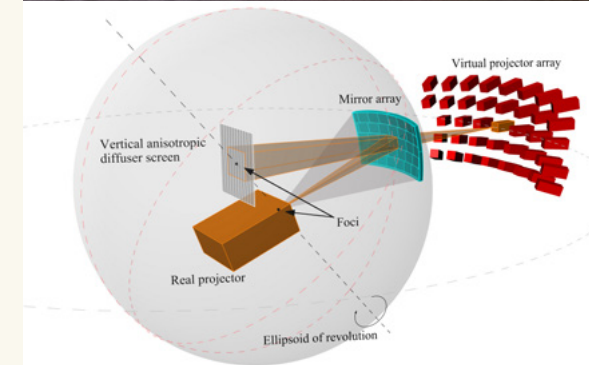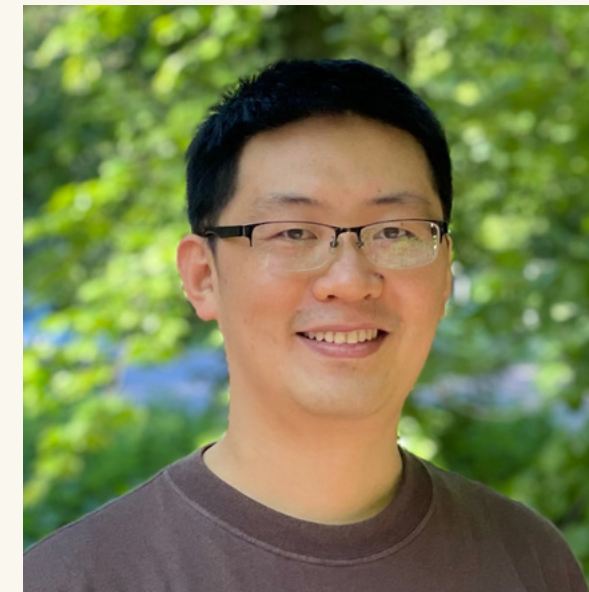

A light field display using a high resolution projector and an array of plane mirrors that has the potential to solve the long-standing vergence-accommodation conflict problem in 3D display field


A deep learning architecture, which is trained on crowdsourced subjective rating, can predict perceptual attributes from 2D images considering different shapes, illuminations, and materials

Bin Chen graduated in 2020. He was supervised by Miu Ling Lam and co-supervised by Hongbo Fu. He has published five papers in reputed journals and presented his work at numerous conferences. He was granted 3 US patents and is now following a postdoc programme at Max Planck Institute. His research topic was entitled "Bring the Reality in Front of your Eyes," where he developed an ideal 3D display device that allows people to see the displayed content just like what they see in the real world. His recent research focuses on human perception of material appearance and the perceived differences between the perception of an object in the real-world versus the displayed image, hoping to close the loop of a real 3D display system.
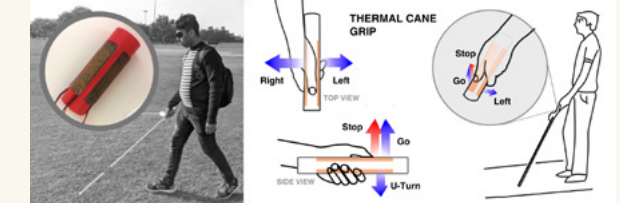
(Left) A blind person walking with a white cane mounted with a thermal haptic grip. (Right) The thermal cues that represent various navigational instructions
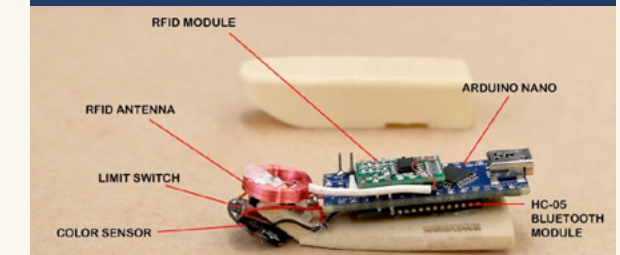
(Top) Internal view of hardware design of the finger wearable device. (Bottom) ColorTact/FingerTalkie, a finger-worn assistive device, allows the visually impaired users to retrieve audio content from the tactile diagram

Arshad Nasser is in his fourth year of his PhD programme and is supervised by Kening Zhu. He will be graduating in 2021. He won a Bronze medal for the "ThermalCane" project at *Inventions Geneva Evaluation Days 2021* and received the Outstanding Academic Performance Award at City University of Hong Kong in 2018, 2019 and 2020. He also received the Erasmus Mobility Grant for an academic exchange programme. He has published many papers in conference proceedings. His research topic is "Exploring Non-visual Interactive Devices for Enhancing Accessibility for the Blind and Visually Impaired (BVI)."

Our PhD students are encouraged to work on innovative and socially meaningful research problems, develop novel solutions based on advanced techniques like deep learning models, and publish their research outputs at the best venues in the fields. In many other universities, graphics and HCI research projects are often done in a computer science or similar department. Here at SCM, we believe our creative interdisciplinary environment provides an expanded opportunity for novel and cutting-edge HCI research to be realized.

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海上佛教
地圖集

Atlas
of
Maritime
Buddhism
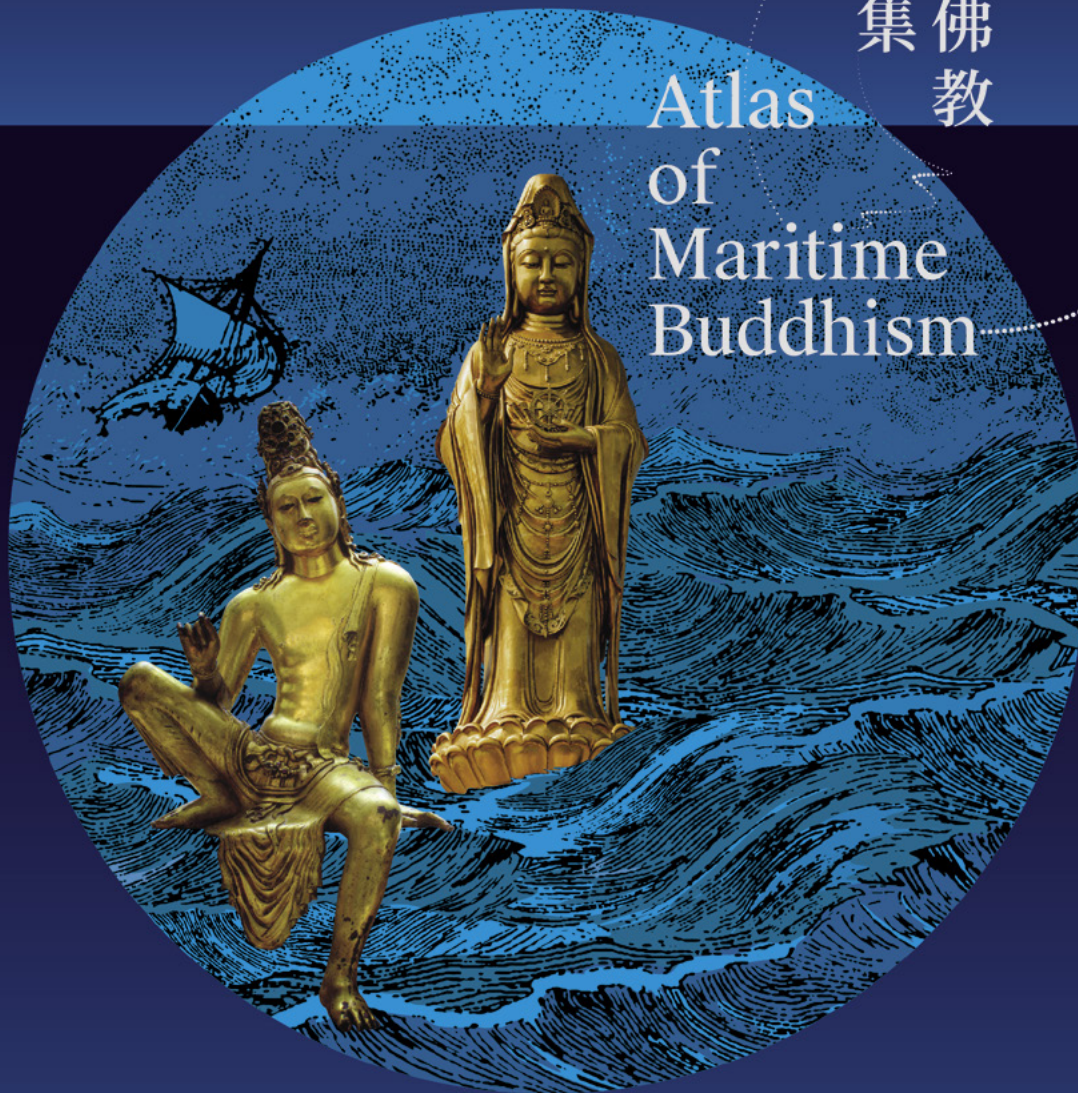
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