

L i

D a n :

D e n o i s e

李 丹 :

噪 音 去 除

开物者跨学科
工作室 kaiwu studio

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Denoise

噪音去除

为了使3D图形更加逼真，“降噪”在计算机图形学中是一种不断被极致化的追求。与此紧密联系的是芯片本身的算力，而芯片生产也是一个物理“降噪”的过程——无用之沙在无尘室中被排出，有用之沙被提纯为芯片所需要的硅。如果将“噪音”视作广义上“无用”、“产生干扰”的元素，那么“噪音”的定义和去除的过程本身就是一种权力和资本的体现。

在项目“噪音去除”中，李丹通过捕捉不同平台和媒介的“噪音”、搜集种种正处在被“降噪”状态的群体、声音和事件，寻找其中互相交错的线索和共通性。论文电影《噪音去除》集中呈现了这一过程，在李丹的旁白声中，观众将跟随她的思考轨迹逐渐探索不同的“噪音”样态。

空间整体通过黄光来模拟无尘室的环境，被反射出点点光芒的纱巾却同时提示着不可忽视的各种“噪音”。卫星地图上被不断缩放而显现的断裂、卫星云图中被标记为鲜红色的沙尘轨迹、近似噪音波纹的艾德莱斯绸，这些图像背后都隐藏着相似视角的凝视。这种凝视正如无尘室中精心设计的气流，不断地吹拂着如沙的我们。

郭芸

In computer graphics, noise reduction has become part of the never-ending quest to make 3D renderings more lifelike. This is closely related to the computing power of the chips themselves, and chip production involves a physical noise reduction process in which useless sand is removed from the clean room and useful sand is refined into silicon that can be used in the chips. If noise is seen as useless in the broad sense, as an element that produces interference, then the definition and removal of noise are manifestations of power and capital.

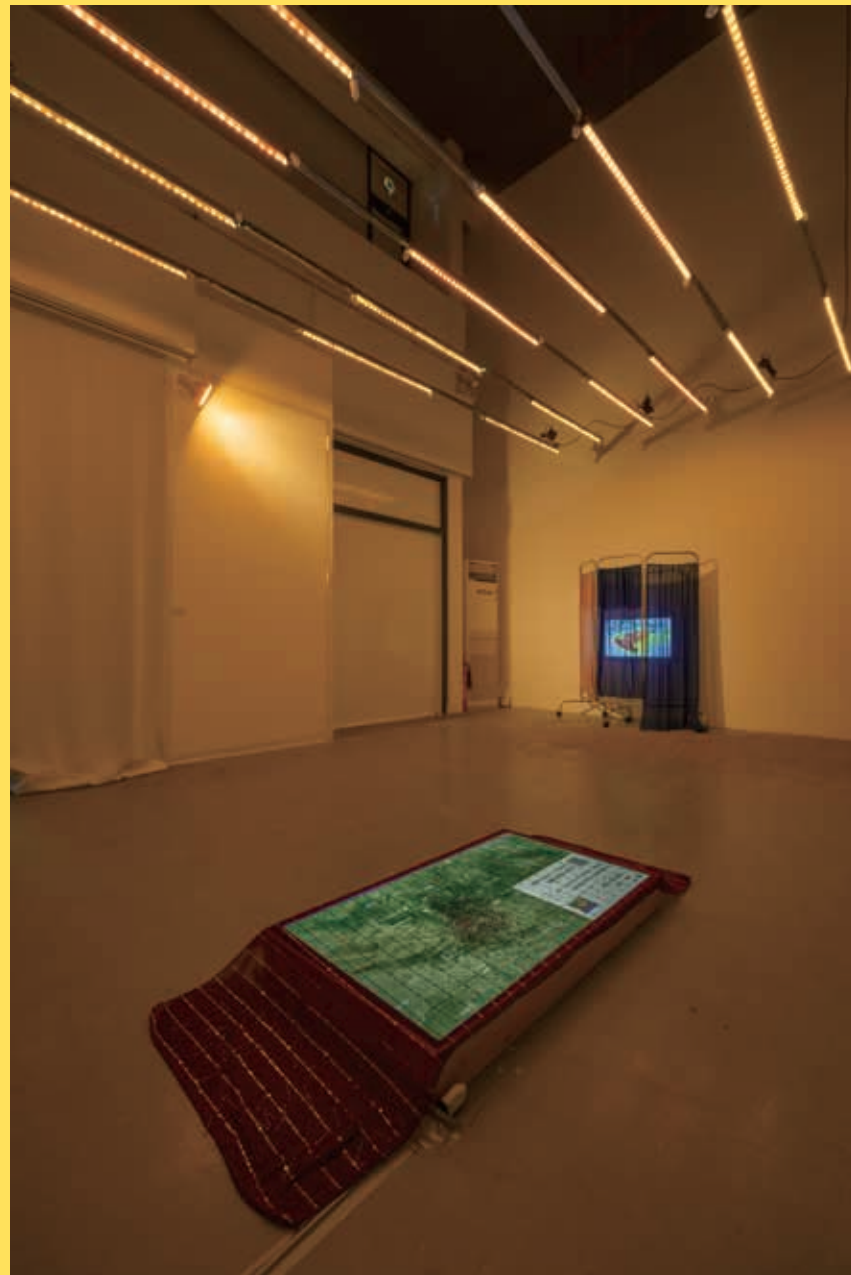
In *Denoise*, Li Dan captures noise from different platforms and media and collects groups, sounds, and events that are currently being denoised, seeking out interlocking threads and commonalities among them. The video essay *Denoise* presents this process, and Li's narration allows viewers to follow her train of thought and gradually explore different states of noise.

In the space, yellow light is used to simulate the environment of a clean room. The gauze reflects tiny points of light, while also suggesting various noises that cannot be overlooked. A similar kind of gaze is concealed behind images such as satellite maps that seem fractured from being constantly scaled, bright red dust trails marked on satellite cloud maps, and Etles silk patterns that resemble ripple noise. This gaze, like the meticulously designed airflow in a clean room, constantly brushes past us.

Guo Yun



“噪音去除” 展览现场
Installation view of “Denoise”



Eternal Fire I

《不灭的火之一》

纱巾、大头针、视频，53秒，尺寸可变

veil, pins, video, 53 sec, dimensions variable

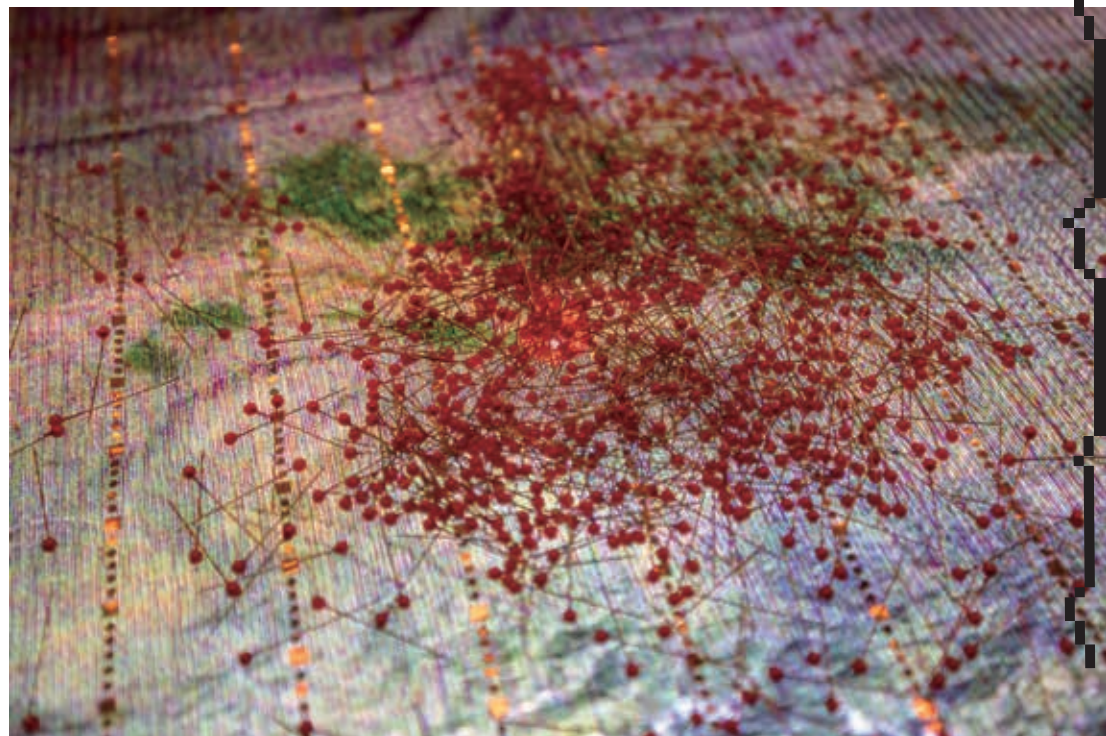
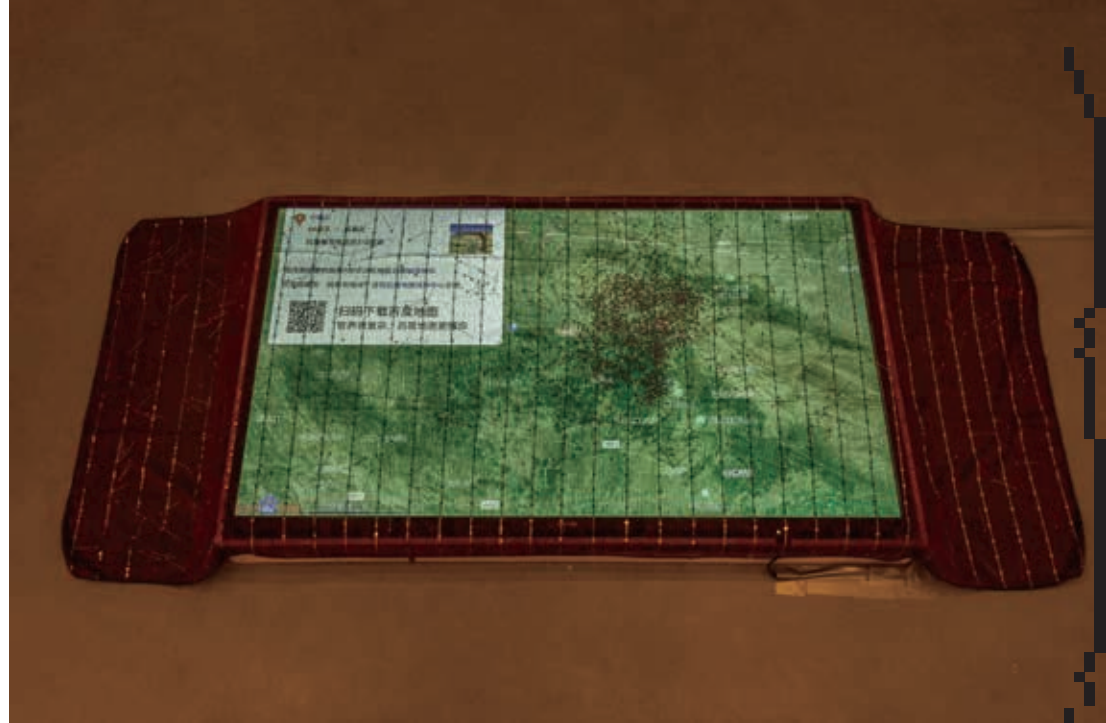
2021 - 2022

在某些地方，包括屏幕在内的所有家用物品都被覆盖上一层装饰性和保护性的织物，如果直接透过织物来观看屏幕会怎样？这提醒着像素世界的编织性质。

由于卫星地图上的不同层级拍摄于不同时间，导致地图在不断被缩放的过程中形成断裂，甚至于在不可见的层面上形成一片空白。用于固定纱巾的红色大头针散落于地图各处，标定着更多不被识别的领域。

In some places, all household objects, including screens, are covered with a layer of decorative and protective fabric. What would it be like if we could see straight through the fabric to the screen? This habit reminds the viewer of the woven quality of the pixelated world.

Because the different layers of satellite maps were photographed at different times, fissures appear in these maps as we zoom in and out, creating a void on an invisible level. Red pins that fasten the kerchief are scattered all over the map, marking more unidentified territories.



Eternal Fire II

《不灭的火之二》

屏风、纱巾、水钻、视频，3秒，尺寸可变

folding screen, veil, rhinestones, video, 3 sec, dimensions variable

2021 - 2022

一场沙尘暴在遥感图上被捕捉为一团火焰，随着沙尘的移动持续燃烧。这种视觉上的转换反而用鲜艳的颜色彰显了沙尘的存在，亦如从防沙的纱巾上流下的如沙般的水钻，反射出星星点点的光芒以强调自身。

On a remote sensing image, a sandstorm is captured as a flame that continues to burn as the sand moves. In this visual transformation, a bright color manifests the sand's existence. Diamonds fall from the protective kerchief like sand, reflecting tiny points of light that underline their own existence.





Eternal Fire III

《不灭的火之三》

灯管、可编程LED灯带、arduino、尺寸可变

tubes, programmable LED strips, arduino, dimensions variable

2021 - 2022

黄光一方面模拟了无尘室的环境（为了隔绝紫外线，生产芯片的无尘室会用黄光做照明），另一方面，灯带通过实时读取气象网站上大马士革风速的芯片来调节亮度。远处的风化作忽明忽暗的灯光，吹拂着此处的现场。黄色也是沙尘暴来临时的颜色。

On the one hand, the yellow light simulates the environment of a clean room. (In order to avoid ultraviolet light, clean rooms that produce chips are illuminated with yellow light.) On the other hand, the brightness of the light is adjusted based on a chip that retrieves the wind speed in Damascus from a weather website in real time. A distant wind, transformed into a flickering light, blows into this space. Yellow is also the color that appears with the arrival of a sandstorm.



Silk Threads

《丝线》

纱巾、视频, 1分42秒, 尺寸可变

veil, video, 1 min 42 sec, dimensions variable

2021 - 2022

如果艾德莱斯绸的纹样可以转化为声波, 听起来会是如何? 作品时而尖锐、时而浑浊的声音提醒我们, 在特定的语境下, 艾德莱斯在未被真实地听见之前, 或许已经被想象为刺耳的噪音。

If the pattern on a piece of Etles silk could be transformed into a sound wave, what would it sound like? The sharp and vague sounds in the work remind us that, in a specific context, before the Etles silk is truly heard, it may be imagined as jarring noise.



Denoise

《噪音去除》

视频、33分09秒
video, 33 min 09 sec

2021 - 2022

无论是在地图、声音、沙尘治理或是3D图形的渲染中，对“噪音”的定义和去除是一种普遍存在的、不可见的权力。在论文电影《噪音去除》中，李丹用“干燥世界”之梦和经验拼接起在不同环境、媒介中所遭遇的噪音，呈现它们“被降噪”的状态，通过细腻的讲述捕捉其中的共通性。

The definition and removal of noise is a ubiquitous, invisible power in maps, sounds, sand control, and 3D renderings. In this video essay, Li Dan uses dreams and experiences of an arid world to bring together noise from different environments and mediums, presenting them in a denoised state with a detailed narration that captures their commonalities.



艺术家访谈：噪音、图像缝隙及他者

采访：吴建儒

你原来是一名记者，为什么会从文字工作者转型创作作品？这种表达方式的转变和你关心的内容有什么样的关系？

作为记者，写作的文体还是有一些限制的，媒体对一篇报道是什么样有要求。后来慢慢地，我开始转向非虚构写作。论文电影《噪音去除》里的一小段和我在土耳其做的一个田野有关，当时我写的文章被删去了很多内容，编辑说那些内容太像“采访手记”，但我觉得那些感受和体验很重要，它不是一个社群的客观描述，更像是我的旅程。感觉自己关心的内容变化不大，只不过创作作品就自由多了，各种东西可以杂糅在一起，除了文字还有图像和声音。

在你的作品里面，有很多关于中亚文化的元素，在作品《丝线》中，你使用了艾德莱斯绸，在《不灭的火》系列中也有纱巾和水钻，这些元素在你作品构成怎样的叙事？

中亚文化一直是我非常感兴趣的。我太喜欢那些纱巾和水钻了，它们那么美。这些元素并不是民俗意义上的元素，因为民俗总是对已死之物的陈列，相反我觉得它们和当下世界运行的结构有关。因为我感觉这些水钻是很值得珍惜的东西，所以铺在展厅地面上的水钻不想让观众踩，但是好像观众还是会不可避免地踩到，然后把它蔓延到整个空间，这个时候感觉它好像又回到了沙子的状态，被人们的鞋底传播，一不小心就渗透到别处，更像沙子的一个性质了。

纱巾和水钻还代表了一种已经被遗忘的繁复华丽（讽刺的是它的廉价）的装饰性美学，在中亚的家庭空间充满了这样的织物和闪亮的点，织物既有覆盖的作用，又展示着自身。我曾在一个家庭看见过一个电视被织物覆盖，我觉得织物和电视屏幕的关联非常有趣，也不只一个研究者谈过织物的编织性质和计算机的关系。当下的显示器都在简化甚至取消边框，让人们把

注意力集中在屏幕内的世界，但装饰性的织物能不能提醒屏幕的物质属性，从而提醒电子世界的虚构属性？用OpenGL编写着色器的过程，感觉也跟织一张布很像。那些水钻则很像电子图像的噪点（英文中就是一个词noise），从纱巾上流泻而下，堆积成沙。

我一直觉得中亚的艾德莱斯绸的纹理非常迷人，它像动荡的水波，又像电子的声波，或电子采样后呈现的形状。我寻找了一些声波形状跟这种纹理比较像的声音，编排在一起，又像丝线的拆解。

在论文电影《噪音去除》里，有一句话让我印象深刻：“它身上铭刻着边缘-中心关系。当中心需要边缘时，需要的是矿和廉价劳动力，沙尘暴是不被需要的剩余物。”这句话指出了你作品中的一个主题，沙尘暴是被工具化和他者化的媒介，被强大的帝国驱逐在帝国边界之外，而这些“无用”的媒介的堆积可以跨越国界、洲际而流动，在卫星地图上被看见、被捕捉，也让我想到这是一种关于暴力在图像上的显现，你的作品也引用了很多谷歌地图的素材，是什么让你在卫星地图上寻找这些可以被窥见的暴力的缝隙，可以谈谈你关于卫星地图的兴趣和研究？这种图像上的研究和你在实地的经验有怎样的联系吗？

我对卫星地图的兴趣可能始于几年前的战地新闻报道，一场发生在非洲的屠村可能没有任何见证者，施暴者又在否认，唯一的见证就是遥感图像。包括法证建筑、Bellingcat在内的实践者都把卫星图像当作工具，分析遥远战争、取证的手段。这时卫星图像是实地的补充。

但卫星图像又是一种很奇怪的图像，它不是人的视角，是机器的视角。我看过一篇文章讨论为什么那些让你证明自己不是一个机器人、点出照片中某些物体的图像那么令人抑郁，因为这类图像是被用来进行人工智能识别训练的，它们灰蒙蒙的，常常是机器拍摄的奇怪视角。卫星地图也有一种奇特的美学，也隐含了非人的视角，人很少能从高处俯瞰，也无法一下子看到所有地方，无法一下子在所有地方“在场”。其实人们对空间的感知是越来越被中介化的。

你说“感觉你研究的是一个被媒介化之后的图像事件和它产生的噪音，比你原来做记者直接面对现场的距离又远了一点。”的确如此。我想起之前我在法国的驻留项目的负责人Gilles Saussier，他在做当代艺术之前是战地记者，是欧洲最早去伊拉克拍摄海湾战争的人，也在之前罗马尼亚总统齐奥塞斯库（Nicolae Ceau escu）倒台时留下了非常经典的记录。但他总说

感觉虽然离现场战争很近，但并不理解发生了什么，所以他就不想再做这种报道性的战地记者了，他觉得背后的机制是更重要的，比如图像生产的机制。对我来说也是如此，我关心的是图像背后产生的机制。

你的作品里也很喜欢引用卫星地图这个工具，比如《不灭的火之一》展现了在百度地图上不停缩放的时候，会看到一种不均质图像，你也提到过在谷歌地图这种媒介中，由不同时空的图像拼贴而成的看似真实的地貌，实际上我们仔细去观看其缩放的过程，很容易发现时空的破绽，以及由种种原因造成的地图飞地，可以谈谈你对地图中“飞地”的关注原因吗？

论文电影《噪音去除》里的画面都是电脑界面，都是被媒介化的，其中有谷歌地图、Yandex地图，还有3D软件和声音软件界面。当电子媒介要处理、触及现实时，必然要产生采样率的问题。在计算机图形学和声音中，采样率不足都会产生噪音，而采样率的不均体现着权力的分布。

我查资料发现，自1997年以来，谷歌地球的以色列图像一直被故意模糊，这是由于《基尔-宾加曼》修正案（Kyl-Bingaman Amendment）禁止美国公司以低于商业化的“地面采样距离”（ground sample distance）发布以色列的卫星图像。所以像Digital Globe这样的美国卫星公司和谷歌地球这样的浏览平台不会发布任何分辨率高于2米的以色列图像。

“飞地”很有意思，它表明地图的可见性和清晰度是不均质的。本来地图这个空间的再现（representation）系统似乎承诺了连续、平滑和均质，实际上不是这样，而是充满了时空鸿沟、断裂和异质。《不灭的火之一》里，当我们缩放卫星地图时，会发现在不同的采样层次上，颜色都不太一样，因为这些图像是在不同时间拍摄的，地图不过是把这些图像拼接在一起。还有一些地方更可见，一些地方更不可见。

在论文电影《噪音去除》中我选的一个飞地的例子是伊斯坦布尔的“五一街区”，它体现出大城市的内部是如何不均质的。在谷歌街景上，有蓝色线条的地方表示有谷歌的车驶过，并系统性地拍过街景。伊斯坦布尔四通八达的蓝色脉络圈出一个“五一街区”的轮廓。这个极左街区被视为危险街区，从1970年代就自成一体，建立起了底层和边缘人群之间宝贵的团结，而现在正在被瓦解。这个街区的拓扑空间很有趣，它在高坡上，是一个自成一体的山头，但被林立的高楼包围，又像一个谷地。这个城中村是过去的远郊，只能说伊斯坦布尔城市化的速度超过了所有人的想象，它现在变成了市中心的斑点、胃液中的食物颗粒。

我对飞地的兴趣好像一直有。亲身去过的另一个飞地的例子是东欧的德涅斯特河沿岸共和国（Transnistria），它非常小，是一个国中之国，位于东欧摩尔多瓦的内部。大巴载人进入时间隧道，一切回到前苏联，共和国首都蒂拉斯波尔堪称“苏联政权的露天博物馆”，凋敝得让人难过，事实上，这里和避税天堂、人口贩卖联系在一起，因其不稳定状态被多方利用。这些飞地都让人看到时-空连续体的深深鸿沟。

尽管在你的作品中没有直接谈论技术，但不少地方都间接地评价了技术，比如在展览中微弱的黄光笼罩了整个空间，虽然这是借用了无尘室的黄光，实际上作品中的黄光则是根据大马士革的风速来改变其亮度，这似乎在讲述技术的控制是跨越时空的，也是隐形的技术显形的过程，你是怎么考虑技术在你作品中的位置？

这个项目中对控制技术的思考。现在的技术越来越接近理念的程度，如不同级别的无尘室就在无限接近理念上的“清洁”，制造芯片的无尘室级别很高，要求空气中尘埃的量小到非常低的程度，硅的纯度也要非常高，电子级多晶硅的纯度要求达到99.999999999%，感觉一切都在逼近理念，而被排除的东西就作为噪音存在。

计算机图形学的3D渲染也是，人们对分辨率和采样率的要求越来越高，以前的游戏是一个那么简陋的像素游戏，现在的主流游戏、尤其是所谓的“3A大作”，要接近真实世界的光路反射、折射，所以那些渲染不出来或还没渲染出来的地方会有噪音，像沙一样的东西或者破绽，就会瞬间让你意识到是有一些断裂的。

我想给控制带来一些扰动，如你所说，“在控制中间去找一些裂缝，把一些不可控的地方给描绘出来”。

你作品里面有几款独立游戏，可以谈谈为什么用游戏的方式来呈现吗？

我在2019年春天看到一个俄罗斯人做的游戏，名字叫《It's winter》，关于所谓的“后苏联忧郁”。玩家置身于一个典型的苏联公寓楼，外面是大雪天，在游戏里，你只能到处看，没有任何具体的任务。你可以踢一下地上的碎纸，听收音机里充满噪音的声音，你可以把微波炉打开，再关掉，却并不能真的做任何事。你还可以出去走在雪地里，游戏里有无穷无尽的相似的公寓楼，雪中有一些灯光。你只能走来走去，却被无力感攫住。这个游戏的像素也不高，模型也比较low poly，却是一个感觉特别强烈的游戏，所有具备工人宿舍楼生活经验的人都能马上体会到。那时我刚从贝尔格莱德旅行回来，新贝尔格莱德就是被划成无数“块”（Bloc）的

的公寓楼集群，我曾借宿朋友家。玩这个游戏时，我不得不不时停下来，缓一缓，去窗口看着南法灿烂的阳光抽支烟，才能继续玩。

后来我发现了itch.io，里面有很多我喜欢的独立游戏，有的游戏我觉得介于一个艺术品跟一个游戏之间，有一些荒诞奇怪的场景。itch.io也是一个很好的社群，大家会互相分享对别人游戏的看法，或者说建议你要不要哪里改一改，然后那个人就会改。

游戏是有互动性的，同时允诺了一段线性时间，这段时间你一定是在这里的，但叙事不一定是线性的。这种设置会给人身临其境的感觉，而这种沉浸感其实跟画质、和所谓的3A游戏（投入大量的时间、资源和金钱而制作高品质单机游戏）追求的photorealism没有关系。纹理分辨率可以很低，模型也可以是low poly，它是靠叙事带来的，有些非常简陋的画面反而让你觉得非常沉浸，整个人都就像做一场梦一样。我觉得这种互动性比其他媒介比较缺少的，就开始做一些小游戏。

我一开始做的游戏包括一个跟中亚疗养院有关的游戏《治疗》，游戏讲的是一个去山里的疗养院去做一个水疗，让精神和身体都得到治愈。还有一个游戏《Despacito》改编自李娟的一个小说，在荒漠寻找一个老人。你在傍晚时候去找一个老人，整个游戏过程就是在路上，你的记忆很模糊，有点不记得傍晚发生过什么了，只记得一些片段，夕阳下有一些桦树被照成粉红色，你回想究竟找到了他没有，他的家究竟是什么样子的……是一个关于记忆和想象的过程。

你的从媒体离职之后，似乎过上吉普赛人的工作和生活方式，这样的生活状态和作品是怎样的关系？在不同的地方，你是怎么开始创作的？

我对边境等地区格外感兴趣，又因为创作的媒介是电子的，所以想不停旅行。也可能是旅行的生活方式使得我使用的媒介比较电子化。旅行会变成日常生活，我还记得那个冬天在比什凯克的青旅大堂看着外面飘雪一边建模的情景，很多时候我不出门游览，只是对着电脑。疫情前在中亚待了很久，疫情来了就变成在国内的不同地方辗转。

我还是希望能多做一些在地性的作品。比如，2021年我在敦煌鸣沙山做了一个声音演出“使鸣沙山复鸣”。鸣沙山的沙子曾经能发出神奇的飞机轰鸣声、雷声或钟声，但到了1980年代末，这些沙子的声音逐渐消失了，与历史的进程有某种奇异的同步。原因可能是环境污染、人类活动。中科院寒旱所的一个学者就一直在研究这个声音消失的原因，我去拜访时他刚好不在，可惜没有见到。我在鸣沙山脚下生活期间，环境里还有另一种雷声/钟声，那就是雷音寺的晚钟。“雷音”的说法来自“佛音说法，声如雷震”。我搬到那个村子的第一个傍晚，独

自在家听到那个声音，非常的震撼神秘，以为村里在进行什么仪式。出于对这些现象的关注，我决定做一个声音演出“使鸣沙山复鸣”。

“使鸣沙山复鸣”演出那天的观众主要是本地人。我对风扇在沙枕（一个装置）中转动的声音进行实时采样、放大和处理，把它们变成各种电子噪音，来模拟想象中的鸣沙声。我告诉大家演出开始的时间是“雷音”响起的时间，这个时间在晚上九点过一点（敦煌的傍晚来的晚一些），有时候提前一些，有时候推迟一些，不一定。于是我们一起在静默中等待，那天钟敲的格外迟一点，于是我们凝神等了很久，进入一种类似冥想的气氛。天上的晚霞在显现，钟声终于响起了，我用电子噪音和钟声对话，在音色上和节奏上。结束的时候刚好是天色暗下去的时候。

演出后大家一起聊起来。一位七十岁的阿姨说很久没有感到心这么安静了。大家纷纷说起多年前对鸣沙的回忆。回忆和想象混合在一起。有一个一辈子都在莫高窟临摹壁画的老先生说，1980年代的某一天，他去莫高窟画画，登上九层楼高的山顶，那天沙子因为雨水板结而集体下移，非常罕见地，四面八方发出浑厚的响声。“就和今天听到的一样”，他看着我说……

那天我觉得很感动，大家甚至感谢我，让他们想起那个声音，我也觉得在那个时间段，我们是共在的。我以后很想多做这种能让大家感觉在一起的项目。

最后谈谈这次在广东时代美术馆媒介实验室的驻留的创作经历吧？这次驻留和你参加的其他驻留有什么不一样的地方？有什么印象深刻的事情或我们可以改进的地方。

印象最深刻的是“噪音去除”布展的那段时间吧，我们一起克服了很多困难。这个驻留和以前不同的地方是让我第一次生活在一个美术馆里，我住的地方紧挨着展览空间，美术馆的工作人员策划和布了这个展，但和这个展生活在一起的是我，我也因此感受到一个展览背后的维持系统的重要性。寻找跨学科合作伙伴的方式也是我第一次遇到的，拜访各个3D打印企业的旅程也让我印象深刻，一改以往对这个产业状况的印象，可惜我后来没把这条线索发展下去。在驻留期间，我经历了一些调整，很多想法都是在不断讨论和激发中产生的。感谢媒介实验室的各种支持和帮助，感谢线上驻留变线下驻留，想念黄边的时光。

Noise, Pictorial Fissures, and the Other In Conversation with Li Dan

By Wu Jianru

You used to work as a journalist. Why did you make the shift from writing to making visual art? How was this change in expressive method connected to the issues you're interested in?

As a journalist, you are constrained in your writing style, because media outlets have requirements for articles. Later, I slowly shifted toward non-fiction writing. A passage in my video essay *Denoise* was related to a field study I did in Turkey. At that time, a lot of content was removed from the article I wrote about that trip. The editor said that the content was too much like my interview notes, but I thought that those feelings and experiences were very important. They weren't objective descriptions of a social group; they were part of my journey. I feel like the issues I'm interested in haven't really changed; it's just that I have more freedom when I make art. Various things can be mixed together—images and sounds, in addition to texts.

There are a lot of elements of Central Asian culture in your work. You use Etles silk in *Silk Threads* and you use veils and rhinestones in *Eternal Fire*. How do these elements form a narrative in your work?

I've always been very interested in Central Asian culture. I really like those veils and rhinestones; they're so beautiful. These elements aren't emblematic of local customs, because customs are almost always displayed as dead things. Instead, I wanted to show that they're connected to the way the world currently operates. Because I think that these rhinestones are precious, I didn't want people to step on

the ones I scattered on the floor in the exhibition hall. However, it seems that visitors could not avoid stepping on them, so they spread to the entire space. At that point, they had been turned back into sand, carried on the soles of visitors' shoes. Being unintentionally carried into another space is a very sand-like quality.

Veils and rhinestones also represent a forgotten and splendid decoration aesthetic, which is also sarcastically cheap. Family spaces in Central Asia are full of these kinds of textiles and sparkles. The fabric serves as a cover, but it is also something to be displayed. I was in a family home when I saw the TV covered in fabric, and I think that the connection between the fabric and the TV screen is very interesting. This isn't just a researcher talking about the connection between the computer and the woven texture of the fabric; screens today are so streamlined they almost don't have frames. This focuses people's attention on the world in the screen, but could the decorative quality of the fabric remind us of the material properties of the screen and thereby bring to mind the virtual nature of the digital world? The process of writing a shader in OpenGL feels very similar to weaving a piece of fabric. The rhinestones are a lot like noise in digital images. When they fall from the veil, they pile up like sand.

I have always found the patterns of Etles silk fascinating; they're like undulating ripples, electronic soundwaves, or the shape that appears after an electronic sample is taken. I found a few sounds with wave shapes that are similar to these patterns, then arranged them together, like disassembling silk threads.

A line from your video essay *Denoise* made a deep impression on me: "Periphery-center relationships are inscribed in this sand. When the center needs the periphery, it needs mineral deposits and cheap labor, and sandstorms are unwanted surplus." This relates to a theme in your work, the idea that sandstorms are a medium for instrumentalization and othering. Powerful empires expel sandstorms beyond their borders; accumulations of this "unwanted" medium can cross national and continental boundaries, and they can be seen and captured in satellite maps. This also reminded me of representations of violence in images. There is a lot of material from Google/Yandex Maps in your work. What made you look for these glimpses of violence on satellite maps? Can you talk a bit about your interest in and research into satellite maps? What connections do your study of these

images have to your on-the-ground experience when you worked as a journalist?

My interest in satellite maps may have begun with war reporting from several years ago. A massacre that took place in an African village may not have had any human witnesses, and the perpetrators may have denied it; the only witness may have been a remote sensing image. Practitioners including Forensic Architects and Bellingcat have used satellite images as tools to analyze distant wars and collect evidence. Here, satellite images supplement on-the-ground research.

However, satellite images are very strange; they're taken from the perspective of a machine, not a human. I read an article discussing why the images that make you prove that you're not a robot by clicking on all the pictures containing a specific object make us so sad. Because these kinds of images are used to train AI image recognition programs, they're sort of grey and often take on the strange perspective of a machine. Satellite maps have a peculiar aesthetic that implies a non-human perspective. People are very seldom able to look down from a high place; they can never see everything at once, and they cannot be present everywhere. People's perceptions of space are increasingly being mediated.

You said, "I feel like you're researching post-mediatization image-based events and the noise they produce, which offer a bit more distance than a journalist directly confronting an event." That's certainly true. This made me think of Gilles Saussier, the director of a previous residency I was part of in France. Before working in contemporary art, he was a war correspondent, and he was one of the first Europeans to go to Iraq to photograph the Gulf War. He also took some classic pictures of the fall of former Romanian president Nicolae Ceaușescu. However, he always felt that, even though he was close to the war, he didn't understand what was happening. He didn't want to be a war correspondent filing reports, because he thought that the mechanism behind it—the image production mechanism—was more important. I feel the same way; what I care about is the production mechanism behind the image.

In your work, you also enjoy using satellite images as a tool. For example, *Eternal Fire I* shows that, when you continue to zoom in and out within Baidu Maps, the images become uneven. You've also mentioned that Google Maps

collages pictures from different times and spaces into landforms that seem real. In fact, when we look carefully, we easily spot the spatio-temporal flaws, as well as enclaves that have been created for various reasons. Can you talk about why you focused on the enclaves in maps?

The images in *Denoise* are from computer interfaces, including Google Maps, Yandex Maps, and 3D rendering and sound software; they've all been mediatized. When digital media engages with and touches on reality, there will invariably be sampling rate issues. In computer graphics and sound, a poor sampling rate produces noise, and an uneven sampling rate reveals the distribution of power.

I discovered that pictures of Israel on Google Earth have been purposely blurred since 1997. The Kyl-Bingaman Amendment prohibits American companies from disseminating satellite images of Israel that had been taken at a ground sampling distance closer than the commercial level. American satellite companies like Digital Globe and browser-based platforms like Google Earth cannot disseminate any images of Israel at an image resolution higher than two meters.

Enclaves are interesting because they show that maps are not always consistently legible and clear. Maps, as systems for representing space, seem to promise continuity, smoothness, and homogeneity, but that isn't really the case. These maps are full of spatio-temporal chasms, fissures, and inconsistencies. In *Eternal Fire I*, when we zoom in and out on satellite maps, we discover that the colors vary slightly among sampling layers, because these pictures were taken at different times. The map is simply a collage of these pictures. Some places are more visible, and others are less.

In my video essay *Denoise*, Istanbul's May 1 neighborhood was the example of an enclave that I chose, which shows how heterogenous a large city can be. On Google Street View, the blue line shows the route that the Google cars have taken to systematically photograph the streets. The blue lines that snake throughout Istanbul neatly encircle the May 1 neighborhood, because this far-left community is considered dangerous. Since it took shape in the 1970s, the area has built a wonderful solidarity among lower-class and marginal groups, which is currently disintegrating. The topological space of this neighborhood is very interesting. It sits on a hill like a little mountain stronghold, but the tall buildings that surround it make even this high point

seem like a valley. This urban village was once part of the outer suburbs, but the pace of Istanbul's urbanization has exceeded everyone's expectations. It has now become a speck on the city center or a crumb of food in a stomach.

I've always been interested in enclaves. I have also visited Transnistria, located along the Dniester River. It's a very small country within a country, located inside Moldova. A bus loaded with people enters the tunnel of time and space, headed straight back to the Soviet Union. The capital, Tiraspol, has been called an "open air museum of the Soviet regime," and the destitution is quite sad. This place is a tax haven and has connections to human trafficking. It's used by many people because of its uncertain status. These kinds of places allow people to see deep chasms in the time-space continuum.

In your work, you don't directly talk about technology, but you commented on it indirectly quite often. For example, a feeble yellow light blankets the space in the exhibition. Although this yellow light was inspired by a clean room, the brightness of the light changes based on the wind speed in Damascus. This shows that technological control can extend across space and time, but this also makes hidden technologies visible. How do you think about the place of technology in your work?

This project has a meditation on technologies of control. Technology today is approaching an ideal. For example, the different levels of clean rooms are getting infinitely closer to the ideal of "clean." The standards for clean rooms used in chip manufacturing are very high, and the amount of dust in the air has to be extremely low. The silicon must also be extraordinarily pure; electronics-grade polycrystalline silicon is 99.999999999% silicon. It feels like everything is pushing toward an ideal, and the things that are removed exist as noise.

The same thing has happened in 3D computer graphics. As resolution and sampling requirements have increased, the games of the past all look like simple pixel art games. Mainstream games today, especially major AAA game releases, attempt to mimic the reflection and refraction of light in the real world. When there is noise in the places that can't be rendered or haven't been rendered, those flaws or grainy areas immediately reveal the fissures in the image.

I want to shake up that kind of control. As you've said, I "find cracks in the midst of control and depict things that cannot be controlled."

There are several independent games in your work. Can you talk about why you used games?

In spring 2019, I saw a Russian game called *It's Winter*, which dealt with "post-Soviet sadness." Players find themselves within a typical Soviet apartment building surrounded by snow outside. In the game, you just look around; there are no specific tasks you need to complete. You can kick a scrap of paper on the floor, listen to staticky voices on the radio, or open and close the microwave, but you can't really do much of anything. You can also go out for a walk in the snow and look at the endless identical apartment buildings and the occasional lights. All you can do is walk around, but you're seized by helplessness. The game has a low resolution and low-poly mesh, but it evokes really intense feelings. Those who have experience of living in the worker's dormitories can immediately sense it. I had just come back from a trip to Belgrade, and New Belgrade is divided into countless apartment blocks like these. I stayed with a friend in one of them. When playing this game, I often had to stop and slow down. I had to go to the window to smoke a cigarette and look out at the dazzling sun of southern France before I continued playing.

Later I discovered itch.io, which has a lot of independent games that I really like. I think that some games fall somewhere between an artwork and a game, because of their strange, absurd settings. There's also a great community on itch.io, and people will share their thoughts on other people's games or recommend things to change, then the maker will change them.

Games are interactive, but they also promise a solid period of time. You're there for that time, but the narrative isn't necessarily linear. This makes people feel like they're personally experiencing it, but this sense of immersion is actually unrelated to image quality, or the photorealism pursued in AAA games, which are high-quality console games that require large investments of time, resources, and money. Some games that rely on narrative can have a very low texture resolution and low-poly mesh. You can actually find some really simple images quite immersive; you feel like you're dreaming. I think that this interactivity is lacking in other media, so I started to make

some little games of my own.

I started to make a game called *Cure* about Central Asian sanatoria. It follows a person who goes to a sanatorium in the mountains for hydrotherapy that will heal body and spirit. Another game called *Despacito* was adapted from a Li Juan novel about finding an old man in the desert. At nightfall, you find an old man. The entire game takes place on the road, but your memories are vague. You don't really remember what happened; you just have fragments. As the setting sun colors the birch trees pink, you wonder whether you really found him and what his house really looked like... It's all about memory and imagination.

After you left the media, you settled into a nomadic way of working and living. What relationship did this lifestyle have with your work? When you travel to a different place, how do you start working?

I'm exceedingly interested in border areas, and because my work is largely electronic, I can travel constantly. It may also be that this traveling lifestyle meant that I had to use electronic media more often in my work. Travel became my everyday life. I remember one winter in the lobby of a youth hostel in Bishkek. I saw the snow falling outside the window as I worked on the graphics. Many times, I didn't leave the hostel; I just sat in front of my computer. Prior to the pandemic, I spent a lot of time in Central Asia, and since the pandemic began, I have traveled to many places around China.

I also want to do more site-specific works. For example, in 2021, I did a sound performance at the Singing Sand Dunes (*Mingsha shan*) in Dunhuang called *Make the Mute Singing Sand Dunes Sing Again*. The sand on the Singing Sand Dunes once made a magical sound, like the roar of an airplane taking off, or a clap of thunder, or a tolling bell. But in the late 1980s, the sands gradually stopped singing, in a peculiar synchronicity with the progress of history. The reason may have been environmental pollution and human activity. A scholar at the Cold and Arid Regions Environmental and Engineering Research Institute at the Chinese Academy of Sciences was studying why this sound disappeared. Unfortunately, he wasn't there while I was visiting, so I was unable to see him. While I was living at the foot of the Singing Sand Dunes, there was another powerful sound in the area: the evening bell of the Leiyin Temple, literally "Thunderclap Temple." The association with thunder comes from the sutra: "When

the Buddha taught, his voice was like a clap of thunder." The first night I moved into the village, I was alone at home when I heard that sound. I was stunned but intrigued. I thought they were doing some kind of ceremony in the village. After noticing this phenomenon, I decided to put on a sound performance: *Make the Mute Singing Sand Dunes Sing Again*.

Most of those who came to *Make the Mute Singing Sand Dunes Sing Again* were locals. I did some real-time sampling, amplifying, and processing of the sounds of an electric fan running inside a sand pillow installation, then transformed them into various electronic noises that would simulate what I imagined the Singing Sands sounded like. I told everyone that the performance would start with the "sound of thunder," which was a bit after 9 p.m., because night falls slightly later in Dunhuang. Sometimes it would be a little earlier, and other times it would be a little later; you couldn't be certain. We waited in silence together. The bell tolled especially late that night, so we waited at attention for quite a while, entering a state similar to meditation. Sunset clouds appeared in the sky, and the bell finally sounded. I used electronic noise to create a dialogue with the tolling bell, both tonally and rhythmically. The performance ended when the sky had finally darkened.

Everyone chatted after the performance. A seventy-year-old auntie said that she hadn't felt that kind of peace in a long time. One by one, everyone shared their recollections of the singing sands from many years ago. Recollection and imagination fused. An old man who had spent his entire life copying wall paintings in the Mogao Caves said that one day in the 1980s, he went to paint in the Mogao Caves and climbed a mountain as high as a nine-story building. That day, the sand slid down all at once because a soil crust had formed in the rain. This was a rare occurrence, and a resonant sound filled the air. "It was like what I heard that day," he said to me.

I was very moved, and people even thanked me because I helped them to recall that sound. I also think that we coexisted in that moment. After that, I really wanted to do more projects that made people feel a sense of togetherness.

Lastly, can you talk about your experience during your residency at the Media Lab at Guangdong Times Museum? How has this residency been different from other residencies you've experienced? Did anything make a particular

impression on you or was there anything we could improve?

I particularly remember installing *Denoise*. Together, we overcame a lot of difficulties. This residency was different because it was the first time I lived in a museum. The place where I lived was very close to the exhibition space. The museum staff curated and installed the exhibition, but I was the one who lived with the show. As a result, I gained an appreciation for the importance of the support systems that underpin an exhibition. In addition, this was the first time I had encountered this way of finding interdisciplinary partners. The trip we made to visit different 3D printing companies made a deep impression on me, and it changed my impression of the industry. It's a pity I didn't end up developing that idea in my work. During the residency, I made some adjustments, and a lot of my ideas were the product of constant discussion and inspiration. I'm grateful for the Media Lab's support and help and I'm very happy that the online residency could become an in-person one. I'll certainly remember this special time.

About the Artist

关于艺术家

李丹

Li Dan

李丹目前的创作媒介包括3D模拟、互动网站/电子游戏、声音、视频、装置以及写作。她的实践结合了空间研究以及对国际政治和意识形态的反思。她对介于存在与不存在之间的空间感兴趣，这些空间似乎永远无法抵达，但又有迹可循。通过这样的空间，她的项目探讨东方主义的异国情调、殖民凝视、命名的权力以及意识形态变化的空间载体。她以数字形式探索在虚拟时代重新想象空间的可能性。

Li Dan works with 3D simulation, interactive webpage/video games, sound, video, installation, and writing. Her practice brings together the study of space and reflections on politics. She is interested in the spaces between existence and non-existence, the unreachable and unfound, yet have existed somehow. Through these endeavors, her projects investigate the Orientalist exoticization, the colonial gaze, the power of naming, and the spatial embodiment of ideological changes. Taking the digital form, she experiments with how spaces can be re-imagined in a virtual age.

关于开物者跨学科工作室

About Kai Wu Studio

由媒介实验室和器道哲学与技术研究网络共同发起的“开物者”是一个支持艺术创新的跨学科计划，每年两期，每期提供三个月的工作室入驻和使用时间，以及创作经费。我们为每位“开物者”匹配合适的跨学科合作者，以及理论和技术支持，提供灵活的工作室使用空间和基本技术设备。

“开物者”致力于打破原有的学科框架，激活传统的技术或为新的技术找到参赞化育的功能，开发让万物各得其所的价值交换模式，反思人类中心主义的创作，为数字化未来生活提供替代性想象和方案。

Kai Wu Studio, jointly initiated by the Media Lab and the Research Network for Philosophy and Technology, is an interdisciplinary program that supports artistic innovation. There will be two editions per year, during which time participants will receive three months of studio time, as well as artwork funding. Every participant will be provided with appropriate interdisciplinary collaborators, theoretical and technical support, flexible studio space, and basic technical equipment. The chosen participants are devoted to breaking down existing disciplinary frameworks, activating traditional technologies or finding opportunities for new technologies, developing value exchange models for all things, reflecting on anthropocentric creation, and providing alternative visions and proposals for the digital future.

关于媒介实验室

About Media Lab

广东时代美术馆媒介实验室于2019年筹备，2021年12月正式成立。目标是思考在技术加速发展的时代，如何以媒介、技术的角度重新思考艺术语言和传统，发展技术与艺术的新视野，以排演和思辨的方式去实验数字媒介如何构建新的社会关系和文化想像。

媒介实验室由吴建儒担任首席策展人，负责策划和开发各项目研究，郭芸为副策展人。周育贤为媒体运营。

Initiated in 2019 and officially established in December 2021, the Media Lab of Guangdong Times Museum is dedicated to contemplating and exploring the languages and traditions of art from the perspective of media and technology in an era of accelerated technological development. It aims to deliver a new vision of art and technology by experimenting with the ways in which digital media build new social relationships and foster cultural

imagination through rehearsals and speculations.

Wu Jianru is the chief curator for the Media Lab, responsible for program planning and development. Guo Yun is the associate curator. Zhou Yuxian is the media operator.

合作网络

Collaborative Networks

器道哲学与技术研究网络

新媒体艺术制作合作伙伴：河路文化

中山大学粤港澳大湾区国际传播研究中心

南方科技大学科学与人类想象力研究中心

香港中文大学（深圳）大学艺术中心

深圳市人工智能与机器人研究院

香港科技大学（广州）计算媒体与艺术学域

Research Network for Philosophy and Technology

New media art production partner: Shanghai Helu Expo Culture Communication Co., Ltd.

Guangdong-Hong Kong-Macao Greater Bay Area International

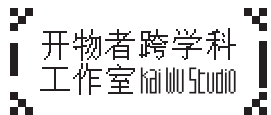
Communication Research Center of Sun Yat-sen University

Research Center for Science and Human Imagination, Southern University of Science and Technology

CUHK (Shen Zhen) University Arts Centre

Shenzhen Institute of Artificial Intelligence and Robotics for Society (AIRS)

HKUST (Guangzhou) Computational Media and Arts



李丹: 噪音去除
Li Dan: Denoise

2022.3.12 - 2022.5.3

执行馆长: 赵超

媒介实验室首席策展人: 吴建儒

策展人: 郭芸

技术支持: 彭铭钧、梁健华

媒体宣传: 周育贤

行政支持: 刘茜、蔡东秀

平面设计: 陈洪伟 / 广州奇客文化传播

翻译: 那瑞洁

Executive Director: Zhao Qie

Cheif Curator of the Media Lab: Wu Jianru

Curator: Guo Yun

Technical Support: Peng Mingjun, Liang Jianhua

Media Communication: Zhou Yuxian

Logistics: Liu Qian, Cai Dongxiu

Graphic Design: Victor Chan / CHC Design

Translator: Bridget Noetzel

地点: 广东时代美术馆旁厅, 广州市白云大道黄边北路向荣街338号

Venue: No. 338, Xiangrong Street, Huangbian North Road, N. Baiyun Avenue, Guangzhou, tm Side, Guangdong Times Museum

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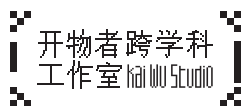
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