

Teaching Networked Photography in the Digital Age

Gesamtprogramm: P-8 « Stärkung von Digital Skills in der Lehre »
Projektname: Teaching Networked Photography in the Digital Age
Projektleiter: Dr. Wolfgang Brückle
Projektkoordination: Thomas Knüsel M.A., thomas.knuesel@hslu.ch
Hochschule / Institution: Hochschule Luzern Design & Kunst
Adresse: Nylsuisseplatz 1, 6020 Emmenbrücke
Telefon: +41 41 248 62 61
E-Mail: wolfgang.brueckle@hslu.ch
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A — Gegenstand und Zielsetzung

HERAUSFORDERUNG. Die Digitalisierung der Fotografie hat einen Pluralismus ästhetischer Massstäbe, die Vernetzung von Bildkommunikation, neue Apparaturen als Ersatz für die hergebrachte Kamera, eine Automatisierung von Bildproduktion, die Dominanz von Laienpraktiken auch in der visuellen Kultur, einen Pluralismus ästhetischer Massstäbe hervorgebracht oder verstärkt. Angesichts dieser ständig fortschreitenden technologischen und kulturellen Entwicklung ist eine zeitgemässe Hochschullehre dem Druck ständig neuer Überprüfungen ausgesetzt. Handwerkliches fotografisches Grundwissen kann keine ein für allemal erworbene feste Grundlage mehr bieten: Eine Vielzahl von Praktiken und medialen Grundlagen für zeitgemässe fotografische (postfotografische) Bildproduktion ist zu berücksichtigen, und über die Entstehungsbedingungen und die Verteilung der Bilder muss mehr, als ihnen selbst anzusehen ist, zu vermitteln.

AUSGANGSLAGE. Die Hochschule Luzern Design & Kunst begegnet erwähnten Herausforderungen auf mehrfache Weise zugleich: Der Studienbereich „Camera Arts“ legt einen Schwerpunkt auf transmediale Medienpraktiken (Leitung: Evert Ypma). Der Studienbereich „Digital Ideation“ (Leitung: Andres Wanner) beansprucht die Schnittstelle zwischen Maschine und Mensch sowie zwischen Informatik und gestalterischer Praxis neu zu denken. Zwei SNF-Forschungsprojekte („Postfotografie“ und „Curating the Networked Image“, Leitung: Wolfgang Brückle) widmen sich der Erforschung gegenwärtiger fotografischer Praktiken in und jenseits der Kunst. Das im Aufbau befindliche MediaDock der Hochschule (Leitung: Thomas Knüsel) dient der konzeptionellen Verbindung aller dieser Interessen. Mit Rücksicht auf die Fülle von Aufgaben bedarf es jedoch der Ausbildung Studierender auch in Bereichen, die jenseits hergebrachter Kernkompetenzen liegen, und in einer unübersichtlichen Medienentwicklung auch der Weiterbildung ihrer Dozierenden, sowohl im Bildverständnis wie an Geräten für die Bildproduktion.

KONEZPTION DES PROGRAMMS. Grundlage des Projekts ist die Überzeugung, dass praktische Kompetenzen und theoretische Einsicht für zeitgemässes und verantwortliches Arbeiten im

Bereich der digitalen Bildkultur unlösbar miteinander verbunden sind. Eine Reihe von Workshops, in denen Studierende und auch Dozierende ihre Kompetenzen erweitern können, wird durch auswärtige Fachleute aus Wissenschaft und Kunst durchgeführt. Wir erzeugen die Grundlage für ein von den Beteiligten geteiltes Verständnis von Bildern als Gegenständen, die eine datenbasierte Existenz jenseits ihrer sichtbaren Erscheinung haben, und lassen die Studierenden mit Praktiken, die auf diesem Verständnis beruhen, experimentieren, sowohl recherchierend wie produzierend. Wir stärken ihr Verständnis von deep fakes und den Bedingungen von Bilderzeugung in der Post-Truth-Epoche.

ZIELSETZUNG. Die Teilnehmenden erhalten Einsicht in die Grundlagen vernetzter Bildkulturen und die damit verbundenen Strategien und Ökonomien (u. a. durch Vertrautheit mit dem Stanford-Experiment, aus dem das ImageNet hergeleitet wurde). Sie lernen, das Internet anders denn als blosse Konsumenten zu verstehen. Sie praktizieren Aneignung von Bildern und die Entschlüsselung von Bildmetadaten. Sie erproben den Gebrauch von bilderzeugenden Apparaten, mit denen zeitgemäss kreative Bildproduktion und Erzählpraktiken möglich werden. Sie lernen den Umgang mit Google-Earth-Bildern, mit Machine Learning / Deep Learning und mit Software-Programmen, die für die Teilnahme an vernetzten Bildkulturen und für die Herstellung von auf Fotografie beruhenden transmedialen Erzählungen (u. a. Wire-wax oder Klynt) wichtig werden. Dozierende und Studierende profitieren von demselben Wissenstransfer und den damit einhergehenden Experimenten.

B — Vorläufiger Rechenschaftsbericht

STRUKTURELLES. Die Organisation der im ersten Entwurf (13. Nov. 2018) und in der Revision (28. Febr. 2020) angekündigten Veranstaltungen übernahm Thomas Knüsel, dem als Künstlerischen Mitarbeiter des Studiengangs Camera Arts die Betreuung unseres damaligen MediaeLab oblag. Auf dieser Grundlage stand uns ein Forum für studienrichtungsübergreifende Angebote zur Verfügung. Der innovative Charakter unserer Veranstaltungen blieb auch im wegen Covid-19 nötig gewordenen Fernunterricht gewahrt; der Zuspruch war angesichts der Umstände zufriedenstellend, und die Ausbaufähigkeit der Angebote war ebenso mit Händen zu greifen wie die Vorzüge solcher Aktivitäten für die Weiterentwicklung des Lab.

INSTITUTIONELLE FOLGEN DER INITIATIVE. Die Hochschule Luzern Design & Kunst hat unter anderem wegen dieses unseres Erfolgs beschlossen, Herrn Knüsel mit weiteren Stellenprozenten und das Lab mit neuen Räumlichkeiten auszustatten: Mit dem daraus hervorgehenden MediaDock wurde ein neuer Werkstatttyp etabliert (vgl. Thomas Knüsel's Beitrag [«Under Construction. Prototyping a MediaDock at the Lucerne School of Art and Design»](#), Nachweis unten). Das mit den swissuniversities-Mitteln entwickelte Lehrangebot 'A.I. Autumn' erhielt eine auch für eine weitere zukünftige Nutzung vorgesehene besondere Sichtbarkeit und wird ab dem HS22 als zweiwöchiges Modul unter dem Titel 'Artificial Intelligence. Creative Practices and Critical Perspectives' angeboten werden. Im Zug einer Aktualisierung der Homepage unserer Werkstätten erhält im HS 21 das MediaDock eine neue Plattform, die das Lehrangebot sichtbar und dauerhaft abrufbar macht. Wir glauben, mit unserer Veranstaltungsserie einen beispielgebenden Modellfall für innovative studienrichtungsübergreifende Lehre an der Hochschule Luzern Design & Kunst geschaffen zu haben. Mithilfe zusätzlicher Mittel soll die von uns angestossene Entwicklung verstetigt werden; einige der in diesem Rahmen extracurricular eingeladenen Lehrpersonen werden ihre Kurse auch in Zukunft anbieten können. Die Initiative von swissuniversities hat zur Entwicklung unserer hochschulischen Lehre beigetragen hat, bis in die für die Lehre grundlegenden Strukturen hinein.

C — Dokumentation

1

Homepage MediaDock
Zugriff auf das Veranstaltungsarchiv
<https://sites.hslu.ch/werkstatt/mediadock/>

2

Textbeitrag
Hacking, Post-Photographic Practice, Digital Détournements. What is Their Relevance for Art in the New Public Space? Wolfgang Brückle and Thomas Knüsel in Conversation with Achim Mohné, in: *Post-Photography* (Nummer 10), Hg. Wolfgang Brückle und Salvatore Vitale, Luzern 2021, S. 17–23.
<https://www.hslu.ch/de-ch/design-kunst/aktuelles/veroeffentlichungen/die-nummern/nummer-10-post-photography/>

3

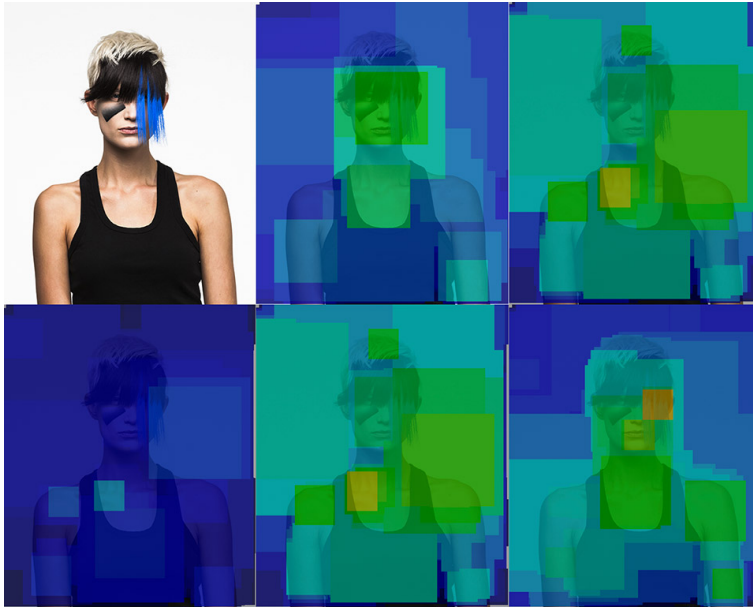
Textbeitrag
Thomas Knüsel, Under Construction. Prototyping a MediaDock at the Lucerne School of Art and Design, in: *Post-Photography* (Nummer 10), Hg. Wolfgang Brückle und Salvatore Vitale, Luzern 2021, S. 32–35. Unten anhängend, vgl. auch <https://sites.hslu.ch/werkstatt/under-construction/>

4

Vortragsaufzeichnung
Achim Mohné, O.K., But is it art?
MediaDock, in Zusammenarbeit mit dem IDA-Modul
<https://www.idapublikation21.ch/ok-but-is-it-art/>

5

Bilddokumentation zu den einzelnen Veranstaltungen
unten anhängend, Auswahl



Vortrag
 FS20, 9. April 2020
 Facial Recognition
 Dozent: Adam Harvey

Beispiel für ein CV Dazzle.



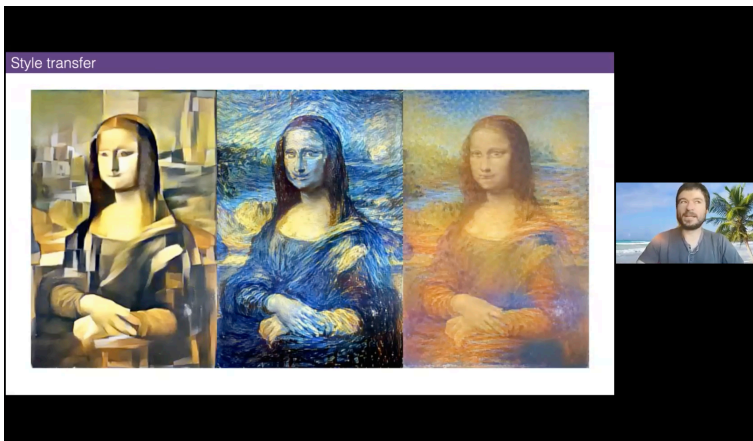
Workshop
 HS20, 1.-2. Sept. 2020
 Speeding Through Millions of
 Images. How Algorithms Learn
 Vision
 Dozent: Nicolas Malevé (Brüssel)

Output of various A.I. Models.



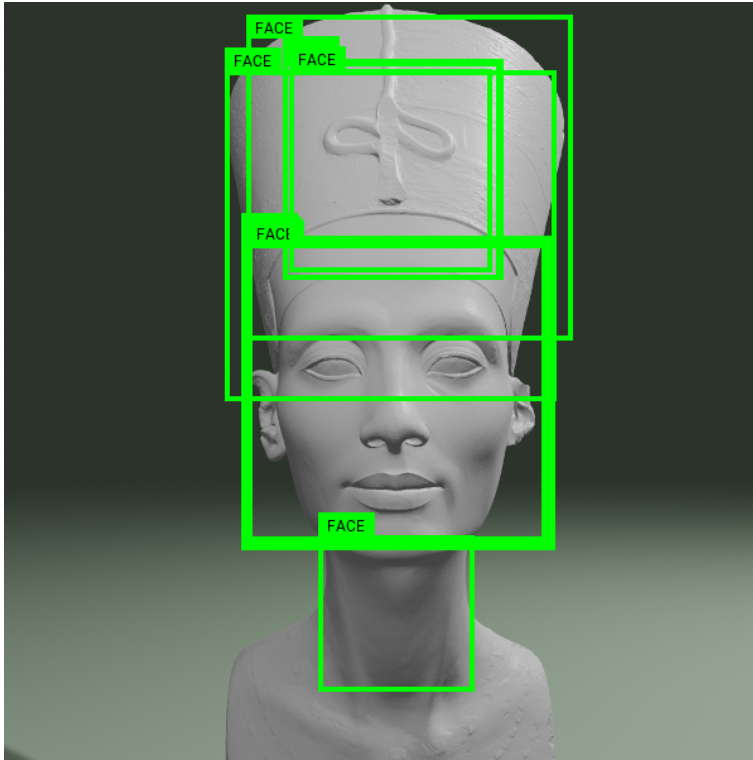
Workshop
 1.-2. Sept. 2020
 Introduction to Machine
 Learning, Machine Vision and
 Artificial Intelligence
 Dozent: Guillaume Massol
 (Luzern, Basel)

Erzeugung von Facial Landmarks.



Workshop
 22. und 29. Sept. sowie 1. und 6.
 Okt. 2020
 Machine Learning for Artists and
 Designers (Vortrag: The Neural
 Aesthetic)
 Dozent: Gene Kogan

Beispiel eines Style Transfer.



Workshop
22. und 25.-26. Jan. 2021
After Photography. Computer
Vision, Datasets, Face Recognition
Dozent: Adam Harvey

Beispiel für die Erfolgsquote
digitaler Facial Recognition.



Workshop
23. und 30. April, 7. Mai 2021
Nach der Fotografie
Dozent: Achim Mohné

Achim Mohnés Google Earth
Model # 11, Hambacher Tagebau
2, 2020



Input
27. und 29. April, 4. Mai 2021
Makro Scan Robot
Dozent: Thomas Knüsel

Makroscan-Roboter im Betrieb

**Artificial
Images**

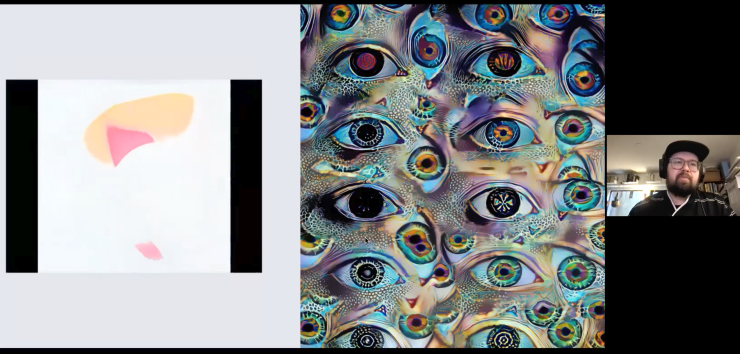


Workshop with
Derrick Schultz

04.10
11.10
18.10

Workshop
4., 11. und 18. Okt. 2021
Artificial Images
Dozent: Derrick Schultz

Online-Ankündigung



Workshop
4., 11. und 18. Okt. 2021
Artificial Images
Dozent: Derrick Schultz

Beispiel für die Funktionsweise
eines What Neural Network.

Workshop
4., 11. und 18. Okt. 2021
Artificial Images
Dozent: Derrick Schultz

Beispiel für die Funktionsweise
eines What Neural Network.

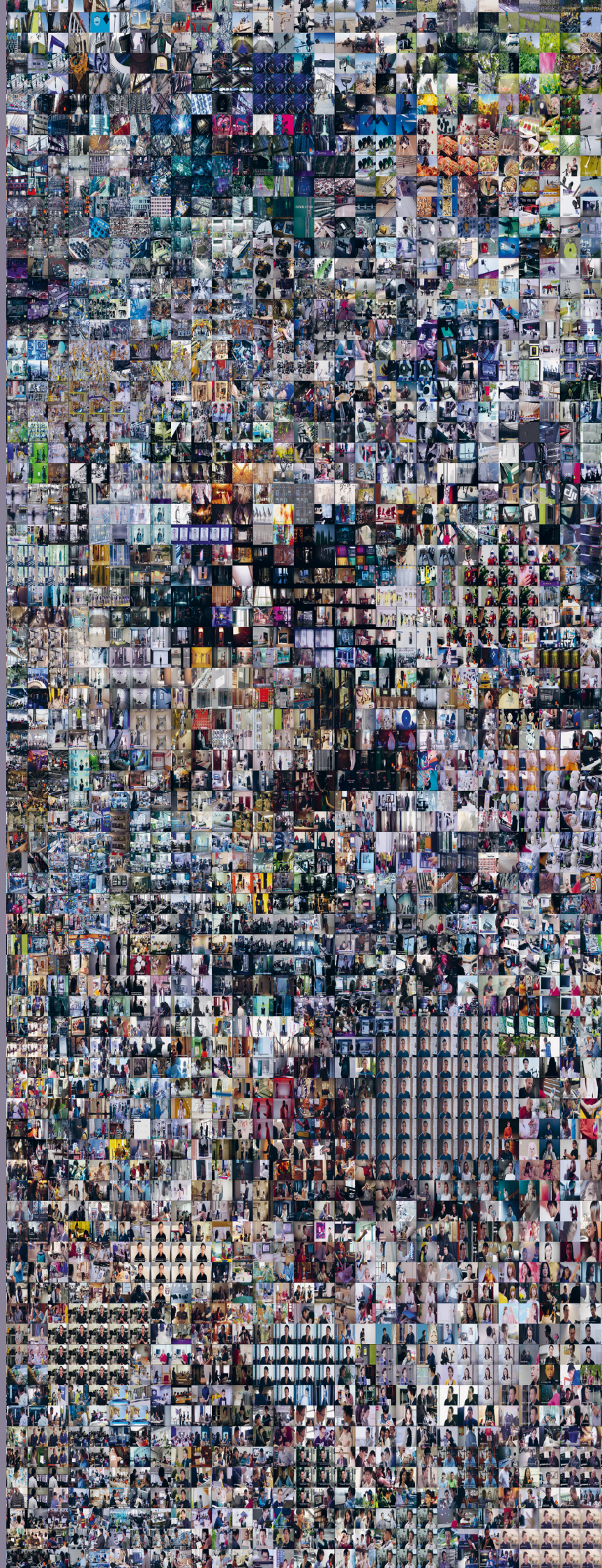
Lucerne University of
Applied Sciences and Arts

**HOCHSCHULE
LUZERN**

Design & Kunst
FH Zentralschweiz

Nummer 10

Post- Photography



Under Construction

Prototyping a MediaDock at the Lucerne School of Art and Design

Thomas Knüsel

Merely making equipment available and implementing established workflows and industry standards is no longer enough in the field of art and design. In order to ensure that teaching in the digital realm remains future oriented, we need to do more than that. We need a flexible, transdisciplinary, experimental space that encourages reflective thinking. In setting up our MediaDock at the Lucerne School of Art and Design we have created something that goes beyond the «computer room» and its gathering metaphorical dust. The MediaDock makes room for media experiments and encourages playful interaction with a variety of technologies. It holds talks and workshops to activate and serve as a container for reflections on various aspects of the media landscape, as represented by international guest lecturers and experts from within the university. These take a hands-on approach to digital tools – and not just for the sake of improving digital skills. The aim is to achieve stronger media competency on a conceptual level by encouraging critical reflection on socially relevant and media relevant topics.

Workshops with a Difference

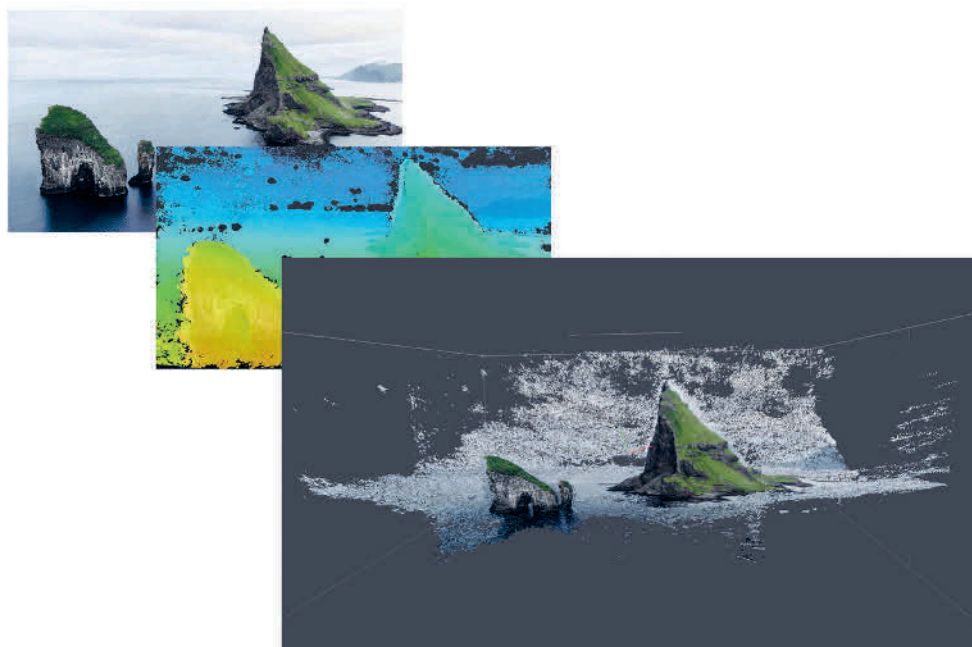
Nobody questions professional infrastructure that facilitates the processing of a wide variety of materials, such as wood and metal, or that is needed for teaching casting and printing techniques, for instance. In line with this, and alongside more traditional photographic infrastructure (studios, negative scanners, photoplotters, hardware and software for image processing), our MediaDock is also equipped with a wide range of enabling technologies such as experimental computers, single-board computers and microcontrollers, drones, 360° cameras and VR stations, 3D scanners and photogrammetric services. But since «the digital» is not a material and «the computer» is not one tool in particular, we need to rethink the workshop as a place of production and reflection that covers

the broadest possible range of digital applications. For that we need new conceptual approaches to creating a digital production environment that is equally good at facilitating discourse. The model of the workshop as a place for the specialized processing of materials – a model that emerged primarily from the Bauhaus – still runs like a thread through the production workshops at art schools across Switzerland. Of course, digital technologies have already started to find their way into the various workshops at the Lucerne School of Art and Design. Our MediaDock supports and supplements this process. Promoting the multifaceted abundance of digital production methods in a targeted way calls for new approaches that augment the digitally oriented teaching of the various courses and give interested parties opportunities to discover and deepen their capacities in these areas. The following summaries of selected subjects and teaching formats provide an overview of our recent activities.

Photography as Example

The computer is a post-photographic multi-tool in the proper sense of the word. It is at once a recording device, a dark room and an image carrier. In current media production it constantly oscillates between these states. Now more than ever it is becoming increasingly difficult to distinguish between the photograph as image medium and the tools that we use to produce, process and publish our images, namely computers. The production of media artefacts is no longer confined to the creation of single or moving photographic images. It has long since transcended that. Once the shutter has been depressed, various processing procedures and image practices open up an endless wealth of possibilities for dealing with the respective photographic medium, be it in relation to distribution routes, digital economies or digital archives, for instance, or as raw material for further

→ Fig. 1 A series of images can be used to produce 3D models. This photography-based, contactless reconstruction process forms an interface between the object as physically present and its subsequent digital processing; the 3D models generated can be used for animations, visualizations, digital fabrication and so on.



processing. The MediaDock approaches this multifaceted plenitude. It supports dissecting the medium in a playful, experimental and interdisciplinary way.

Soirées and Workshops as Transdisciplinary Teaching Formats

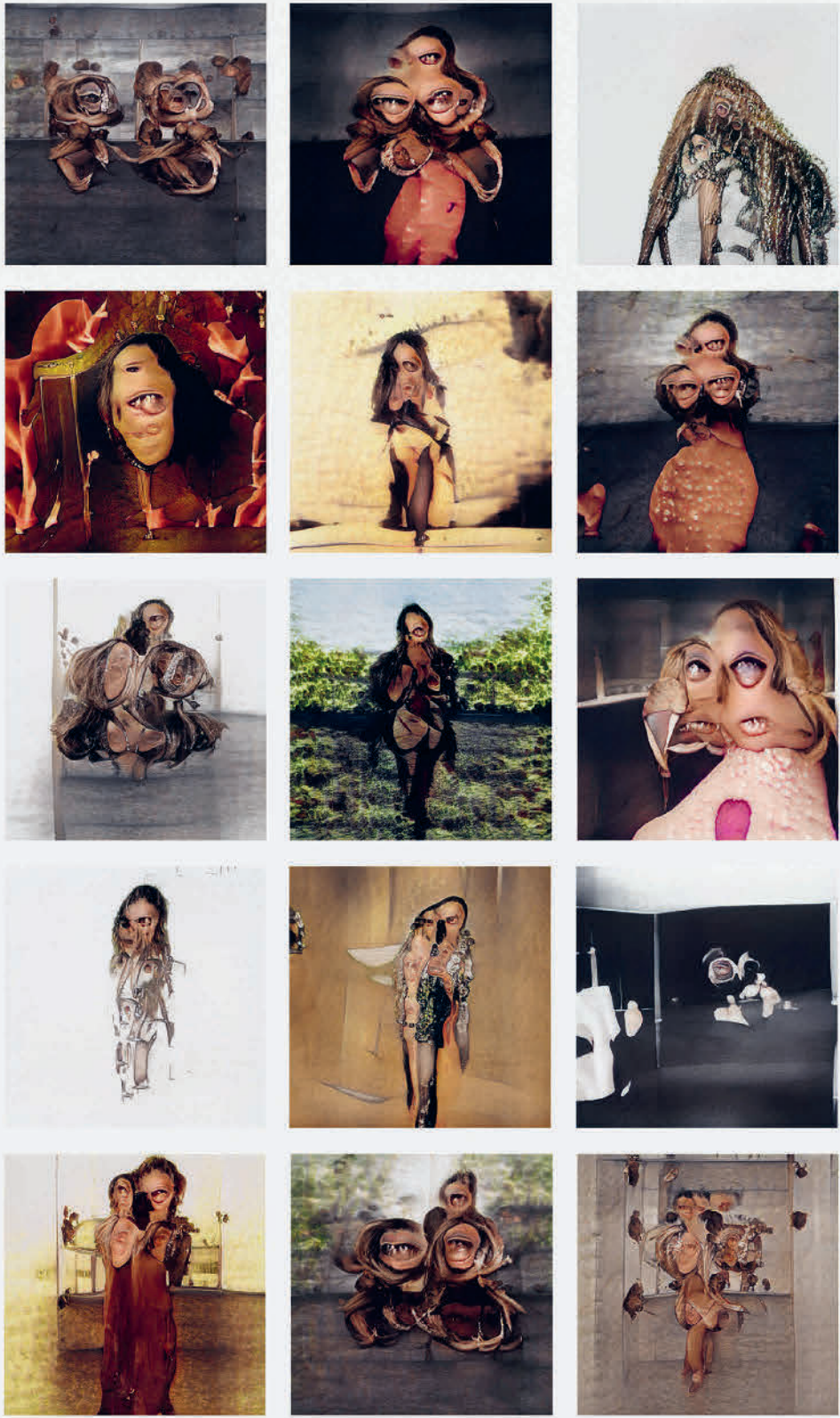
The regular Soirées hosted by the MediaDock have evolved into a transdisciplinary format. In this context we offer short inputs, workshops and talks across a range of disciplines, introductions to specific fields of media technology and debates inspired by critical discourses. For us it is important that these sessions include a mixture of theory based guest talks highlighting fundamental social and media-related issues and practice-oriented teaching that provides a basis for students to develop and create experimental image practices. We want students to explore possibilities that go beyond conventional photographic workflows (put bluntly: photographing, printing and hanging). Such possibilities include using photographic datasets to produce digital 3D models that can then be reused in other contexts: for CNC milling, in animated films or as game design assets (fig. 1). The MediaDock workshops include introductory sessions on artificial intelligence, 360° film, 3D scanning, augmented reality, virtual reality and physical computing. In 2020 we ran our first AI Autumn workshop series with help from the Digital Skills initiative supported by swissuniversities. Thanks to them we were able to invite a team of guest lecturers to run three consecutive workshops: Nicolas Malevé (Belgium), Guillaume Massol (France, Switzerland) and Gene Kogan (USA). The example of these AI Soirées and workshops

provides a clear sense of what critical media competency means and how we can immerse ourselves in its different digital fields.

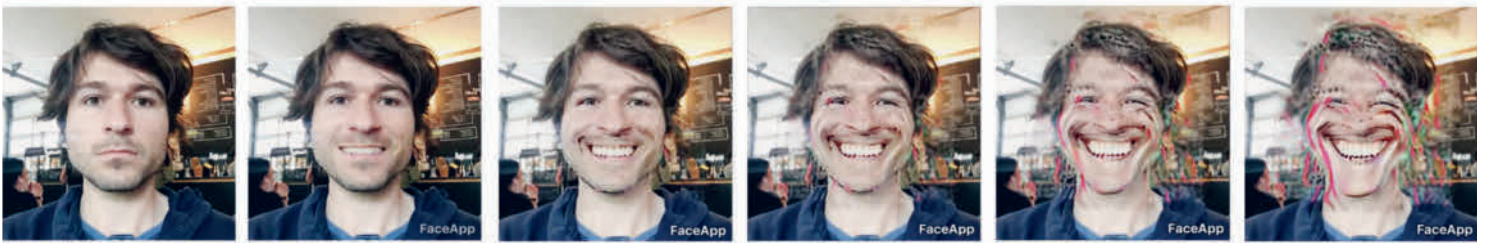
The AI Autumn of 2020

A workshop run by Nicolas Malevé, who is also active in the research department at the Lucerne School of Art and Design, gave students some insight into how datasets are produced and how they are used in the optimization of machine vision algorithms. As well as producing their own small datasets, students discussed the working conditions that clickworkers have to endure on a daily basis, considered the origins of various datasets and looked at some of the problems that can arise when the categorization of data is conducted in broader social contexts. Through an approach that combined both theory and practice it became clear just how much labour is involved in teaching machines to «see» – but also what it means to process such vast quantities of images and how quickly machine vision actually works.

The in-depth workshops that followed were led by Guillaume Massol and Gene Kogan and provided an introduction to practical applications of AI models in the art and design context. These in-depth sessions were developed in collaboration with the Digital Ideation course. They dealt with questions about using post-photographic tools: using an AI toolkit and a boilerplate code, Massol created a setting that facilitated explorative investigation of some of the diverse possibilities of various AI models (fig. 2). And what happens when photographs become the raw material for training an AI? In one small experiment, Kogan used pictures from Beyoncé's instagram account to train a StyleGAN. After this brief training the AI gener-



← Fig. 3 How do you train a StyleGAN (generative adversarial network)? Pictured here are the results of a StyleGAN training that used images taken from Beyoncé's Instagram account. These are just some of the thousands of images that could potentially be generated by the trained StyleGAN. Here they are arranged in the form of an Instagram page as a reference to the source of the dataset.



← Fig. 2 This screenshot shows the real-time conversion of a video feed into a style reminiscent of a Picasso painting by Style Transfer. This first practical experiment from Guillaume Massol's AI workshop sought to make artificial intelligence accessible using a boiler-plate code toolkit.

↑ Fig. 4 Make them Smile. Pictured here is a little experiment conducted by Gene Kogan. The image generated by the FaceApp was fed back into the app in a feedback loop. The smile-making process was repeated until the FaceApp no longer recognized the image as a face.

ated a set of images that bore a clear aesthetic resemblance to the mini dataset of Beyoncé images (fig. 3).¹ The images were reminiscent of Surrealist design principles and the often bizarre shapes associated with Rorschach tests.

Playing around with these models showed how technological processes can be used for art and design purposes. But how can creativity in dealing with such technologies be developed so that design goes beyond the «skilful» application of those technologies? How can designers go beyond merely fulfilling or confirming the programs that run the machines? One instructive example of a subversive use of tools to undermine the program was supplied by Kogan in a third workshop with a rather casually described creative activity: he recently used a FaceApp that put a computer-generated smile on his face. Nothing unexpected about that. But then he repeated the process in a feedback loop, loading the outputs back into the program as inputs. The smile on his face became ever larger. At the same time, the AI – which wanted to change his appearance while retaining the illusion of a real person – drew the technological artefacts more and more emphatically, until the FaceApp could no longer see any face at all in the visual product it had created (fig. 4).

Space, Space, Space!

Questions such as those triggered by the experimental situations in the abovementioned workshops need space where they can be discussed and developed in thematic media applications. The physical space of the MediaDock is indispensable

as a meeting place, but it is soon to be extended into the virtual space of the internet. This dedicated web space will provide online access to information about the talks, tools and workshops, as well as prototype workflows in the form of online tutorials. As a platform it will continue to promote the exchange of ideas and the networking of knowledge that already happens in the physical space of the MediaDock. That being said, the MediaDock is permanently «under construction». Its greatest potential lies in its processuality. It is about more than just developing, expanding and incrementally integrating a new type of workshop into every university department. The MediaDock is a place where curiosity can be lived out experimentally, a space that allows for critical engagement on how our experiments relate to the pressing issues of the day. Our MediaDock produces a social space and a space for ideation that supports students in the realization of their creative technological projects and will provide the technical and conceptual tools for the transdisciplinary projects of the future.

1 StyleGAN, a specific Generative Adversarial Network, is an AI model which, once trained, is capable of generating images. The dataset we used consisted of some very diverse subject matter. It was trained on the basis of a pre-existing model. Since there was some disparity in the quality and the type of images, we knew from the outset that the training was unlikely to generate any perfect Beyoncé images.

Nummer

The *Nummer* series covers current focus areas and developments at the Lucerne School of Art and Design. It is published in loose sequence at a rate of approximately one issue per year. The publications bring together texts and images from various contexts of research, higher education and further education along with features on special events, conferences and anniversaries.

Series editor

Lucerne School of Art and Design,
Gabriela Christen

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[urban.art.marks. Artistic Research and Urban Space]
ed. Gabriela Christen

Nummer 2 (2012)

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Nummer 9 (2019)

Artistic Education

[Künstlerische Vermittlung, deutsche
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eds Wolfgang Brückle and Sabine
Gebhardt Fink

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Issue editors

Wolfgang Brückle and Salvatore Vitale

Contributors

Raphael Andres, Wolfgang Brückle,
Max Bruinsma, Paula Caviezel, Marco De Mutiis,
Bill Dunford, Anna Ehrenstein, Doris Gassert,
Adam Harvey, Thomas Knüsel, Nicolas Malevé,
Achim Mohné, Tin Nguyen, Danaé Panchaud,
Alexandra Pfammatter, Jenny Rova, Katrina Sluis,
Jules Spinatsch, Gaia Tedone, Salvatore Vitale,
Birk Weiberg, Nadine Wietlisbach

Translations from German

Jonathan Blower (essay by Raphael Andres and
Tin Nguyen; interview by Wolfgang Brückle,
Thomas Knüsel and Achim Mohné; essay by Paula
Caviezel; both texts by Thomas Knüsel; essay
by Alexandra Pfammatter; interview by Wolfgang
Brückle and Jenny Rova)

Copy-Editing and Proof-Reading

Jonathan Blower and Wolfgang Brückle

Production Manager

Christian Schnellmann

Design concept and type setting

Velvet Creative Office, Lucerne

Printer

Druckerei Odermatt, Dallenwil

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Salvatore Vitale, *Behind the Scene* [research im-
age sequence], 2020. Video footage extracted
from a dataset comprising over 800 hours of vid-
eo on technological public relations collected
from Youtube, Weibo, QQ, Youku, Tik Tok and Ins-
tagram with a team of researchers located in Eu-
rope and China. The dataset is used to train an
algorithm that perpetually generates brand new
sequences according to specific keywords. This
montage is part of a work in progress.