

# **Co-creating with the machine. AI as an ideating companion in the creative process.**

**Matteo Loglio**

Oio

**Serena Cangiano**

University of Applied Sciences of Southern Switzerland SUPSI

## **Abstract**

Through the presentation of an experimental format applied in a series of practical workshops, the paper introduces a different way of including AI in the creative process: not as a mere tool, but rather a companion across the generation of an artwork.

## **Introduction**

Artificial intelligence has always been explored from multiple perspectives: as a technology or research domain or, more recently, as a critical subject related to its potential bad impact on society. The focus of Artificial Intelligence can shift depending on its definitions as well as on its multiple communities of contributors, that today span from big tech companies to nonprofit organizations and digital startups, beyond science and academia (Dormehl 2016). In the field of creative practices, AI also takes an unpredictable definition: a cutting edge tool and a new “brush” that pioneering creators can use to generate digital art pieces (Pair 2018). Procedural and creative coding practices are by this time established (Fornari et al 2015) and the use of algorithms for creative purposes can be traced back to the typical artists’ appropriation of technological developments. Although, AI brings a paradigmatic shift: the role of AI technology not as a mere tool anymore - which use normally influences the creative act and outcomes - but as a real companion that participates from the ideation to the final execution of an art piece. The creative collaboration between humans and machines officially starts, not as a speculation or a theoretical manifesto, but rather as an

actual creative practice that demands for new codified processes.

## **Design the machine: an experimental format**

To test the actual human-machine collaboration through an experimental process, we designed and distributed a series of project-based workshops for evaluating how to introduce people with a background in creative disciplines to the use of AI as a companion. The format points to set up a process that engages the learners in the practice of: training a generative algorithm on datasets of very specific artifacts (such as products and art pieces); then using the generated outputs as a blueprint for the human participants to design and create new artifacts. The ultimate goal is to elevate the algorithm as the actual ideation element, while the human creator becomes almost a tool, merely executing the algorithmic design. In March 2020, we experimented with this format with the students from the Master in Media Design at HES-SO, Haute école d'art et de design, in Geneva, Switzerland. The workshop was called “Design with Machines”, and across five days, students had to train a machine learning algorithm on an arbitrary creative artifact, then re-design the output of the process on their own, to then create a whole new outcome - designed with the machine. The participants all came from different backgrounds and did not have any specific skill in programming or machine learning. The subjects chosen by the students ranged from typography and sculpture all the way to zodiac fortunes and Lego sets. The process started by collecting image or text data about the chosen subject, to create a dataset. Once the students collected several hundreds (sometimes

thousands) of samples, they had to select a generative algorithm from an ML software, RunwayML. There they could train the algorithm for several hours, until it starts to generate new data based on the dataset provided. After selecting a few samples from the newly generated data, the participants then created new artifacts based on the algorithm's output.



Fig 1. *Current Ancestors, AI-generated masks*, 2020, Maxime Magnin, Lison Christie and StyleGAN2. media: machine learning algorithm, copyright: Magnin and Christie.

## Results

By working in groups, the students were able to focus on a different type of artifact. In the Current Ancestors, several photos of traditional masks from different museums websites were gathered, then the algorithm was used to generate new masks. From the generated masks, few ones were selected and then re-modelled using clay. A second group worked on pendant lamps. They wanted to explore a mixed dataset to find out what happens when the dataset is composed of visually-similar images, but coming from a completely different context. They mixed pendant lamps and jellyfish, gathering hundreds of images from home-decor and furniture websites, and jellyfish images from Google. Afterwards, they fed them to a StyleGAN2 generative algorithm, that generated new interesting images that were then re-modelled into new lamps and rendered in context.

## Conclusions

Since 2016, we have been tested this format by running ML workshops. Recently, we assisted to a significant acceleration of the available tools for beginners, such as creating a dataset, training an algorithm to create a model, running the model and then re-creating new artifacts. On the conceptual level, our simple experiments try to elevate a statistical algorithm to the ideative element in the creative process. Almost starting as a provocation, it turned into a codified design process where it is possible for the creatives to evaluate when the algorithm can be invited is to inform creative decisions and participate on the new artifacts ideation. This experimental format will evolve with the progression of the tools and their integration in the creative process, it could lead to new aesthetics and products, crafted in collaboration between humans and machines.

## References

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## Authors Biographies

Matteo Loglio is a founder and director at oio, a design company working on creative applications of AI and emerging technologies. He designed products and interactions for Google, IDEO, Arduino and his own company Primo Toys. He's also a visiting lecturer at SUPSI Lugano, HEAD Geneva and Central Saint Martins in London.

Serena Cangiano is Head of FabLab and Coordinator of MA in Interaction Design at SUPSI where she develops programs and applied projects on creativity and technology.