

# Things Have Forgotten What the Shapes are For

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1. The term 'Laser' is an acronym for "Light Amplification by Stimulated Emission of Radiation", commonly adopted in light research and applications since the 1960s.

Keywords Post-digital, Book-burning, Biblioclasm, Transcendental nihilism, Nonhuman collage, AI / Machine-learning, Post-literature, Computational unknowing Every burned book enlightens the world. (Emerson 1841)

Things Have Forgotten What the Shapes are For, (2022) is an automated-art-system consisting of a CNC (Computer Numerical Controlled) laser-enabled machine, driven by custom-coded software that removes parts of any book in order to reveal relationships between the images and texts across multiple pages. Each automated 'reading', or burning, generates a unique artefact while destroying the original, producing new 'portals' through the book. An experiment in post-digital publishing that explores the differences between the deconstruction and the destruction of knowledge in the age of the mass-digitisation of the book.

Fig. 1. 'Minerals', 2022 [internal pages], from Things Have Forgotten What the Shapes are For, Donnachie & Simionato.





## Description

Things Have Forgotten What the Shapes are For, (2022) is an automated-art-system<sup>2</sup> designed to algorithmically burn books. More specifically, the custom-built system leverages Computer Vision and Artificial Intelligence, calculation, choice and chance to precisely laser-cut away parts of books. Through a process reminiscent of the 20th century art techniques of cutup, découpé and collage, the system reveals new relationships between the images and texts across different pages of any book.

Cut-ups often come through as code messages with special meaning for the cutter. (Burroughs 1978)

# The Automated Art System

After an initial analysis of each new page through computer vision, the system updates the database with the publication's semantic, semiotic and sentiment information before determining the optimal areas of the page to remove with its laser. Here 'optimal' is considered a somewhat indeterminate product of the intersection of a number of variables (or a programmable uncertainty<sup>3</sup>), including considerations of colour, contrast and content on the given page, along with the potential preservation or revelation of matter on other underlying pages. The system is comparing each new page with every preceding page, in an attempt to uncover salient features, potential juxtapositions and significant combinations of imagery from different pages of the book which would not otherwise be possible to observe.

2. An 'automated-art-system,' here, means a machine, which can be programmed through custom-coded software and scripts to generate new creative works. Although an A.A.S. can sometimes be supervised, it is generally understood that it is intended to function without constant human intervention. All automated-art-systems described in this research are fully functional.

3. We refer to these systems as 'programmed uncertainty' because while all potential outcomes are arguably foreseeable (i.e. computable), the embedded potential for variability in the weighted decision pathways renders the sum total of possible readings of any given book beyond human predictability.

Fig. 2. 'Life's a Parade', 2022 [Computer Vision process screen captures], from *Things Have Forgotten What the Shapes are For*, Donnachie & Simionato.



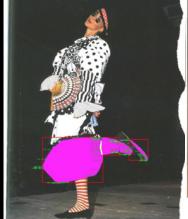




Fig. 3. Things Have Forgotten What the Shapes are For, Donnachie & Simionato [burning-process images].





4. Generally speaking, most existing human and, consequently, machine-learning reading 'pathways' serve to build meaning by parsing a handful of traditional grid-like organisations of the printed page (i.e. words and images distributed vertically or horizontally on the page; from left to right in Western regions; right to left in Middle-East to Eastern regions of the world).

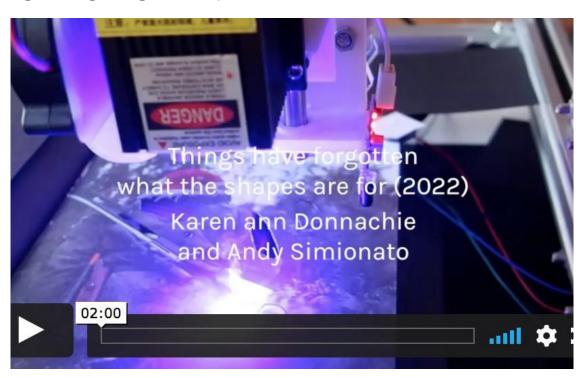
The system iterates through this process for every page of the book, attempting to preserve specific combinations (collages?) of imagery by building many 'wormholes' which travel through the book in ways that appear alien when compared to the typical pathways available for human reading<sup>4</sup>. It is worth noting that the system has been designed to preserve the book's original cover and binding throughout the process. The resulting book appears integral at first, only opened does its evisceration become evident.

The physical removal of the selected shapes from the page occurs by driving a high-powered laser module that, through amplification and focus, uses concentrated light waves to burn the page. This process evokes literary and historic precedents of book burning, censorship and information control in mass media. The project also engages with post-digital publishing practices that seek to explore new materialities of the book as medium in an era where networked computing has disrupted the more traditional roles of the book as vehicle for information and cultural distribution. The AI and machine-learning algorithms, on which our automated-art-system is built, are directly informed by the data-archives resulting from the mass-digitisation of the book by companies such as Google over the last 20 years. Such 'artificial readings' of the book underpin the dual processes of exploring new interpretations of the book, while simultaneously contributing to its destruction.

Once initiated, our system inexorably proceeds in permanently destroying the original book, while attempting to produce a unique new bookwork. Like the Ship of Theseus, progressively transformed through constant repair, our project tests the idea of the book itself. At which point have we removed enough material from the original for it to become a different book, or something else altogether? Finally, what can these remains of the book still offer?

This research is presented as a response, or provocation, to assumptions of beyond-human computational capacity, and its increasing adoption in building meaning through cultural production.

Fig. 4. Things Have Forgotten What the Shapes are For, [process video on Vimeo].



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