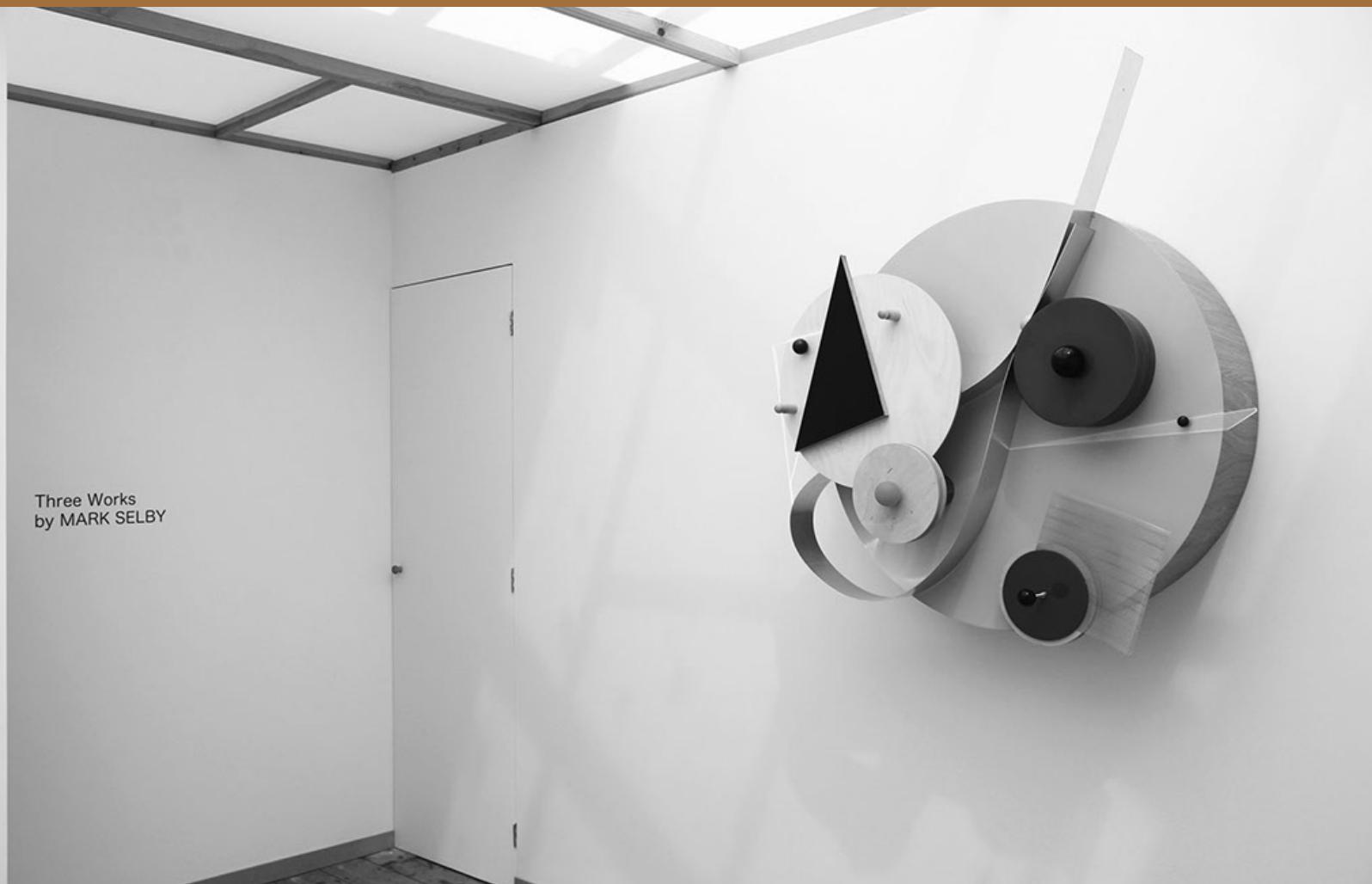


University for the Creative Arts  
Research Project Portfolios

# AUTO- ASSEMBLAGE

By Mark Selby



Three Works  
by MARK SELBY

# Project Details

Name of Researcher:	Mark Selby
Name of Output:	AUTO-ASSEMBLAGE
UCARO link/s:	<a href="https://research.uca.ac.uk/4308/">https://research.uca.ac.uk/4308/</a>
Output Type:	M - Exhibition; solo exhibition
Year and mode of dissemination:	Solo exhibition, Three Works Gallery, Weymouth (3rd – 24th June 2016)
Key Words:	Automation, technology, assemblage, coding, machine, sculpture, art
Funding:	Three Works Gallery - £1500



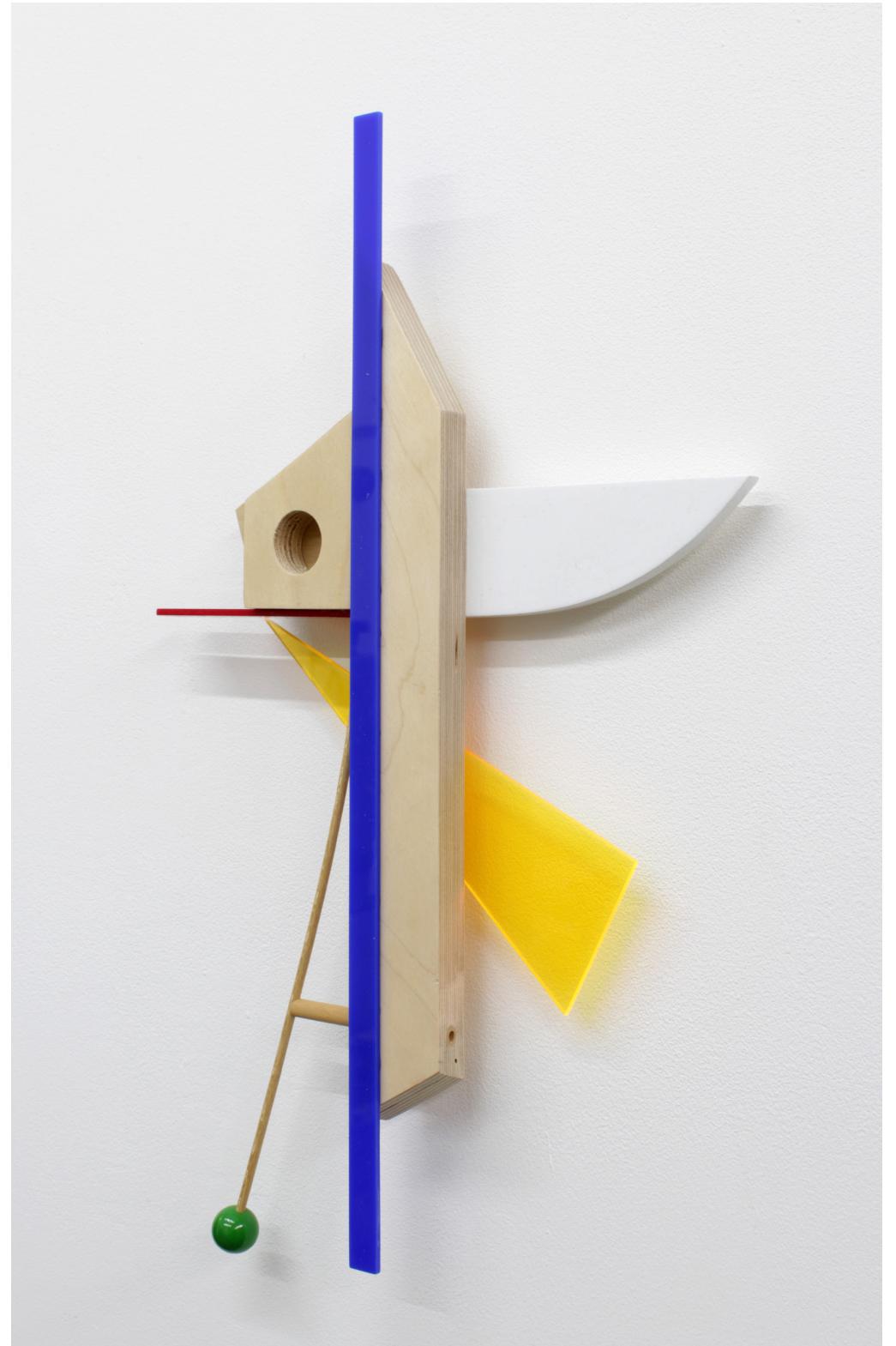


# Synopsis

AUTO-ASSEMBLAGE explored the use of automated technology in relation to the manufacture of sculptural objects 'by hand'.

Selby drew into CAD materials and objects selected randomly from what was found in his studio. He then used Unity game design software to automatically generate and connect these parts into digital models, using the mimetic physical properties/forces in the programme (gravity, density, flexibility etc). The models then acted as guides to produce sculptural works by hand, exploring a play of agency between machine-making and hand-making methods, as well as exploring forms of instruction-based art practice that led to new ways of working with technology as a collaborative process. A selection of the resulting works was exhibited at Three Works gallery, Weymouth, UK.

This portfolio of supporting information contains contextual material evidencing the research aims, context and process which led to new insights. It contains images of the research process and of the final works, and evidence of the dissemination of the research.



*AUTO-ASSEMBLAGE*

*Plywood, various wood veneers,  
perspex, oil cloth, acrylic paint and  
aluminum, 2016*



# Research Questions and Aims

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## Research questions:

How can 'assemblage' be defined under the use of new technologies?

How can an artwork hide its method of production through its representation as 'intuitive' and random i.e. formed solely through human craft by automated programming?

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## Research aims:

The aim of the project was to extend the understanding of 'assemblage' in the context of automation and art practice. Taking assemblage as an intuitive act of 'working with that which is at hand', the aim was to explore how automated techniques are used to assemble data into forms of its own choosing. While digital interfaces (and use of computers) for developing artworks often outputs to screen-based artworks, this research aimed to develop an original way of translating software-manipulated objects into 'hand-made' 3D, crafted objects.

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# Context

This research is located within debates around human agency in the construction and authorship of artwork alongside an increased use of technological automation within cultural production. The challenge that automation makes to authorship (in various forms of robotics, cybernetics, machine learning etc) is equivalent to the narrative of technology as represented by much science fiction literature (see for instance Isaac Asimov, E.M. Forster and Stanislaw Lem). It also relates to the more recent dramatisation of the machine/automated object as monstrous 'other', as seen in texts such as Marcus du Sautoy's *The Creativity Code* (2019) and James Bridle's *The New Dark Age* (2018).

Technology's challenge to social/communal formation is based around a question of reciprocal trust in its intentionality to what are perceived as the natural forces of humanism. By trusting automated processes we see the potential to not be empowered in our choices, decisions and actions, but instead driven to individualism, with the result being a wider technological order in the hands of those with the knowledge of how that technology operates. For instance, we all 'use' technologies but very few people understand the coded

languages and methods of formation in their representation. Brendan Hockway defines this as the problematic area of the interface, which is considered in this research in a visual rather than physical sense; how we view it as a barrier rather than osmotic surface in using machines, technology and automation. In this way, the work hides behind its visual interface a method of construction that may be counter to the formal abstraction (and art historical lineage of 'assemblage') with which it identifies.

In addition, the practical work builds on a historical context of kinetic and 'machine-based' mechanical practices (such as the auto-destructive and generative works of Jean Tinguely, Keith Tyson's 'Art Machine' and Harold Cohen's AARON). It does this through enveloping digital methods for construction in such practices, exploring chance and randomness (in a similar way to Hans Arp's 'chance' collages) in contemporary digital production tools. The work also develops from prior research by Selby, such as 'Work Hard, Play Hard' (Selby and Bradley, 2014) that explores the context of mechanical and digital production in art. It is developed in Selby's 'Circularity in Work and Play' (2016) (see p.15).

Work Hard, Play Hard, 2016, Mark Selby





*AUTO-ASSEMBLAGE*  
*Plywood, various wood veneers,*  
*perspex, oil cloth, acrylic paint and*  
*aluminum, 2016*

*AUTO-ASSEMBLAGE*

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aluminum, 2016*



# Research Methods and Process

The practice-based outcome was developed through firstly learning and developing the technical method. Primarily, this involved learning coding and computer game software (Unity) as well as AutoCAD in order to structure and manipulate digital objects into random, hybrid configurations. The research followed a method of engaging with the computer seen in the work of artists such as Harold Cohen in his work AARON, dealing with internal aspects of human cognition.

The spare material in the studio—offcuts, waste, unused parts from previous works and purchased material lying dormant—was drawn up into AutoCAD and then entered into the ‘game’ environment. This involved scripting and setting up a set of rules around object interaction within this virtual environment. Objects (the models of each spare part or material scrap) were assigned random points of contact across their surface for intersection with another object. Each was also assigned varying densities and dropped from various heights into others (using the gravity simulation in the software to mimic the chance-based collage process of Hans Arp). Colours were then applied in a similar manner, through creating a random

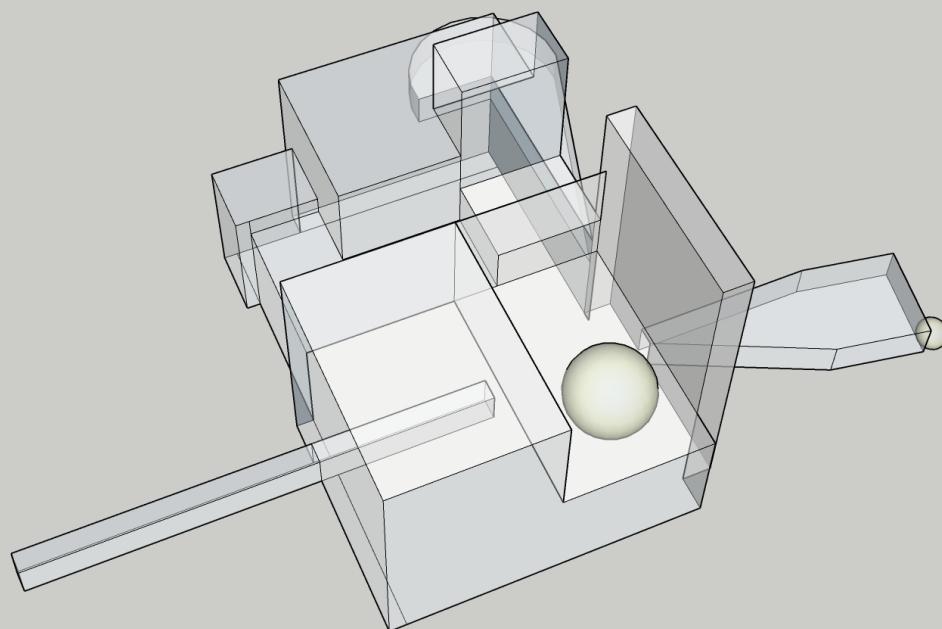
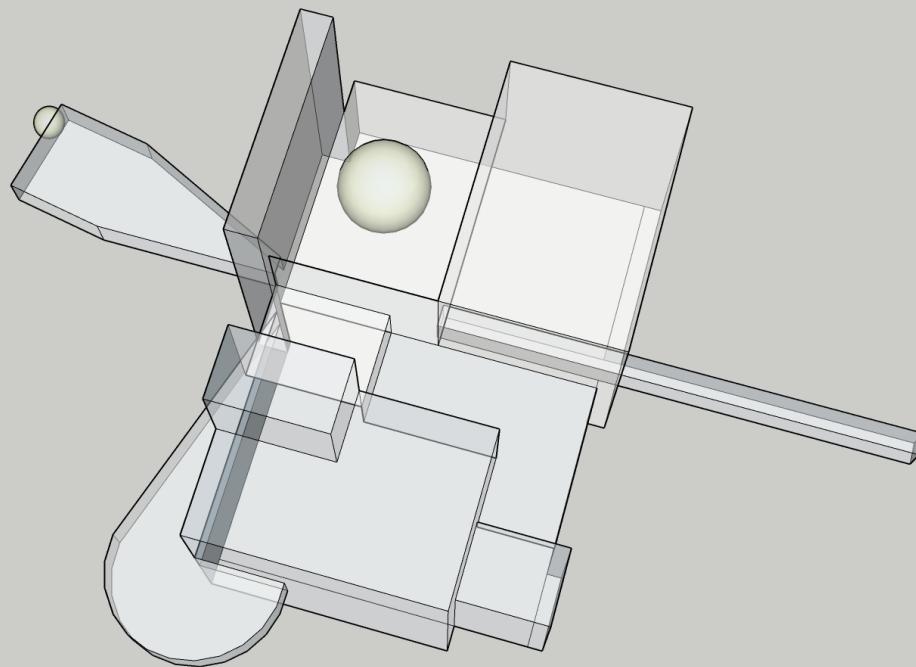
generator from the hex-key colour palette that was a database of all the paints in the studio at any one time.

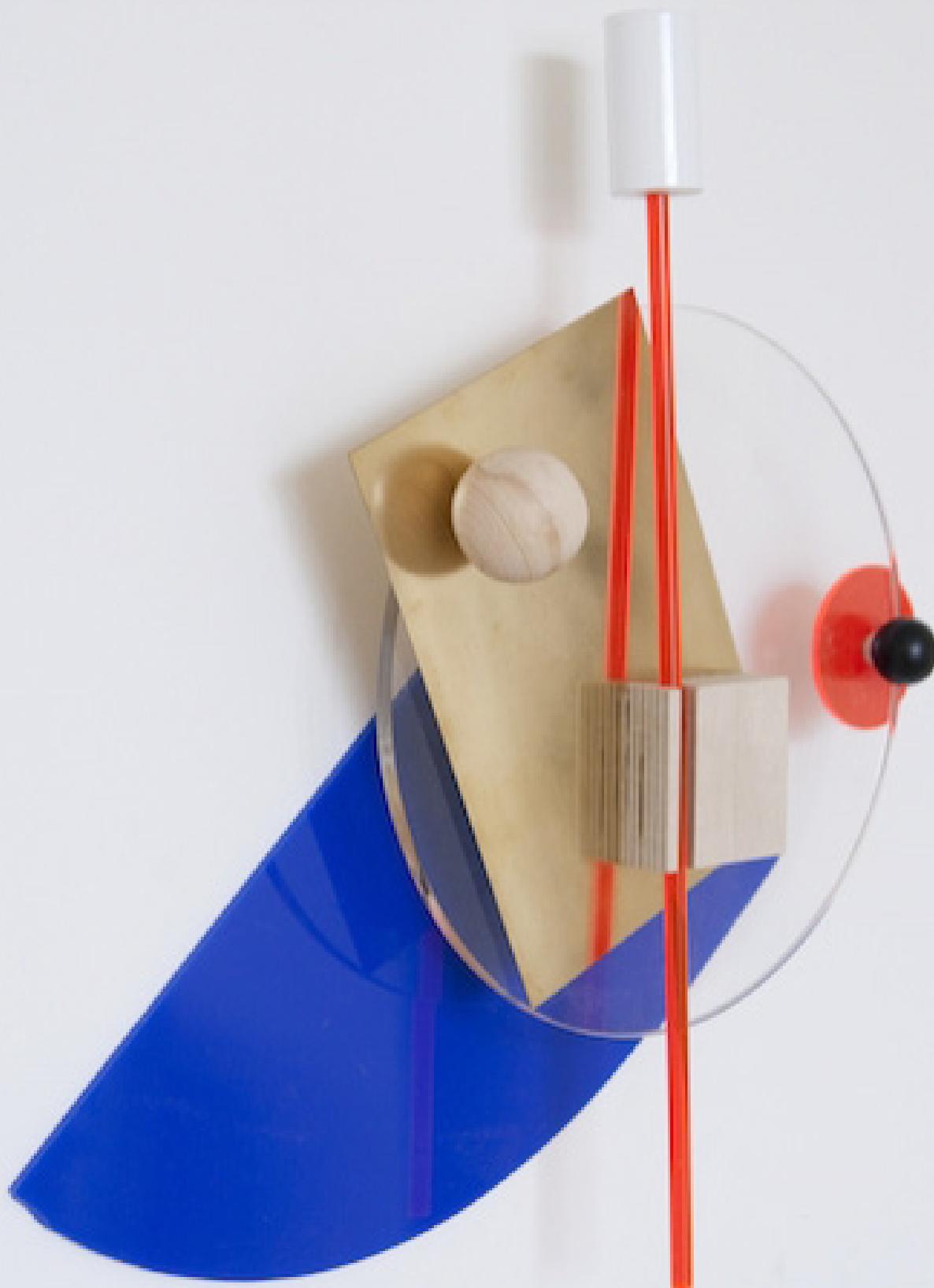
Using Sketchyphysics or Unity, for example, Selby dropped each part onto the next and fixed them in place—a parody of Hans Arp’s method of collaging, allowing for some element of chance under the guide of gravity (in the context of this research, a form of Newtonian gravity approximated by a piece of code). The work was developed with particular rules in place, such as demanding that two vectors, lines or points cross, but the structure or framework for production was constantly changing as a collaboration with the machine.

The resulting digital models were then used as a guide to ‘print’ them. The program served as a research tool for the expansion of Selby’s expert knowledge and technical skill and its limitations (as well as potential) rather than to encapsulate that knowledge for the use of others. The differences between the work on screen and that returned as a physical object asked for a less anthropocentric view of the artist, who instead became a technician for the machine.



*Materials and Parts*





*AUTO-ASSEMBLAGE*  
Plywood, various wood veneers,  
perspex, oil cloth, acrylic paint and  
aluminium, 2016

# Research Contribution, Dissemination and Recognition

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## Insights and contribution:

AUTO-ASSEMBLAGE advanced a method for sculptural construction that ultimately is hidden from the viewer (a form of Vilem Flusser's 'black box', sealing off the internal mechanics of the object). Importantly, when encountered by the viewer, this process remains hidden, raising questions of how a viewer can access knowledge of an (art) object's production. Viewers found the works to have a resemblance to digital models (being relatively simple geometric forms) yet also responded to them emotively/poetically. The translation of the digital models proved difficult to exactly replicate and the rules set in advance gave the resultant works particular characteristics in an art-historical context; notably the constructivist works of Gabo, Pevsner or 3D versions of Malevich paintings. In addition, the research began to ask questions around the ecology of production; the flow, use and waste of studio activity, its efficiency (or lack of efficiency) in relation to material, using mechanical means to 'use up' excess rather than produce more.

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## Dissemination

The main location for dissemination was Three Works gallery in Weymouth, an exhibition space with a roster of artists with a strong UK exhibition profile (including Matthew Collings (Biggs & Collings), Fabian Peake, Milly Peck, Olivia Bax. A series of three 'auto-assemblages' on various scales were exhibited.

Interview by Chris Shaw

<http://www.threeworks.org/mark-selby-info.html>

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# Research Contribution, Dissemination and Recognition

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## Follow-on activities:

Selby has been invited to return with the project to Three Works (now re-located to a larger exhibition space in Scarborough) for a solo presentation in September 2020. This project will be linked to an ACE funding application, with the Three Works curator developing the 'North Yorks Art School' to be located at the gallery (allowing further presentation of the research).

This research is part of a series of work that re-reads the play-element of culture through a contemporary, technological lens that bridges the gap between a humanities/philosophical approach and an engineering approach, applying this to contemporary issues surrounding automated 'art machines'. In a follow-on work 'Circularity in Work and Play', Selby used data gathered from the National Fairground Archive at the University of Sheffield and worked with a bespoke bicycle-frame maker. The project developed a sculptural work that explored both the theoretical and practical operation of 'looped' experiences during work (industries of manufacturing) and play (industries of leisure). The resulting peripatetic, sculptural work operated as a mobile field-data gathering machine. Following circular fairground routes and disused sites, material was gathered and translated via the machine to produce visual 'light' works that acted as a record of that experience.

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*Installation at Three  
Works gallery*



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*perspex, oil cloth, acrylic paint and*  
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Studio Mothership



Three Works  
by MARK SELBY