# Case Study: SOPHIE KAHN

By Stephen Hoskins

Exhibition

Sophie Kahn, Artifact

Sophie Kahn's sculptures have a timeless quality that belies their production process. They have an initial appearance of Greek or Roman classical sculpture, before one rapidly realises how contemporary these works are. Like all three of the artists interviewed here, Sophie also makes photographs and installations, in addition to running a professional 3D scanning service for others.

Sophie Kahn is a New York–based artist who was born in London and grew up in Melbourne before returning to London to study Fine Art and Art History at Goldsmiths. Sophie describes her art practice: 'My work owes its fragmented aesthetic to the interaction of new and old media, or the digital and the analogue. I combine cutting edge technology, like 3D laser scanning and 3D printing, with ancient bronze casting techniques. I create sculptures and videos that resemble de-constructed monuments or memorials. They engage questions of time, history, vision, identity and the body'.

Originally a photographer Sophie describes herself 'as an artist' and her professional practice as 'digital artist', citing Paddy Johnson, the founding editor of Art F City, who writes that 'new media artists manipulate technologies to
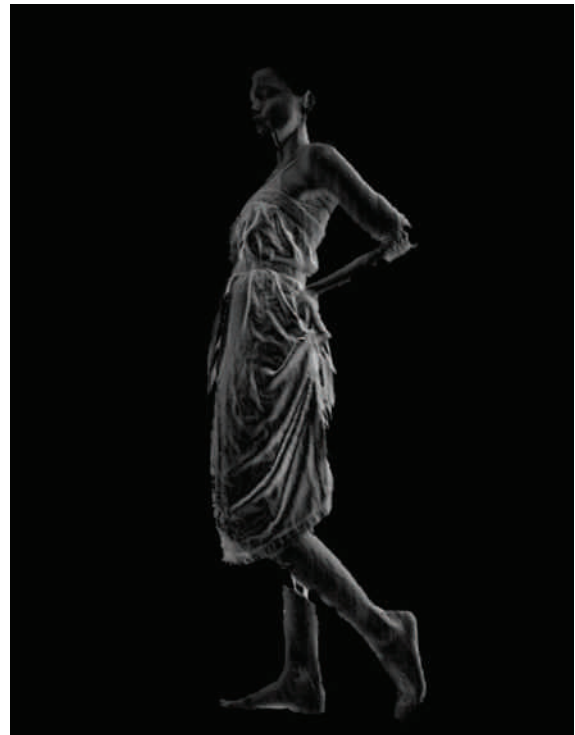
Sophie Kahn, Body Traces

create new work . . . digital artists . . . use technology as a tool.'[9]

Sophie continues:

—   *My work is very much about materialisation.*
       Whether that's a sculptural work, a print in
       a gallery or any physical theme an audience member
       comes and engages with. Digital is purely a realm an
       object goes through on its way to materialisation,
       but it's still a sculpture to me; I also really like the
       definition of 3D printing from Chicago Professor
       Claudia Hart – '3D is a hybrid form of photography
       and sculpture' – a cross between those two art
       forms. 3D scanning is working from life, but it is
       digitally mediated.

In this sense I agree with Sophie's definition, but it begs the question as to whether there are two forms of syntax for 3D printing: one leading back to Beaman's view of photosculpture and a second that might be seen as a digital/analogue approach of first building a virtual 'manual' artefact on screen (as is the case with Sebastian Burdon) and then outputting this analogue-generated artefact.

Sophie first encountered 3D printing and scanning around 2003. She was a photographer at the time, living in London, having completed her undergraduate course at Goldsmiths. She then returned to Australia and studied at RMIT at the Spatial Information Architectural Lab in Melbourne.

—   *The Institute was working on a project in Barcelona*
       under Professor Mark Burry, who was reconstructing
       Gaudi's original maquettes for the Sagrada Familia
       using an early 3D wax printer and scanner by reverse
       engineering, then working in Parametric software to
       try
       and get really precise data from the models
       in order to predict how Gaudi was going to finish the
       Sagrada Familia. [. . .] That is where
       I first encountered the technology, and from a
       photography background I was really intrigued by
       the fact that the 3D scanner was reacting to the
       things that existed in the world rather than
       'a blank 3D canvas'. I was never that skilled at 3D
       modeling from scratch, but that idea of taking scans
       of real things and mediating them was really
       interesting to me, so that was what got it all started.

—   *For a number of years, the technology was really*
       hard to access. Only universities or big engineering
       companies had the resources for it and charged
       zillions of dollars for printing, so I had lots of files I
       couldn't really do anything with. I was making and
       rendering prints and trying to get that work
       published and find a foothold in the photography
       sphere, but it was rejected as being 'not
       photography'. Now I think there is a wider
       acceptance of the digital in photography, which is
       gratifying for me because I always wanted that early
       work to be recognised for what it was. In addition to
       doing a lot of 2D work, it was really with companies
       like Shapeways™ and the consumer aspect of 3D
       printing where I could really make sculpture
       properly, so it was six to eight years until I went into
       3D print. I was never that much into the DIY 3D
       printers, which require a completely different skill
       set because the users are also technical engineers
       and 'tinkerers' and like repairing machines. Some
       artists are good at that sort of thing and for others
       it's not really what we're about. I really had to wait
       for stuff that was more end-user friendly, service
       bureaus like Shapeways™ and user-friendly 3D
       printing software like NetFabb™, so then that really
       changed my practice.

When I asked Sophie what proportion of her work was 3D printed, she replied:

—   *It's about 50 per cent at the moment – I do video*
       work as well, and I make 2D prints alongside the 3D
       prints. I'm increasingly having the 3D prints cast in
       metal, which is the result of market pressure. It's been
       my experience within the art world that customers
       don't really want to buy solely 3D-printed pieces
       because they're worried about the archival
       implications. Now with the cast prints – they are cast
       onto an aluminum frame that's powder coated white,
       it's very expensive and a bit plain, but they do last,
       and it's still cheaper than metal printing (i.e., laser
       sintering), and also my prints aren't that large. The
       3D print is really just to get the masters for the
       casting, and then those go to the foundry. The final
       objects are not strictly 3D prints anymore, but the
       work has been fed through the process. In some
       pieces I had my foundry rub pigment into the build
       lines, so it's very obvious that the work has

this kind of circuitry, that digital artefact, which is really important to me.

When I enquired why she used 3D printing in her work, Sophie replied:

— *It's a big question to answer! Partly it's a question of access to materials. I was between schools for a long time, I didn't have access to a foundry or kiln, and I couldn't afford expensive fabrication, so there was no way I could make work in clay or metal otherwise. Being able to produce small pieces in those materials was liberating, but the quality still wasn't there; it's my hope that that will change with time.*

I queried Sophie further: If she used 3D print in a piece of work, was it solely created with 3D printing or did she combine it with traditional technologies? She responded,

— *Yes, it's very much like one piece in a workflow for me, and also I have to consider budgets and practicality. So whilst I would like to do more 3D printing and less foundry work, I also think at the consumer level the technology just isn't there yet, especially at that scale, so really my work has to be as it is at the moment.*

On a practical level, Sophie uses Rhino™ for the meshes and Netfabb for 80 per cent of her work, including cleaning 3D designs and repairing meshes. She uses Adobe Photoshop® 'quite a lot – just for the aesthetics' and also Autodesk Maya and Mudbox™ for sculpting. Sophie then outlined the various hardware she uses to create her work.

— *So, for the scanner, I mainly use the Polhemus® handheld laser scanner – an old scanner from 2003 – but it has a very specific 'artefacting' that I like. Most of the actual 3D printing is done for me by Shapeways™. I did have a go with a Makerbot™ (during a residency) and the foundry are currently burning those out as a test. They came out 'screwed up', which I actually kind of like, but burning off the PLA is a very toxic process.*

Sophie has strong views on the barriers to using 3D printing: primarily education and a lack of user friendliness, which prevents more engagement with the 3D print technology.

— *My friends and colleagues have decades of experience in the industry behind us, but we all still have tremendous headaches getting things to work. Many other people get stuck and end up paying somebody to do things for them.
And there isn't really an educational halfway solution that bridges the gap. So together with a group of friends, I founded an organization in New York called The Lady Tech Guild. We all work in 3D print, we support like-minded girls and women to become resourceful, inspired creative professionals. We are all self-taught and there isn't a single pathway to do what we do. Often the answer to a problem is found through Google® or looking on YouTube®, but not everyone has the time to do all that. So that has really been the biggest barrier.*

I asked Sophie whether, as an artist, she thought she was giving up her traditional craft skills, or if she thought 3D printing had its own craft sensibilities. Sophie responded:

— *Oh, definitely the latter. I must confess I didn't really have any traditional craft skills such as drawing or painting, so this work was the only option for me! I also think there are more conservative branches of the traditional crafts that are very worried about the new 3D technology – traditional sculptors, for example. But I really see 3D print and 3D design as a separate skillset, and one that deserves the same level of respect. I feel that 3D print*

Sophie Kahn, Bust of a Woman with Head Thrown Back

democratises access to certain materials: for artists and designers who don't have access to kilns or foundries, and who may not have a traditional craft education, there are still pathways to working in metal and clay. I did my education somewhat backwards, in that I first learned the digital skills and then studied moldmaking, casting and ceramics during graduate school, so 3D printing actually led me to traditional craft skills.

It is interesting to note that both Sophie Kahn and Jonathan Monaghan state that they do not have traditional drawing skills. I am a firm advocate of using both pencil and software. I see drawing on a computer as a traditional skill. A pencil is a means of conveying what you see, or what you think you see, mediated by what you are thinking. A drawing programme is no different. Whether there is a difference in adjusting a scan, I am not sure. It falls more into the realm of collage or sculpting, so in essence it is also a traditional skill.

Sophie sees the future of 3D printing as really promising:

— *What has been really interesting and gratifying to me is that there weren't many people doing 3D printing for a long time, and now I find more and more of my peers working in 3D every year. There has been this huge explosion in artists using 3D software, but I don't think a lot of those artists do a lot of actual 3D printing. It's the ones who now have galleries behind them who are now able to afford to print pieces in marble, for example, or send them off to a specialist in Italy for carving, so you still really need the resources to make successful work, and I think the art market is starting to embrace 3D print, but there are still lots of artists who are using 3D software but have to stick to the virtual world because they lack the resources to 3D print the work.*

Sophie Kahn, 'Head of a Young Woman', 2004. Bronze (cast from 3D print).

Sophie Kahn, 'Période de clownisme, F' 2014. 3D-printed nylon on aluminium base. © Sophie Kahn.

Sophie Kahn, Reclining Figure