3D printing: the craft of the future?

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3D Printing: The craft of the future?

Professor Paul Atkinson

Sheffield Hallam University | Art and Design Research Centre
Art and Design Research Centre (ADRC)

Headed by Paul Chamberlain (Professor of Design) the ADRC leads and manages research in the disciplines of Fine Art, Design and Media Production.

Research activity takes place in four broad domains: creative practices in healthcare; advanced making processes and theory; social, cultural and philosophical narratives; and applied research in digital media. However, our interdisciplinary and operational approach recognises and enables these boundaries to be permeable as evidenced by diverse research and creative practice undertaken by our staff. Researchers in ADRC are involved in the development of new methods and techniques for research and their application in the generation of products, designs and works of art that change our understanding or create new knowledge that adds to social, cultural and economic well-being.

Our research strategy focuses on the origination and generation of ideas and knowledge through practice, reflection and dialogue and its dissemination to other academics, practitioners, end users, commerce and industries. The centre actively supports and develops collaborative clusters to undertake large scale research programmes as well as the continuing support of the base scholars.

Closely aligned to the ADRC is Design Futures, a discrete unit within CIRI delivering packaging and product design, research and development to industry. Design Futures has a proven track record as innovators being cited as inventors or contributors to a portfolio of intellectual property, it has accrued a number of design awards.

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Wearable medical monitoring devices: Design to inform clinical appraisal

Professor Paul Atkinson
Professor of Design & Design History
I am an industrial designer, design historian and design educator. I trained initially as a mechanical and production engineer before studying Industrial Design at The University of Teesside. I then worked as an in-house designer, a design manager and as a director of a design consultancy. When I became a design educator I studied the History of Design at Middlesex University. My work on the social history of computing technology eventually led to a PhD from the University of Huddersfield. I have spoken at a number of international conferences around the world about Design History, Design Theory and Design Practice, have written books and had articles published in a number of international design journals.

My academic research covers a wide variety of subjects, all concerned in one way or another with the relationship between society and technology. The relationship between people and technological artefacts is explored through my writings on the design history of computers. The impact of the society-technology relationship on the design profession is explored through my writings on professional vs amateur design, including work on the history of DIY and Open Design. The future impact of emerging technologies on the nature of design is explored through my practice-based research into Post Industrial Manufacturing.

**PhD Supervision**

Paul supervises PhD students in design:

- Matthew Dale
- Julie Krylé
- Claire Craig
Automake

enter

interactive generative
design project
click to deselect unit, click again to reselect.

use arrows keys to rotate view, page up & down to zoom in and out
Automake & Future Factories

Digital design futures with Justin Marshall and Lionel Dean

On the fourth floor until 8th June
Automake presents the work of Justin Marshall, a research fellow working in the Automake cluster at University College Falmouth.

As a maker he is interested in the use of digital design and production technologies to potentially redefine craft and designer maker practice.

FutureFactories

FutureFactories presents the work of Theo Cooper, an experienced consultant internationally recognized for his work in digital manufacturing. His research is based around the democratization of rapid prototyping for the mass production of products.

The work produced by Justin and Theo presents a challenge to traditional design practices at a point where the established system of manual labor is no longer seen as an end. They present two different approaches to the creation of unique and exclusive craft objects.

The systems they use highlight the potential for a debate on the future of manufacturing and the role of designers in the process. They present examples of how computer-aided design can be used to enhance traditional craft techniques and to generate unique and exclusive products.

Questions for a debate on the future of manufacturing:

- What is the future role of the designer?
- What new skills will they need to possess?
- What is the future role of the manufacturer?
- Where exactly are the boundaries between design and production?

Do we require new forms of collaboration between designers and manufacturers?

The systems used by Justin and Theo encourage contemplative thought and a reevaluation of traditional craft techniques.

The Automake cluster at University College Falmouth is at the forefront of research led by Professor Paul Rowan and associates.

The exhibitors were:

- Automake
- FutureFactories
- University of Huddersfield
OPEN DESIGN NOW
WITH VISUAL INDEX
WHY DESIGN CANNOT REMAIN EXCLUSIVE
BAS VAN ABEL
LUCAS EVERS
ROEL KLAASSEN
PETER TROXLER
Issues

We are entering a ‘Post Professional’ era.

The new norms may be:
- direct digital manufacturing,
- mass personalisation and
- Open Design

The notion of the professional designer will be called into question, and a number of issues will need to be addressed.
Open Design: Issues

- Copyright
- Ownership
- Authorship
- Technology
- Co-Creation
- Responsibility of the Designer
Open Design: Issues

Ownership

Copyright

Authorship

Technology

Co-Creation

Responsibility of the Designer

Should these be given up?

Who is the Designer?

Who will own the technology?

Does easier production = More innovation?

Shared Responsibility- Can it work?

Can it work?

Should these be given up?

Does easier production = More innovation?
Impact

The potential impact of Direct Digital Manufacturing and Open Design could be more far-reaching than might at first be thought:
Open Design: Impact

Reverse of Urbanisation

No low-cost labour

Access to Technology

IP/Copyright
Open Design: Impact

Reverse of Urbanisation

Suburban fablabs not urban factories?

No low-cost labour

removal of cost advantage of far-east production?

New, non-commercial models of production?

No need for CAD modelling skills?

Need to balance encouraging innovation and curbing pirating?

Access to Technology

IP/Copyright
Post Industrial Manufacturing

The full potential of emerging technologies in direct digital manufacturing may only be fully realized when allied with Open Design practices.

Post Industrial Manufacturing has to be seen as an alternative to Mass Production, and in many ways a return to a more craft-based production ethos.
Post Industrial Manufacturing

We cannot accurately predict the future, but there is almost certain to be a sea change in design and manufacturing processes.

In some areas of production, there will be a paradigm shift in approach, in others, the changes may be more subtle and nuanced.
Thank You

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