Once Upon a Time in Animation

Celebrating 30 years of the National Centre for Computer Animation

Poole Museum

Contents

We are very pleased to be able to host this exhibition and programme, celebrating 30 years of the National Centre for Computer Animation (NCCA). Poole Museum and BCP Council are deeply committed to partnering with our leading universities on activities that add value to the cultural life in Bournemouth, Christchurch and Poole, so we jumped at the opportunity to showcase the work and collection of the world class NCCA. This project has also given us the chance to display wonderful examples from the history of animation - some of it so familiar it is embedded in our lives and memories, and some new discoveries for us to treasure.

I would like to express huge thanks to the team from Bournemouth University and Poole Museum that has had to work in adverse circumstances to bring Once Upon a Time in Animation together digitally and in our galleries, delivering an invigorating and engaging exhibition which you can safely enjoy and participate in. We are very grateful to Arts Council England and Heritage Lottery Fund for supporting the project and enabling what should be one of the most memorable and brightest cultural moments of the year.

Michael Spender
Museum and Arts Manager
BCP Council

> ## "World-class computer animation teaching with wide scientific and creative applications."

For over 30 years the National Centre for Computer Animation at Bournemouth University has been at the forefront of teaching and research in the discipline of computer animation. The department comprises about 30 academics and researchers and approximately 500 undergraduate and postgraduate students. Our motto has remained "science in the service of the arts", recognising that computer animation is inherently multidisciplinary. In 2011 the NCCA was awarded the Queen's Anniversary Prize for "World-class computer animation teaching with wide scientific and creative applications".

Over the decades academics and graduates of the NCCA have contributed to the shaping of practices employed widely in the creatives industries. Our graduates include Academy Award winners Andy Lockley and Mark Ardington, and Blue Zoo founders Oli Hyatt, Adam Shaw and Tom Box. We continue to collaborate extensively with industry in research activity, supported by the Centre for Digital Entertainment and the newly established Research Centre for Applied Creative Technologies.

Industry practitioners contribute enormously to the learning environment at the NCCA, with visiting speakers and masterclasses delivered to students at all levels throughout the academic year, ensuring our students stay at the forefront of the discipline and are prepared for the world of work.

Dr Richard Southern
Head of Department
NCCA

The Once Upon a Time in Animation exhibition pays homage to a global phenomenon in the history of computer animation: For the last 30 years, the National Centre for Computer Animation (NCCA) has contributed to a vibrant discourse between art and science, the creative industries and academia, and led by example in educating the next generation of computer graphic artists, animators, VFX artists and motion and game designers.

Since its inception, under Peter Hardie and Peter Comninos, the NCCA held a reputation for combining a technical focus in the craft of animation, with artistic sensibility and vision. The NCCA provided a framework for research to artists such as the Lumen Prize winners boredomresearch, or the media art pioneer Stephen Bell. With the BFX Festivals, one of the UK's largest animation and VFX festival, the NCCA's Peter Truckel and Sofronis Efstathiou created a forum for industry and researchers to discuss state-of-the-art developments. Today, the NCCA is renowned worldwide as one of the great hubs of computer animation, birthplace to inspiring careers and technical innovations,as much as artistic know-how and VFX and animation skills.

This exhibition provides an overview of the history of the NCCA, the different art forms that are being taught, artistic craft and innovative academic research. Framed by industry champions such as Blue Zoo and Aardman, where legions of NCCA graduates found a home, the exhibition features work by students, graduates, researchers and artists of past, present and future of our great institution.

The curatorial team worked hard in presenting a wide variety of different artefacts, a programme of talks, workshops and on making the exhibition as experiential as possible, to inspire future generations of animators and artists, as well as their families to gain deeper insights into the NCCA, its artists and its remit. Enjoy the interactive online catalogue, holographic projections, concept art, 3D prints, and artworks on display and learn more about how it all started - Once Upon A Time in Animation.

Dr Oliver M. Gingrich
Curator
NCCA

The establishment of the NCCA

In the autumn of 1988 Peter Hardie and I instituted a series of meetings with members of the computer animation (CA) production and simulation industries and with HP to discuss how we could advance the state of CA education in the UK. Following our first meeting, we very quickly came to the conclusion that what was needed was the establishment of a national centre of excellence that delivered undergraduate and postgraduate courses and conducted research in CA.

This centre would come to be known as the "National Centre for Computer Animation" (NCCA). This group of people became known as the NCCA Establishment Board. In a number of subsequent meetings, the scope of the centre was agreed upon. In the last meeting of this board it was agreed that the NCCA title would be conferred on the Bournemouth team for an initial period of four years, on the understanding that our institution would design and implement undergraduate and postgraduate courses in CA and would provide funding for the equipment needed for these courses. The following calendar year the NCCA title was approved by the Ministry of Education.

Professor Peter Comninos
Founder of the National Centre
for Computer Animation

The origins of the NCCA

The National Centre for Computer Animation holds a special place in the history of the still young discipline of computer animation. Founded by Peter Comninos and Peter Hardie at Bournemouth University in 1989, it is the first institution that established dedicated degree programmes for computer animation for which it pioneered a discipline-spanning educational approach of blending art and science in a manner that is still only rarely found elsewhere, although it provides graduates with knowledge and skills that are highly sought after by the creative industries.

This is evident from the achievements of the NCCA's students and graduates. For more than two decades, the scientific and artistic work of NCCA students has been internationally recognised at high-ranking academic conferences and animation festivals, such as the renowned SIGGRAPH conference as well as at its computer animation festival, and NCCA graduates have contributed to countless award-winning films and animations.

Dr Eike Falk Anderson
Principal Academic
NCCA
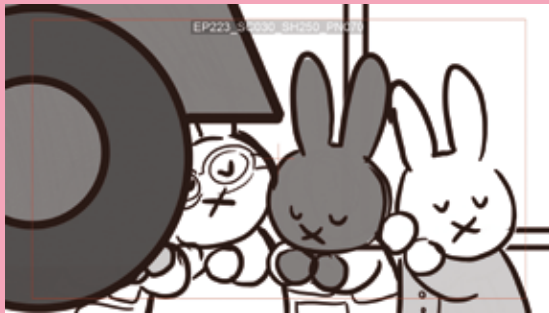
NCCA archive collection

The Bournemouth University team have been collaborating with Poole Museum, to develop the exhibition Once Upon a Time in Animation which focus on the creative and technical processes behind the making of and animation for films, cartoons and game, building an understanding of digital 21st century creative animation industries in the UK.

Academic, Claudia Moore, says "It is clear that the NCCA archive has tremendous potential to provide a context in which borne digital moving images could talk to one another to see what forms of innovation might emerge from these conversations. Looking beyond heritage to other areas concerned with 3D printing, holograms and coding broader the themes of 3D animation in contemporary ways". With wonderful contributions from Aardman and Blue Zoo, the exhibition 'Once Upon A Time in Animation' showcases talented NCCA academics, students and graduates, their research, and artworks to the public. This landmark exhibition at Poole Museum is generously supported by The National Lottery Heritage Fund and Arts Council England National Lottery Project Grants.

Claudia Fasola-Moore
Founder of the NCCA
archive collection

Aardman

I remember the first time I saw sets and models from an animated film; it was in the mid-1990s and the film was Tim Burton's *The Nightmare Before Christmas*. I was already an animation student, but seeing the models first -hand filled me with wonder and set me on a path into stop motion animation.

Fast forward through 25 years working at Aardman and I still marvel at what our industry creates. Aardman, based in Bristol, is now employee owned and going from strength to strength. Stop motion animation (Morph, Creature Comforts, Wallace and Gromit) is what put the studio on the global map and while we still create lots of it we are also at the forefront of digital content creation in mobile, vonsole, AR, VR etc.

As the studio continues to grow we recognise that fresh talent is fundamental to our future, and collaborations with the likes of the National Centre for Computer Animation and Poole Museum

are essential. Not just for Aardman but also the wider creative industries too. I hope that this exhibition will inspire more creativity, in every form.

Merlin Crossingham
Creative Director,
Aardman

Once Upon a Time in Animation

Discover the past, present and future of the NCCA, from early design concepts to media art and technological innovations.

The Once Upon a Time in Animation exhibition will provide you with an overview of different areas of research and practices, as well as showcasing historic artefacts from the NCCA's new archive collection, which preserves some of the most important milestones in animation history. The NCCA archive collection has been initiated by Claudia Fasola-Moore and is generously supported by National Lottery Heritage Funding and by Arts Council England. In collaboration with Poole Museum, we are presenting NCCA artefacts side by side with creative industry productions including Aardman and Blue Zoo.

Over the years, work created by NCCA students and staff has been shown at SIGGRAPH, the world's most important computer graphics conference, where experts show off the newest technological developments. It also includes the prestigious SIGGRAPH Computer Animation Festival, where some of the NCCA's animations displayed in this exhibition have also been screened.

Discover our processes and techniques

The exhibition explores diverse practices in animation design, and illustrates the potential of animation as an art form and career choice.

The exhibition features highlights in the history of computer graphics and animation, as well as recent innovations by artists, researchers, and graduates of the NCCA.

While artefacts on the first floor illustrate techniques and practices explored at the NCCA, the second floor presents innovations, artistic practices and research projects. We will discuss some of the processes involved such as storyboarding, concept art, modelling and environment design.
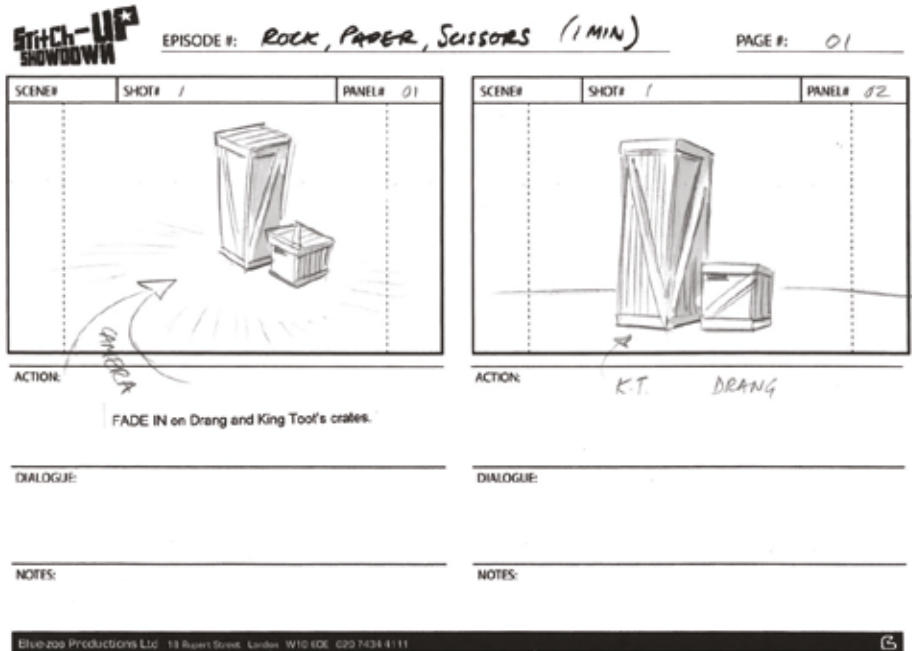
How to design a character

What makes good character design in animation? To design a character, artists consider personality traits and stylistic features such as clothing, hairstyle and colour choices. Body language and facial features are also developed to create the complete character.

Character designs evolve over time. Characters are sketched from different angles to try out different concepts and to communicate the design in three dimensions. Character designs often feature easily recognizable shapes, and strive for an original, unique look - the character's appeal. Character designers also produce character sheets. Character sheets are a series of illustrations showing a character from every possible aspect in a range of moods and situations. These designs serve as a guide during the production of the film.

To create a character, artists consider personality traits and related stylistic features (clothing, hair style, colour choices), body language and facial features. Character designs evolve over time and characters are featured from different angles to try out different concepts and to communicate the design in a manner that allows interpretation in three dimensions.

Telling the story: Storyboarding

Storyboards should contain all the information needed to enable the layout artist to lay out the scenes for an animation. A storyboard is a sequence of drawings, representing the shots planned for an animation or film, just like panels in a comic book or graphic novel.

Storyboards as we know them today were developed at Walt Disney Productions during the early 1930s. The first complete storyboards were created for the 1933 Disney short animation *Three Little Pigs* (The Story of Walt Disney, Henry Holt, 1956). They indicate every action in every scene, as well as the general movement of the camera and the characters. Storyboards must also provide information on scene numbers and descriptions of the actions per scene. Dialogue and sound are also marked. Each frame is mounted on a board, to provide an overview of the storyline.

Pictures in motion: From animatic to animation

The storyboard represents the first stage in the making of an animation. Other processes go on at the same time; the preparation of sound design, character design, and visual research.

As animation is often a collective process, storyboards are crucial in aligning processes between the animators working together on the film or game. In addition, the storyboard is vital both for estimating and controlling the production cost and for raising initial finances. In commercial animations, this continues to be the case today. Storyboards form the basis of an animatic, a first mock-up of the sequence: an animatic is a montage of a sequence of shots, images, or sketches, usually based on a storyboard, that is used to determine accurate timing, and effectiveness of the pace of the animation.

Zoetrope: The wheel of life

A Zoetrope is one of several early animation apparatuses that produce the illusion of motion through a sequence of drawings or photographs. The classic Zoetrope, featuring easily replaceable picture strips, was introduced by Milton Bradley in 1866. The name Zoetrope is derived from the Greek words for life (Zoe) and turning (trope), meaning the 'wheel of life'.

The Zoetrope consists of a cylinder with cuts vertically in the sides. On the inner surface of the cylinder is a band with images from a set of sequenced pictures. As the cylinder spins, the user looks through the cuts at the pictures across. The scanning of the slits keeps the pictures from simply blurring together, and the user sees a rapid succession of images, producing the illusion of motion – an animation.

The third dimension: Producing 3D animations

3D computer animation requires expertise in a wide range of different techniques. Starting from 3D modelling – i.e. the transformation of 2D designs into 3D representations of objects in the virtual environment – these modelled objects and characters then need to be textured (provided with colour and material information). Sometimes complex simulation techniques need to be applied, too, to facilitate the creation of fur, hair and feathers for characters and creatures.

3D objects, including 3D characters, are animated using a so-called control rig that, when moved, drives the animation. This 3D rig deforms the 3D object it is linked to in the same way that the skeleton and muscles inside of a human being drive the human body. If the 3D model is an animated character it must be rigged, so that the model deforms correctly when the character is posed and moved. To this end, a control rig/control skeleton needs to be inserted into the model and bound to its skin.

Finally the 3D scene needs to be lit with virtual lights – just like real lights that would be set up during film production – and rendered. Rendering is the process by which all of the data created during computer animation production is processed by powerful algorithms that create the final animation frames that audiences see on the screen.
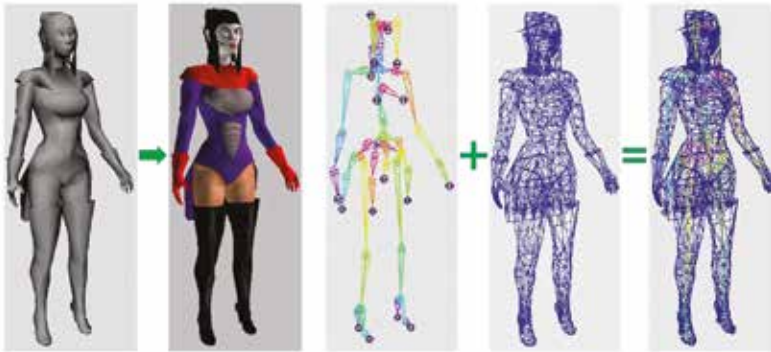
Environment design

Environment designers create the settings in which the animated characters will perform their stories. These artists are the architects of the environment in an animation scene. Environment designers help to create and establish the mood, time, place, scale, light, camera, and style of the scene.

Whereas in traditional animation, these environment designs are 2D layers, in 3D environments the whole virtual world has to be created. Selected scenes need to be framed and lit, possibly including natural phenomena such as simulated atmospherics (fogs, depth of field), and finally the virtual set needs to be dressed. As a rule of thumb, set designs attempt not to outshine the characters or take away from the scene, but to literally frame it.

Between fantasy and realism, Rehan Zia

Rehan Zia is a photographer, a visual effects artist, researcher and academic at the National Centre for Computer Animation. In his visual storytelling, Rehan uses light, form and colour, to create images that lie on the cusp of fantasy and realism. Rehan teaches a wide range of visual effects related courses at the NCCA. These include subjects such as visual storytelling, cinematography, compositing, digital texturing, lighting and many others.

Rehan's practice-led doctorate research explored best practice for high dynamic range landscape photography. His work displayed here comprises tone-mapped high dynamic range photographic prints. These artworks demonstrate novel use of lighting and rendering techniques to arrive at new routes of visual storytelling.

The process used can be employed in documenting cultural heritage, landscapes, scientific and natural phenomena, or in computer graphics, medical imagery and many others. These artefacts demonstrate the digital craft of using light and novel digital rendering techniques to explore distinctive image looks.

Simulations of natural processes, Bianca Cirdei & Eike Falk Anderson

In computer graphics, professionals often use a set of techniques called 'Procedural Generation'. This is used to automate the process of creating and/or animating 3D objects or parts of these objects, which would be too complex or time-consuming to do by hand. The difficulty lies in finding the balance between automation and artist control. With too much automation, one cannot predict or direct the end-result. In contrast, if too little automation is applied, the process would end up too complex or too time consuming.

The project *Withering Fruits* by Bianca Cirdei and her supervisor Eike Anderson improves already existing methods that simulate the process of fruit decaying. The procedural generation simulates how real fruit decays, thereby emphasising the potential for visual realism. This way, visual effects artists have control over the process and its results. For this project, Bianca Cirdei won the ACM SIGGRAPH Student Research Competition.

Birth of the NCCA, Peter Comninos and Peter Hardie

Since he joined Bournemouth University in 1987, Peter Comninos led the establishment of the NCCA, the development of its motto "Science in the Service of the Arts", the growth of its teaching and research teams and the development of its undergraduate and postgraduate courses.

He acted as the director of the NCCA from 1989 to 2011. From 1989 to 1995, he held the Apollo/Hewlett-Packard endowed chair in Computer Animation. From 1987 to 1999, Peter Comninos headed the Department of Computer Animation.

Working side by side with Peter Comninos, Peter Hardie contributed to the establishment of the NCCA and its renowned international reputation. In the 1980s and 1990s, Peter Hardie and Peter Comninos became a classic example of the creative power of artist and scientist partnerships. Recognised in computer graphics circles as the two Peters, they brought together knowledge and skills of their separate disciplines. Peter Hardie's CAD (Computer-aided design) experience and ability to use Peter Comninos' CGAL (Computer Graphics Animation Language) computer animation system, showed other artists that they might use code to make art at a time when such ideas were still considered revolutionary. This special environment at the NCCA created by the two Peters, has nurtured graduates with scientific and artistic skills ever since and led to Bournemouth being recognised internationally as a significant world player in computer animation education and research.
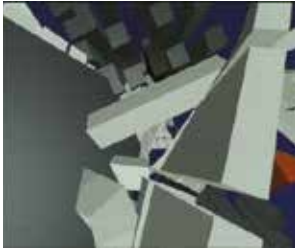
A new language: CGAL

CGAL, the Computer Graphics and Animation Language, was first conceived towards the end of the 1970s. CGAL provides a means for non-programmers to create computer graphics using a scripting language that is based on the terminology of animation and film production.

The system was continuously refined until the end of the 1990s, and during this period of development CGAL became a highly complex and sophisticated application. At the heart of CGAL resided a very powerful scripting language. CGAL also incorporated one of the most advanced procedural materials systems for the automatic generation of realistic object materials of its time. In the early 1990s, CGAL was commercialised and sold internationally, becoming the only 3D computer animation system developed in and exported from the UK, while revolutionising animation education globally.

Media Art: Smallworld, Stephen Bell

Stephen Bell started to use computer programming in his art in the late 1970s. The artist first came to public attention in the 1980s with computer generated images that he had made whilst working as an Artist in Residence at the University of Kent's Canterbury Computing Laboratory.

The images are based on the behaviour of groups or communities of animals being attacked by predators, and human battle-like confrontations. They were created by programmes he had written that imitated the interaction of individual humans and other animals. His works illustrate the paths of the movements, simulated by algorithmically generated behaviours.

Smallworld real-time behavioural animations were shown at the international conferences CG90 and SIGGRAPH 95. *Smallworld* is a suite of interactive art programmes coded by the artist Stephen Bell from 1984 to 1995, whilst completing his PhD as a lecturer in the early years of the NCCA. Stephen Bell demonstrated to students that programming is a medium that can be exploited creatively as an art form as well as research.
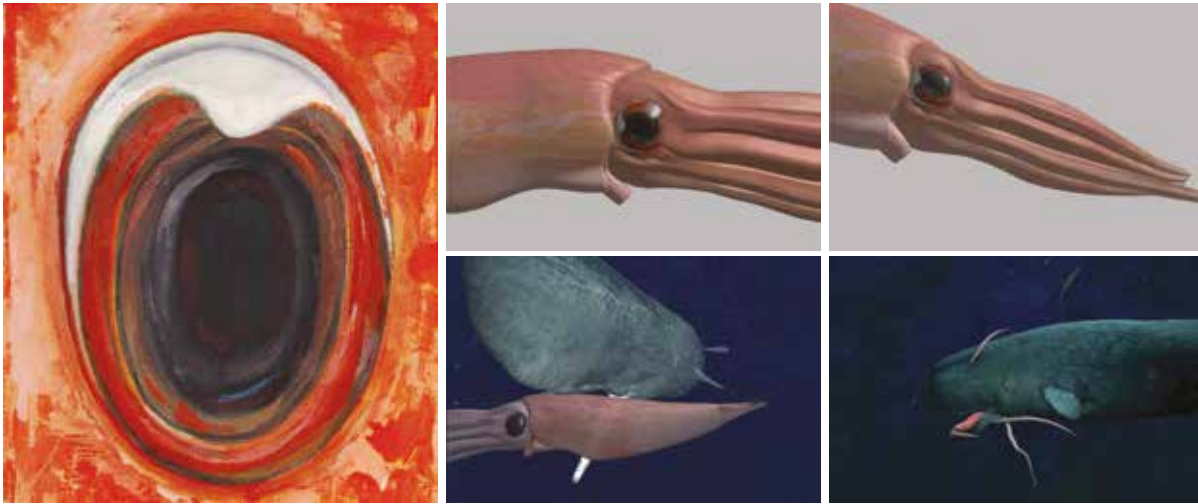
Scientific visualisation: Incredible Suckers

At the National Centre for Computer Animation, a research team lead by Dr Vassilios Hurmusiadis (Animator), with Jacqueline Wrather (Artist) and Gary Leonardi (Assistant Animator), under the direction of David Allen (Oxford Scientific Films), worked for three months to produce a 3D computer animation of a giant squid and sperm whale.

Incredible Suckers is a documentary about cephalopods (squids, octopodes, cuttlefish etc), produced by Oxford Scientific Films Ltd and commissioned by the BBC. The documentary *Incredible Suckers* was first broadcast in the UK, by BBC2 in 1996, with a narration by David Attenborough, before airing in the US by 13-WNET and PBS.

The documentary has won an award at the Wildscreen Festival (Bristol, 1996) and illustrates the power of animation for scientific visualisation.

Algorithmic painting, Stuart Batchelor

Stuart Batchelor is an NCCA graduate and computer artist working at the intersection of traditional art and new technology – aiming to blur the boundaries between machine and hand crafted visuals. Batchelor's ambient and alluring kinetic painting, *Morgenthau*, investigates expanding the painter's palette into time and space.

Using custom painting software and his own painterly brushwork in oil-paint, Batchelor runs complex simulations based on the data of the physical paint to generate the final artwork. The pigment, direction and speed of the physical brushwork affect the final kinetic motion and behaviour of the piece.

This culminates in a captivating display that expresses using both the mind and the hand, standing as an investigation into the future aesthetics of time-based painting and embedding data in material. Stuart Batchelor graduated from the NCCA in 2015. The artist's work has been shown at the V&A Museum and the Royal College of Art, and is available online at Sedition.

AfterGlow, boredomresearch

A collaboration between British artists Vicky Isley and Paul Smith, boredomresearch is internationally renowned for exploring an understanding of the natural world through the medium of computational technologies. Researching and studying the vulnerability of complex systems, including those which support human life on earth, their work considers our strategies for coping in a world increasingly destabilised by human activity.

Collaborating with world leading scientists, the artists are challenging a broader concern over a tendency towards increasingly complex solutions to answer the dilemma of environmental crisis.

In its Lumen Prize-winning artwork *AfterGlow*, an Animate Projects commission funded by the Wellcome Trust, boredomresearch collaborated with Dr Paddy Brock, a mathematical modeler at the Institute of Biodiversity Animal Health and Comparative Medicine, University of Glasgow, to explore current epidemiological practice. This project forms a new expression of a malaria infection transmission scenario, allowing the audience to witness events from the perspective of the mosquitoes.

The Lumen Art Prize ranks among the most prestigious recognitions within the media arts.

Studies in stillness, Susan Sloan

Susan Sloan is a lecturer at the NCCA. As an artist, she works collaboratively and individually, using animation to create artworks and public projects. These include her study into portraiture that utilises 3D animation software and motion capture technologies to look at identity through motion and action.

Using motion capture data as the core material, Susan Sloan's work explores the portrait through the medium of animation, focusing on simple gestures and movements of her subjects. Framed as a single shot and composed around the head and torso of the sitter, the work refers to the traditions and conventions of portraiture. At the same time, it raises questions concerning the merging of painting, animation and photography. Susan Sloan's work has been shown nationally and internationally including The Photographers Gallery, London; International Symposium of Electronic Art, Istanbul; SIGGRAPH Gallery, San Diego; 404 Festival, Argentina; Kunstihoone Gallery, Estonia; Yokohama Art Museum, Japan; and Glasgow International Festival.

Installation images
courtesy of Phillip Allen
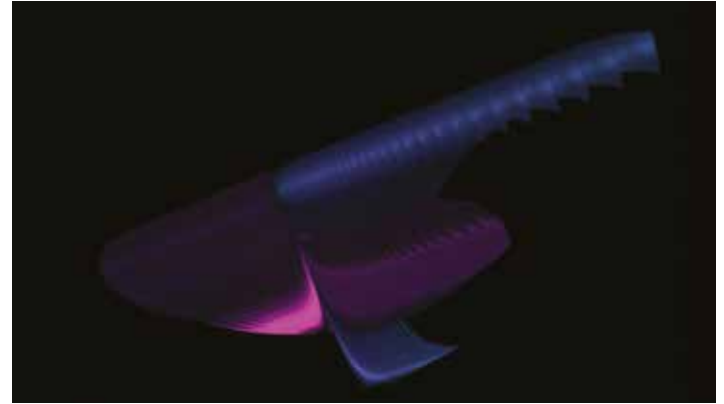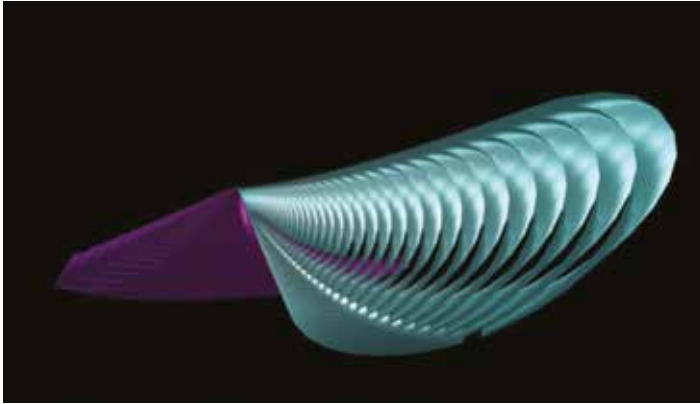
Visualising brainwaves: Zeitgeist, Oliver Gingrich and Shama Rahman

Zeitgeist, developed by NCCA researcher Oliver Gingrich and neuroscientist Dr Shama Rahman, uses machine learning algorithms to indicate when visitors are in Flow, turning this artwork into an interface of creative collaborative practices.

Inviting audiences to engage with one another creatively, it measures whether audiences are in Flow state, a state of heightened creative stimulation, reduced stress and increased relaxation. *Zeitgeist* provides visual cues or so-called 'nudging', to inspire audiences to be creative with one another, be it through singing, drawing, or brainstorming new ideas.

The visual cues provide information on Flow as measured via an EEG – an electroencephalogram which records brain activity. A deep-learning algorithm compares these inputs to a signature pattern of Flow. *Zeitgeist* encourages audiences to get creative with one another, online or in a physical space. This holographic sculpture represents Flow mental states of the artists creatively collaborating during the UK lockdown.

Lighter colours and more complex forms indicate heightened state of Flow. Creative engagement can help people to socially connect with one another, reducing stress, and resulting in greater wellbeing. The *Zeitgeist* project hopes to contribute to a wider discourse of Art in Health, with the researchers working actively with NHS experts on further development of the project.

Games

Computer games and similar interactive virtual worlds have the power to immerse players and audiences in fantastic experiences. Their creation requires the cooperation of computer programmers with storytellers, computer graphics artists and animators.

Everything that is visible on screen must be created by the artists and animators and everything that players can do must be defined by the storytellers and programmers, requiring a delicate balance between the world's level of detail, the players' freedom of movement and production time and costs. Over the last 30 years, emerging innovators and artists at the NCCA have experimented with and developed the technology for creating games, as well as explored narratives, visual storytelling and new forms of creative engagement through real-time animation and games. From low-poly games, to highly sophisticated real-time rendered environments, this selection of games represents a small selection of some of the most visually engaging interactive experiences of the past decade.

Our Museum Project, Eike Anderson et al.

Game engines that provide the infrastructure for video games are not limited to the creation of entertainment games. They can also be applied in situations where more traditional solutions of computer animation production are unsuitable, e.g. because of time constraints, and the achievable image quality can match that of production-rendering systems.

The *Town Cellars transformation* animation created for Poole Museum's Our Museum Project is an example of a successful project in which this was done.

Aiming to provide visual aids for project stakeholders and museum visitors and carried out over a three-week period, mainly within the Unreal Engine 4 game engine environment, by Isabella Deacon, Lucy Cole, Miguel Goncalves under supervision by Eike Anderson and contributed to by Claudia Moore, the animation shows a transition of the medieval Wool Hall in the Grade I listed town cellars building from its current state as the Local History Centre to a planned restoration that more closely matches its original make-up.

Healthcare application:
The SHIVA Project

Sculpture for Healthcare: Interaction and Visual Art in 3D, or SHIVA for short, was an EU Interreg IVC funded research project developed by the SHIVA team consisting of Alexander Pasko, Peter Comninos, Leigh McLoughlin, Oleg Fryazinov, Valery Adzhiev, Mathieu Sanchez and Mark Moseley. The project has produced the free-to-use, accessible SHIVA software, which enables people with disabilities to create 3D sculptures that can then be printed using a 3D printer.

Artistic activities can significantly help people to recover their independence after a broad range of traumas. Engaging in creativity can also help children with physical or learning disabilities to express themselves, encouraging autonomous development. For example, children with limited limb control find it difficult to participate in conventional art, missing out on the opportunity to creatively express themselves. However, there are difficulties attached to using sculpting materials, such as clay, in a medical environment, independent of whether they are being used to help people with disabilities, or for the rehabilitation process. To address this, the SHIVA Project uses ICT-based technologies to extend the access to such artistic tools, within a fully protected environment, for groups with special needs.

The SHIVA project is addressing needs of people in rehabilitation, as well as children with both physical and / or learning disabilities, providing an accessible, flexible 3D modelling solution for children with a range of disabilities. In 2015, the team from Bournemouth University's National Centre for Computer Animation was awarded the THE (Times Higher Education) Outstanding Digital Innovation in Teaching or Research Award for their development of the SHIVA software.

Here you will see the models designed by children with disabilities by using accessible devices, such as eye gaze and touch screen.

# Imagining space and memory: ReSpace, Paula Callus

This artefact produced by Dr Paula Callus is an interactive experience, built with Bournemouth University students as part of the AHRC-funded project *ReSpace: Reanimating Contested Spaces*. *ReSpace* looks at history, memory and space with partners in Kosovo and Rwanda to examine these concepts through design in virtual reality (VR) and computer graphics imagining (CGI).

ReSpace works with young people to co-create interactive content that seeks to engage with shared histories through architecture. The current experience focuses upon the Sami Frasheri gymnasium faculty in the Hertica family home, a school house in Pristina in the 1990s.

The house was given by the Hertica family to be used as a school during a time when Albanian Kosovars were excluded from mainstream education and victims of violence. A parallel education system was set up and the Hertica School House is one example

of many other houses that became schools. This project uses game design to present an experience of these spaces as described by the testimonies of people who attended this school.

ReSpace examines how creative methods can be used to encourage critical thinking of history. This project, part of the Changing the Story project led by Leeds University sees a convergence of technical ability, and artistic rendition. These types of convergences have always underpinned an approach to research embodied by the NCCA.
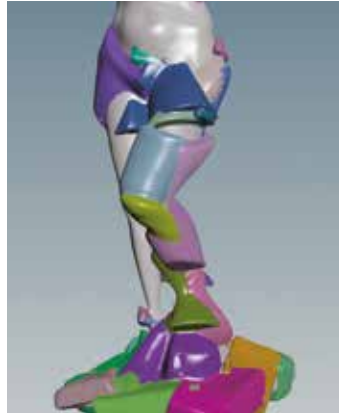
4D Cubism, Quentin Corker-Marin, Valery Adzhiev and Alexander Pasko

Cubist painters moved away from traditional methods of projecting a 3D scene onto a 2D canvas, instead experimenting with multiple viewpoints in a single composition. Cubist sculptures display full or partial blending between given shapes, using distorted solid primitives, such as cylinders, spheres and cones. Student Quentin Corker-Marin and his supervisors Dr Valery Adzhiev and Professor Alexander Pasko developed algorithms for adding cubist features to time-variant sculptural shapes.

The new concept of a 4D cubist camera is introduced for multiple projections from 4D space-time to 3D space, using a technique called space-time blending to create animated 4D cubist sculptures. The project was presented at the SIGGRAPH 2017 conference, where it was awarded 2nd place in the ACM Student Research Competition. In 2018, the research paper '4D Cubism: Modelling, Animation and Fabrication of Artistic shapes' was published in IEEE Computer Graphics & Applications magazine. Quentin now works for the award-winning visual effects company Glassworks, where he has used these techniques for a video installation by artist Marco Brambilla that has been exhibited in New York, London and Paris.

The NCCA and graduate careers

Having pioneered the first dedicated degree programmes for computer animation, and a 30-year history of blending art and science in its discipline-spanning educational approach, the NCCA provides the ideal launchpad for careers in computer animation and related creative industries. Over three decades, the NCCA has established connections with animation organisations and award-winning professionals around the world.

The NCCA has been the birthplace of legions of animators, video game artists, computer graphics specialists, and visual effects artists. Its alumni can be found in leading visual effects houses, computer animation studios and games companies all over the globe. Career opportunities, however, exist far beyond the field of entertainment: whether in data visualisation, medical imaging, in academia or engineering, career choices are manifold.

Whether you are at school or interested in a postgraduate degree, the NCCA offers a variety of choices across different programmes - all following the motto of applying science in the service of the arts.

this is Gus
(he is a procrastinator)

Procrastination
pro · cras · ti · nate v.
To put off doing something,
especially out of habitual
carelessness or laziness

Once Upon a Time in Hackney

Animation is magical. In the same way that museums are wonderous places that bring the past to life, animation can literally bring stories, characters and concepts into being. The only limit is human imagination. When we were approached by Bournemouth University in 2017 about hosting an animation exhibition it's fair to say that I was excited about getting involved.

Animation has been a long-standing passion of mine since childhood. Growing up in East London in the 1980s with community artist parents, my early days were a visual feast of paintings, prints, illustrations, *Beano* comics and cartoons. *Cartoon Time*, a weekly showcase of cartoons on TV, was one of my favourite programmes. My dad would record it on our VHS player and I'd re-watch episodes of *Tom and Jerry*, *Daffy Duck* and *Bugs Bunny* over and over and over again until I knew the scripts off by heart. Going to see new Disney films such as *The Little Mermaid* (1989) at our local cinema was the absolute highlight of my youth.

And then along came Aardman. *The Wrong Trousers* (1993) was the first feature that I saw although I was already aware of the wonderful *Creature Comforts* (1989) in which voice recordings of families talking about their homes were animated as animal characters. Claymation was another medium that I instantly fell in love with. The 1990s also kick-started my love affair with Pixar. From the premier of *Toy Story* (1995) to the more recent release of *Coco* (2017) – an incredible film that moves me to tears like no other – computer animation opened up an even more remarkable world to enjoy. What an amazing wealth of moving image wonder is now at our disposal.

When I moved to Poole in 2013, I had little idea that around the corner, at Bournemouth University, a new generation of animation artists, game designers and visual effects specialists were hard at work at the National Centre for Computer Animation. I am delighted to have had the opportunity to work on this project which has resulted in Poole Museum's temporary exhibition Once Upon a Time in Animation: Celebrating 30 years of the NCCA. I hope that you enjoy the show as much as I have enjoyed being part of its creation and would like to thank all of my colleagues at Poole Museum and the NCCA for their hard work in making this engaging visual showcase a reality for our visitors.

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Acknowledgements:

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