Visits to museums on rainy afternoons have just become a lot more interesting thanks to revolutionary technology that allows artefacts to be scanned and modelled in 3D and then studied from all angles in a way the original could never be. UCL’s Petrie Museum has benefited from a shared-use agreement between the university and Canadian firm Arius3D (www.arius3d.com), which makes the colour laser scanners. The six-year collaboration, negotiated by Dr Anna Clark, UCL Corporate Partnerships, is one of the university’s most enduring business relationships. The technology has attracted interest from a range of disciplines, from engineering to biomedicine, architecture to psychology. Arius3D has benefited from its association with a world-class university. To curators and conservators of museums everywhere, restoring and preserving the priceless objects in their care is an ongoing concern. For a small but important museum like UCL’s Petrie Museum of Egyptian Archaeology, which houses items such as one of the oldest dresses and a fragment from the earliest calendar, this presents a dilemma: you want the treasures to be seen and studied by as many people as possible, but you need to keep them in the dark – literally. “We have to keep the lighting low to protect the artefacts from deterioration. We offer visitors the loan of torches,” says Tonya Nelson, Manager of the Petrie Museum.

The challenge
For the past five years, a very 21st century object has, well, shone a light on the way ahead. It is a state-of-the-art 3D colour laser scanner, made by Canadian firm Arius3D (www.arius3d.com), and it has provided a new way of bringing the collection out of storage (only 10%, or 8,000, artefacts are on display at any one time). Scanning is a painstaking process, as the laser must pass over an artefact many times to capture it from all sides and then the scans must be assembled into a model. But afterwards, says Tonya, “the models can be rotated and viewed from angles and perspectives not possible in the real displays. 3D scanning and visualisation not only preserves objects but enhances the visitor experience, letting people see things in ways they never have before.”

The partners
That UCL is now taking a leading role in setting international standards and practice in 3D laser technology and visualisation in the heritage sector is largely due to the close collaboration between the university and Arius 3D. That relationship began when Dr Anna Clark, Director of UCL Corporate Partnerships, heard about the scanner through Professor Bernard Buxton, then Dean of UCL Engineering Sciences, and began a two-year process of negotiations with the company that involved the Canadian High Commission, the multidisciplinary UCL Chorley Institute, Prof.
Stuart Robson of UCL Civil Environmental and Geomatic Engineering and Sally MacDonald, Director of UCL Museums and Collections.

In late 2006 the scanner, worth £500,000 and the first of its kind in Europe, was installed on loan in a specially refurbished area within the Chorley Institute. Arius3D maintains the scanner, develops appropriate software and trains staff in its use. Dr Clark says: “Arius3D was the first outside company to have a presence in UCL, with its name on the door.”

Six years on, UCL has renewed its contract with Arius3D for the second time, for a further two years. “It’s a most unusual and ground-breaking deal, spanning two continents and bringing arts and sciences together around the table. The original teams are still in place, which adds to the sense of continuity,” says Dr Clark.

The outcomes
Besides the creation of 3D image libraries and digital learning tools based on the Petrie Museum collection, the scanner has helped generate more than £3.5 million of research funding proposals. Workshops and seminars have attracted UCL staff from a wide variety of disciplines as well as external institutions such as the British Museum and the National Trust.

The association with one of the top universities in the world has given Arius3D, a young (established in 1998) and small (less than 50 employees) company, a global profile. Susan Dineen, Business Development Manager, says: “It gives us credibility. People can read about us independently in UCL’s research papers. It helps to convince people that we are doing something special.” The collaboration has also led to technical improvements – the firm has now automated the process of assembling the scans into a model.

Arius3D, which also works closely with Toronto’s Royal Ontario Museum scanning its Native American artefacts, won the UCL Small to Medium Enterprise Partner of the Year Award in 2011.

Ongoing developments
UCL is becoming a scanning ‘centre of excellence’, with applications for a range of sectors including engineering, biosciences, medicine, dentistry, anthropology, art and architecture. UCL is exploring expanding its scanning research to its Qatar campus, which offers degrees in archaeology and conservation. The Petrie Museum is looking at licensing agreements and royalty provisions which will be administered by UCL Business.

Tonya says: “People remain fascinated by all things Egyptian. Look at the popularity of the recent Book of the Dead exhibition at the British Museum. Or the number of blockbuster films that draw on this period of history, like The Mummy. Bringing ancient Egypt’s treasures to life in 3D on their computer screens is an exciting way to move that obsession into the future.”
About UCL

UCL (University College London) was established in 1826 and is ranked as one of the world’s top-ten universities. The university is a modern, outward-looking institution, with more than 4,000 academic and research staff committed to engaging with the major issues of our times. It has a global reach, with 34% of its students coming from outside the UK, from almost 140 countries.

www.ucl.ac.uk

About Partnerships

UCL Corporate Partnerships develops and manages successful long-term relationships between industry and UCL and responds to corporate and academic needs through tailored partnerships, high-value research initiatives and global leadership projects. Corporate partnerships deliver innovation advantages to industry, enhance the international reputation of companies, and generate sustainable revenue and benefits to the University. UCL currently works with large multi-national companies in energy & resources, telecommunications and information technologies, transport & construction as well as with smaller companies in art, advertising, communication, imaging and entertainment.

The Corporate Partnerships team promotes UCL research and teaching excellence, responds to the needs of corporate partners, forms an effective portal for academic and business inquiry, and ensures that negotiations and collaborations are successfully managed.

www.ucl.ac.uk/enterprise/corporate-partnerships

About UCL Enterprise

Enterprise is important to all universities, but resonates particularly with UCL. From our inception we were created as an enterprising institution, with a bold ambition to create a University dedicated to the greatest good for the greatest number. This principle has underpinned the evolution of modern-day UCL, a confident and enthusiastic community of enterprising researchers, educators, and scholars, working together for the immediate, medium and long-term benefit of society.

UCL Enterprise provides UCL’s structures for engaging with business for commercial and societal benefit. It includes three units: UCL Advances, UCL Business and UCL Consultants. Together, they provide access to the capabilities and resources of the UCL community to help businesses start, grow and develop.

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