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<http://www.arsmathematica.org>

27-29 Juin 2017
ASSISES EUROPÉENNES
DE LA FABRICATION ADDITIVE
EUROPEAN SYMPOSIUM
ON ADDITIVE MANUFACTURING

session sur la sculpture numérique
panel on digital sculpture

La Fabrication Additive au service de l'art et de l'éducation.

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Additive Manufacturing in the service of art and education.

> *English text after the French version.*

Cette année, nous aurons deux invités de marque, pionniers de la sculpture numérique dans leurs pays respectifs.

La Pr. Mary VISSER (Southwestern University, Texas, USA) nous expliquera le rôle important joué par les utilisateurs de l'Impression 3D dans les universités américaines, tant au niveau du développement de la créativité qu'à celui de la promotion de l'interdisciplinarité.

Le Pr. Keith BROWN (Manchester Metropolitan University, UK) nous fera part de son expérience artistique, à laquelle les outils de la 2D et de la 3D combinés ont ouvert de nouveaux horizons : la Fabrication Additive, et particulièrement celle qui offre la couleur, permet de réaliser des sculptures naguère infaisables.

Enfin, Christian LAVIGNE, après avoir rappelé les activités d'ARS MATHEMATICA, fera une brève présentation du livre "CYBERSCULPTURE – Mythologie et Histoire de la Sculpture et de ses Machines" qui devrait être publié fin 2017 ou début 2018.

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This year we will welcome two distinguished guests, pioneers of digital sculpture in their respective countries.

Professor Mary VISSER (Southwestern University, Texas, USA) will explain the important role that 3D Printing users play in American universities, both in the development of creativity and in the promotion of interdisciplinarity.

Professor Keith BROWN (Manchester University, UK) will share his artistic experience, in which the combined 2D and 3D tools have opened up new horizons: Additive Manufacturing, especially the technology that offers color prints, allows him to realize sculptures formerly not feasible.

Finally, Christian LAVIGNE, after having recalled the activities of ARS MATHEMATICA, will give a brief presentation of the book "CYBERSCULPTURE - Mythology and History of Sculpture and its Machines", which is expected to be published in late 2017 or early 2018.

TITLES & ABSTRACTS

Prof. Keith BROWN (UK) – Professor of Sculpture & Digital Technologies, Manchester School of Art, Faculty of Arts and Humanities, Manchester Metropolitan University, Manchester UK.

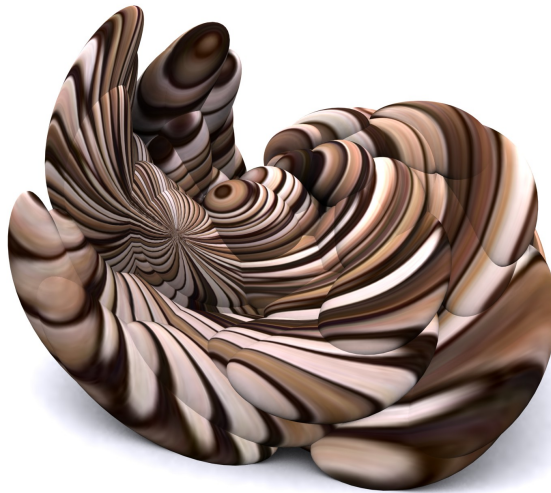
> Object and form, surface and image, in 3D printed fine art sculpture

The combination of computer modeling, colour, photorealistic imagery, and 3D print, opens pathways to explore new methodologies for the creation of objects that could not be conceived of or made manifest by traditional means. Recent research investigates the application of colour and image to either disrupt and/or reinforce relationships between 2D and 3D form. The focus of my digital sculpture lies mainly with the exploration, discovery, and realization of new three-dimensional forms, and deals largely with the appropriateness of medium in relation to concept, material and process.

Biography:

Keith Brown is one of the foremost digital sculptors currently working in Europe. A postgraduate sculpture student from the Royal College of Art London 1972-75, he began his art education in the mid-sixties, practicing for over 50 years he has worked with a wide variety of sculptural techniques and approaches, from miniature to monumental, analogue to digital. For the past thirty years he has directed his research and practice from within the digital arena.

<http://www.art.mmu.ac.uk/profile/kbrown>



From the centre – Keith Brown – 2016

Prof. Mary VISSER (USA) – Professor of Art, Brown Chair and Vice President of Ars Mathematica, Department of Art and Art History, The Sarofim School of Fine Art, Southwestern University, Georgetown, Texas.

> Think, Connect and Create, How liberal arts universities are using 3D printing as an educational medium for presenting connections across disciplines.

Sculptors have been using and experimenting with 3D printing since its inception. In the article “Fluid Borders” noted critic and art historian Christiane Paul defines the 1990’s as

the decade when digital/virtual computer generated sculpture comes into its own. It is in this decade that Paul makes note of the expanding dialog and the international recognition of INTERSCULPT, a biennial digital sculpture exhibition and symposium. What we see now is the expansion of curriculum in all disciplines to include 3D printing as an educational tool to make connections across disciplines.

Fifteen years later, as I organized my university's 37th Brown symposium on 3D Printing across the Fine Arts and Sciences, I am still amazed to see how this process has progressed to become an important educational tool. No longer limited to the sciences and sculptors, 3D printing is being used within the liberal arts setting to teach students that there are new avenues to creative thinking, problem solving and research within and across disciplines. At Southwestern University this change has resulted in 3D printing being implemented as a supportive methodology. It is specifically the trans physical aspect of the cyber environment that provides new possibilities and radically changes traditional modes of thinking about solutions from one of single discipline based to crossing disciplines.

Educators are now discovering ways to connect different disciplines by using 3D printing which opens up one's concepts about how ideas can be made real. Just as artists did using this new medium 3D printing has already expanded the concept of space from real to virtual and the form from observations of the physical world to visualizing numerical data. Now other disciplines in the humanities are using 3D printing to teach their students to think across disciplines. Like these artists our students are stepping out of the artificial boundaries of a single discipline and are asking questions about the way they view the world of ideas. Just as the artists Andrew Werby and Joshua Harker experiment with the illusions of surface imagery upon the human mind now students in philosophy, biology, and psychology are using 3D printing processes to physically test their theories. Not only is this technology reshaping ideas about making, but it is also changing our understanding of the world around us. Just as the artists Robert Smith bio printed living sculptures from his own cells, and the sculptor Van Ness fractured organic forms into hard edge geometries we see our students learning how to fracture ideas and reconnect solutions across various disciplines. In other words to think, create, and connect ideas. 3D printing processes allowed artists to explore new regions of sculptural ideas in ways that artists could not do before the invention of the 3D Printer. Now this process offers traditional academic disciplines the same opportunities for their students to learn by crossing disciplines.

Biography:

Prof. Mary Visser, past holder of the Herman Brown Chair teaches sculpture and 3D modeling at Southwestern University in Georgetown, Texas. Visser received her MFA in sculpture from The Ohio State University in 1974. While there she studied sculpture with the international sculptor David Black and Ceramics with T. Sakuma at Ohio State University. She was introduced to digital art through Charles Csuri's digital installations at OSU in the 70's. Her early work in sculptural forms spoke to women's issues and Visser has a long history of supporting women in the arts, serving as President and Vice President of Women and Their Work in Austin, Texas from 1990 to 1995. She has served on the Texas Sculpture Symposium board and has organized many exhibitions national and international in scope.

In 1987, she organized one of the first national digital art exhibitions for the Brown Symposium on "Computers in Everyday Life". From 1985 to 2015 Visser curated 7 international digital sculpture exhibitions, published 12 articles and 3 catalogs on the art of digital sculpture. Visser has organized and taught many computer modeling and 3D

printing workshops for universities, organizations, artists and faculty. Most notably in the 2000 she organized with Robert Michael Smith the "3-Dimensional Modeling Workshop for Sculptors and Educators" sponsored by the Computers and Sculptors Forum and the International Sculpture Symposium in Houston, Texas. Over 325 artists and educators visited the workshop during its four days of operation. In 2010, Visser was elected to serve as Vice President of *Ars Mathematica*, an international organization devoted to promoting digital sculpture and she continues to serve today. She has exhibited her work around the world appearing in more than 130 exhibitions including several touring International Digital Sculpture exhibitions, the e-Form Cybersculpture exhibit for the 2008 Olympic events in China, and the recent 3D Glitch touring exhibition in England and Rijeka, Croatia.

Ars Mathematica organization can be found at www.arsmathematica.org

Visser's artwork can be found at <http://www.mavissersculpture.com/Folio.html>



Eve's Dance – Mary VISSER – 2015

Christian LAVIGNE (France) – *Écrivain et artiste multimédia, pionnier et historien de la cybersculpture, co-fondateur et Président d'ARS MATHEMATICA.*

> Une brève présentation d'ARS MATHEMATICA, et du livre à paraître : "CYBERSCULPTURE – Mythologie et Histoire de la Sculpture et de ses Machines"

En 2018, l'association ARS MATHEMATICA fêtera les 25 ans de la Première Exposition Internationale de Sculpture Numérique, devenue la biennale *INTERSCULPT* en 1995. Nous vous proposerons l'année prochaine – si nos amis des AEFA le veulent bien ! – un panorama historique de ces manifestations, organisées non sans énormes difficultés dans un contexte idéologique absolument défavorable à la production d'objets matériels. Mais pour le moment, dans cette brève présentation, je rappellerai la philosophie et les objectifs d'ARS MATHEMATICA, qui dépassent la simple volonté d'animer des événements d'art technologique, aussi originaux soient-ils. En effet, nous croyons depuis longtemps à l'émergence d'une *Nouvelle Renaissance* par le moyen du Numérique, dont les méthodes et les outils favorisent – devraient favoriser – la synergie entre artistes, chercheurs et industriels. Mais nous nous sommes rendu compte de l'existence d'obstacles, peu nombreux mais considérables, sur la voie des échanges interdisciplinaires. Nous en citerons trois. D'abord, les problèmes majeurs de la formation et de l'information. Nous tentons d'y remédier à notre manière, par exemple en multipliant nos interventions, soit comme ici pour les professionnels, soit l'attention du grand public, comme lors de la Fête de la Science, des Journées du Patrimoine, etc. En France et à l'étranger.

Dans le domaine particulier de la création d'objets d'art, il m'est apparu indispensable de faire le point non seulement sur la longue histoire des méthodes de conception et de fabrication, mais encore sur les grandes mythologies millénaires qui restent encore à l'œuvre, secrètement, aujourd'hui. C'est ainsi qu'avec mon amie et consœur la Pr. Mary VISSER nous nous sommes appliqués à la rédaction d'un livre sur la *CYBERSCULPTURE*, qui ambitionne d'éclairer la généalogie de la *sculpture programmée*, tout en présentant les véritables pionniers de la sculpture numérique contemporaine. Certains y découvriront le rôle fondamental joué par les artistes dans l'évolution des technologies.

Par ailleurs, outre les problèmes généraux de formation et d'information, un troisième obstacle, plus spécifique à notre discipline, ralenti l'appréciation et la diffusion de nos œuvres et de nos projets : l'absence de lieu permanent et de galerie d'art dédiés aux objets numériques. Ce fut mon intuition et celle d'Alexandre VITKINE dès la fin des années 80, avant même que nous nous rencontrions. Et ce fut l'une des raisons de la fondation d'ARS MATHEMATICA. Pendant un temps, certains artistes du numérique – mais pas nous – ont pu croire que l'avènement de l'Internet allait rendre superfétatoire tout lieu physique, toute galerie d'exposition, tout musée. Or il n'en n'est rien, ni d'un point de vue social, ni d'un point de vue pratique ...surtout pour l'univers des objets ! Voilà pourquoi nous sommes toujours en quête de partenaires pour notre projet CREATRON : *Centre de REssources pour l'Art la Technologie et la Recherche des Objets Numériques*. Après des années, ayant bien compris l'inanité de nos efforts de pédagogie vis à vis des institutions officielles en France, nous nous tournons plus que jamais vers le secteur privé, vers les fondations d'entreprises, pour tenter de matérialiser ce lieu inédit au carrefour de l'art et des nouvelles industries.

> A short presentation of ARS MATHEMATICA, and the forthcoming book "CYBERSCULPTURE - Mythology and History of Sculpture and its Machinery"

In 2018, the association ARS MATHEMATICA will celebrate the 25th anniversary of the First International Exhibition of Digital Sculpture, which became the INTERSCULPT Biennial in 1995. We will propose to you next year - if our ESAM friends would agree ! - a historical panorama of these manifestations, organized not without enormous difficulties in an ideological context absolutely unfavorable to the production of material objects. But for the moment, in this brief presentation, I will recall the philosophy and aims of ARS MATHEMATICA, which go beyond the simple will to animate technological art events, as original as they can be. Indeed, we have long believed in the emergence of a New Renaissance in the era of the Digital, whose methods and tools favor - or should favor - synergy between artists, researchers and industry.

But we have realized that there are few but considerable obstacles to interdisciplinary exchanges. We will cite three of them. First, the major problems of training and information. We try to remedy this in our own way, for example by multiplying our interventions, as here for the professionals, or the attention of the general public, such as during the Fête de la Science, the Cultural Heritage Days, etc.. In France, and abroad too.

In the particular field of the creation of art objects, I felt it was essential to take stock not only of the long history of design and manufacturing methods, but also of the great millennial mythologies that still remain potent, secretly, today. Thus, with my friend and colleague, Professor Mary VISSER, we applied ourselves to the writing of a book on the *CYBERSCULPTURE*, which aims to illuminate the genealogy of the programmed sculpture, while presenting the true pioneers of contemporary digital sculpture. Some readers will discover the fundamental role played by artists in the evolution of technologies.

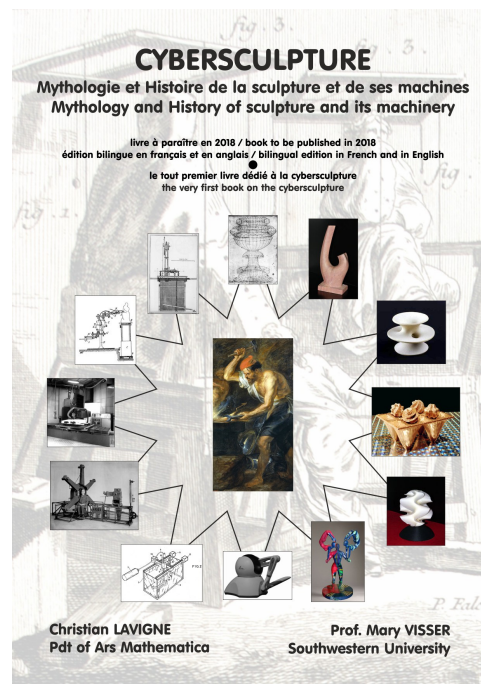
Moreover, in addition to the general problems of training and information, a third obstacle, more specific to our discipline, slowed down the appreciation and the diffusion of our works and our projects: the absence of a permanent meeting place and art gallery dedicated to digital objects. This was my intuition and that of Alexander VITKINE from the late 80s, even before we met. And that was one of the reasons for the founding of ARS MATHEMATICA. For a while, some digital artists - but not us - were led to believe that the advent of the Internet would make any physical place, exhibition gallery, or museum superfluous. But it is not so, neither from a social point of view nor from a practical point of view ... especially for the universe of objects! This is why we are always looking for partners for our project CREATRON: Center of Resources for Art Technology and Research of Digital Objects. After years, having understood the inanity of our pedagogical efforts vis-à-vis the official institutions in France, we turn more than ever toward the private sector, toward the companies' foundations, to try to materialize this novel place located at the crossroads of art and new industries.

Biographie / Biography :

Christian LAVIGNE est un écrivain et artiste multimédia, de formation scientifique, pionnier français de la sculpture numérique (depuis les années 80). Sa carrière publique a commencé dans le domaine de la poésie, puis il s'est tourné vers les arts plastiques. Avec Alexandre VITKINE (1910-2014) il a fondé l'association ARS MATHEMATICA, qui organise la biennale mondiale de sculpture numérique, INTERSCULPT, depuis 1993 (elle porte ce nom depuis 1995), ainsi que de nombreux événements arts & sciences. Il a forgé les mots Robosculpture (1988) et Cybersculpture (1995). L'artiste a aussi créé l'association TOILE MÉTISSE (1998), pour les échanges culturels Nord-Sud. Face à la montée de l'obscurantisme, Christian LAVIGNE pense que les artistes ont le devoir de défendre la liberté d'expression et de promouvoir une Nouvelle Renaissance.

Christian LAVIGNE is a multimedia artist and writer, of scientific training, French pioneer of the digital sculpture (since the 80's). His public career began in the field of poetry, then he turned to the visual arts. With Alexandre VITKINE (1910-2014) he founded ARS MATHEMATICA, which organizes the world biennial of digital sculpture, INTERSCULPT, since 1993 (it bears this name since 1995), as well as numerous arts & sciences events. He coined the words Robosculpture (1988) and Cybersculpture (1995). The artist also created the association TOILE MÉTISSE (1998), for cultural exchanges North-South. Faced with the rise of obscurantism, Christian LAVIGNE believes that artists have the duty to defend freedom of expression and to promote a New Renaissance.

<http://christianlavigne.free.fr>



Esquisse pour la couverture du livre sur la CYBERSCULPTURE

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