

**SKILLED ART: Art, Consciousness and Syncretic Strategies.
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Title: Faraway, So Close!

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The View from Here.

Faraway, So Close introduces a number of telematic frameworks developed by i-DAT. The data translations employed reveal the alchemical processes that facilitates the formation and transmission of human experience. These frameworks span architectural, remote sensing and social interventions that are manifest through projects framed as 'Operating Systems' (www.op-sy.com). These projects have been vehicles for developing trans-disciplinary methodologies for supporting and enhancing digital learning environments simultaneously create a multi-layered system of monitoring, evaluation, dissemination and access.

This paper concerns itself with the construction of mixed reality environments that create spaces that are as much the product of the imagination as they are of a technological materiality and enable fluid shifts between states (generally and inadequately referred to as the physical and the virtual). Underpinning the range of projects discussed is the understanding that the primary fabric for manifesting experience is 'data'. Data, code, behaviour and experience, a series of transpositions in the dematerialisation of the material world.

Through a process of revelation the impact of human behaviour within a building, a community of the environment is manifest. The flow of people, objects, data, networks and energy are mapped through a server cluster and dynamic databases to expose internal/invisible processes. These projects and technologies are instruments that enable an alchemical transformation, from the material to the immaterial and back again.

Frames of Reference.

A critical element in the positioning of a new frame of reference is the use of alternative data collection tools initiated through a range of 'Operating Systems' (www.op-sy.com) which dynamically manifest 'data' as experience and extend human perception. These 'Operating Systems' provide a range of open tools for gathering data from environments (buildings and landscapes) and organisms (crowds and bodies) will be focused on delivering dynamic and interactive outputs through a range of technologies (such as social networks, streaming media, mobile phone Apps, Full Dome environments, etc). These 'Operating Systems' dynamically manifest 'data' as experience in order to enhance perspectives on a complex world. Data collected or generated is parsed and published through a range of flexible tools (flash, Max MSP, Processing, Java, etc), feeds (xml, rss) and web 2.0 streams, such as Twitter and Facebook, which allow artists, engineers and scientists to develop visualisations, sonifications (music) and interactive projects.

At the heart of this transformation of perspective is the ubiquity of data and its ability to flow between formats, readers and aggregators. For instance, the ubiquity of XML based

formats is being established within many disciplines, this is already true of GML, and KML - but can be seen in disciplines as diverse as Neuro-science (NeuroML), Chemistry (CML) and initiatives by Usman Haque to establish an Urban XML along with Operating-Systems which utilise standard XML and RSS formatting. Not necessarily transcoding (1) but reading and parsing the same data into different engines enables a shift in disciplinary understanding.

The emergence of digital imaging technologies that provide access to the photon from the edge of the universe and the atomic force that binds molecules offer us a whole new vocabulary for articulating the world. Atomic Force Microscope, Scanning Electron Microscope, X-ray computed tomography and the Radio telescope open up new dimensions, as more dimensions are unveiled, more realities are modelled and more truths envisioned. However, the disciplines that operate as gatekeepers to these new worlds are locked in disciplines that keep them hidden from the contemporary creative practitioner. Equally the institutions that educate the contemporary media designer are still preoccupied by the mono-vision of the photograph and the slow scan of video. There are more things in heaven and earth than currently understood in our media philosophy. The Operating Systems described below provide a range of instruments that are able to translate the shift in scale, from faraway to so close. They translate the impossibility of understanding the trans-scalar into haptic and tangible experiences.

Operating Systems.

The current Operating Systems are:

Bio-OS: Bio-OS provides accessible tools (through 'hacks', wearable devices, phone Apps and domestic and public health technologies and social media tools) that are being deployed in daily life for monitoring health and activity. Data collected from these tools feed dynamic databases that facilitate a shared understanding of the mass body index through visualisations and sonifications – a data body culture of health.

Arch-OS: [architectural operating system] represents an evolution in intelligent architecture, interactive art and ubiquitous computing. An 'Operating System' for contemporary architecture (Arch-OS, 'software for buildings') has been developed to manifest the life of a building through a unique digital environment for developing transdisciplinary work and new public art. It collects dynamic data from buildings (Portland Square and Curtin University Resources and Chemistry Precinct Artwork Project, Perth, WA).

S-OS: [social operating system] - The S-OS project strand provides an Operating System for social life. It superimposes the notion of an 'OnLine' Social Operating System: Whilst town planners and architects model the 'physical' City and Highways Department's model the 'temporal' ebb and flow of traffic in and around the City, S-OS will model the 'invisible' social exchanges of the City's inhabitants.

Eco-OS: [ecological operating system] - Eco-OS explores ecologies. Eco-OS further develops the sensor model embedded in the Arch-OS system through the manufacture and distribution of networked environmental sensor devices. Eco-OS provides a new networked architecture for internal and external environments. Networked and location aware data gathered from within an environment can be transmitted within the system or to the Eco-OS server for processing.

Eco-OS collects data from an environment through the network of ecoids and provides the public, artists, engineers and scientists with a real time model of the environment. Eco-OS provides a range of networked environmental sensors (ecoids) for rural, urban, work and domestic environments.

Dome-OS: Dome-OS is based around i-DAT's immersive vision theatre (Full Dome). A transdisciplinary instrument for scientific and artistic production of immersive environments and the manifestation of material, immaterial and imaginary worlds.

This listing of i-DAT's Operating Systems is not chronological in terms of their evolution and manufacture. This listing provides a slow zoom out of scale and resolution from the body, to the building, to the city and to the environment. An overarching instrument in the manifestation of the data is the Dome-OS, a set of tools for the FullDome environment than enables the manifestation of the complex data sets generated by the collected OS's.

Traditionally used for the visualisation of astronomical data the FullDome is increasingly transforming from a 'planetarium' to an 'omniarium', a place where all things can be viewed. The Fulldome environment provides a bubble in time and space. A 'Chrono-synclastic Infundibulum', a place "where all the different kinds of truths fit together" (2). It provides a space where boundaries between disciplines slowly melt. Something a little like a scientific instrument but maybe more like an educational tool, possibly more like a cinema but probably more of a funfair ride - a media chameleon and a transdisciplinary instrument for the manifestation of material, immaterial and imaginary worlds. Even without multi-speaker amplification, the acoustics of the natural whispering gallery creates both a dense dead silence and a complex multidirectional pool of sound. Even without a projected image it is hard to focus on the dome, your eyes see through and beyond the surface. These affordances create an environment that is extremely conducive for relaxation and meditation – and mediation.

Slow Zoom.

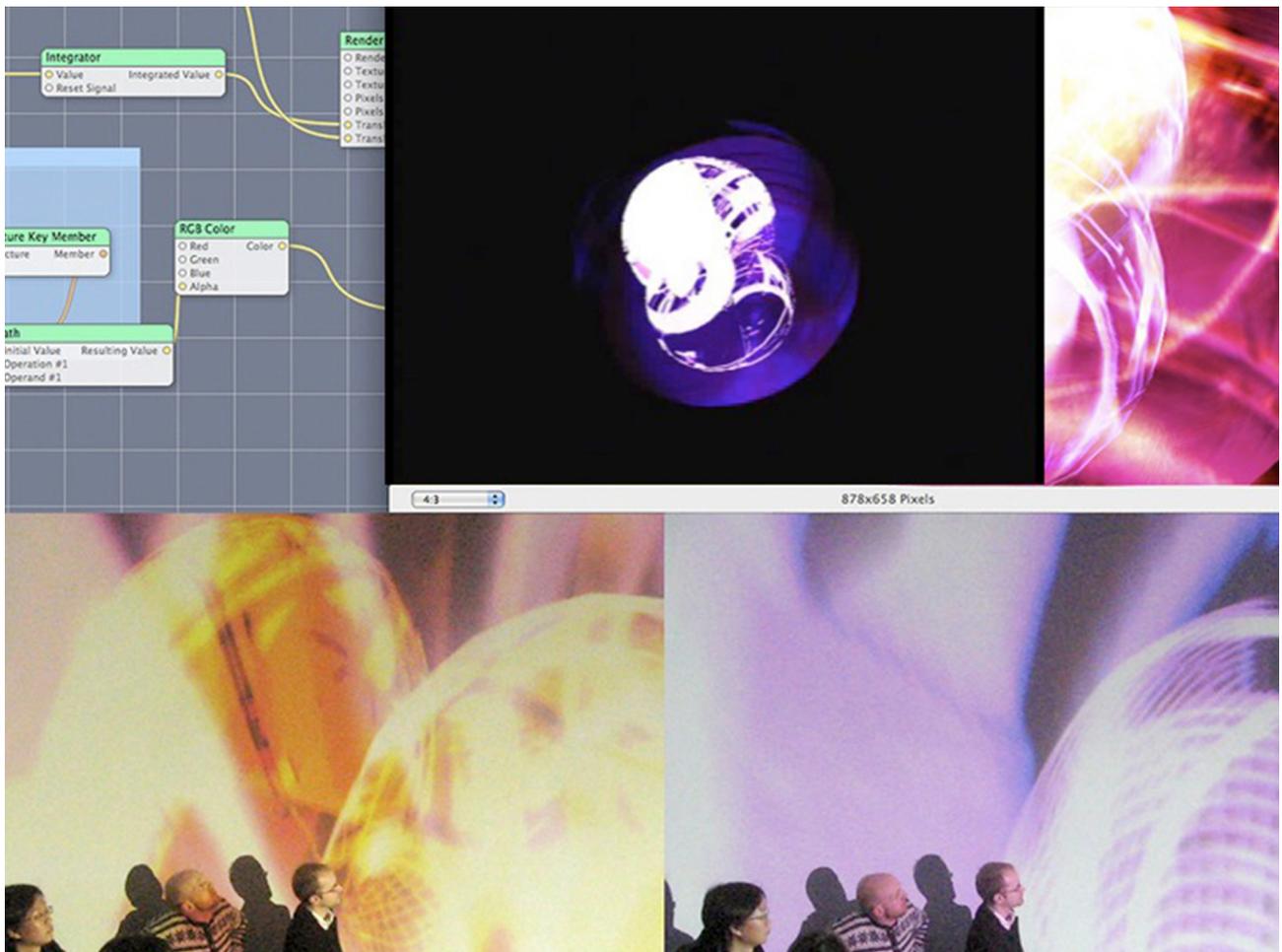


Figure 1: Arch-OS Visualisation.

The example of a workshop (3) which brought together postgraduate students from Advanced Architectural Design, AHO Oslo School of Architecture and Design, Norway, with members of A.V.A.T.A.R, Bartlett School of Architecture, University College London and staff and students from i-DAT, illustrates the significance of the full-dome environment. Here, designers, architects and coders processed the real-time data from Arch-OS into dynamic visualisations within i-DAT's 9m full-dome. The intention was to encourage the development of methodologies for building design based on the modelling of behaviour, data and interaction. The success of the workshop was clearly manifest through a transformation in the participant's appreciation of the building as a temporal system, and not a physical mass of glass and steel.

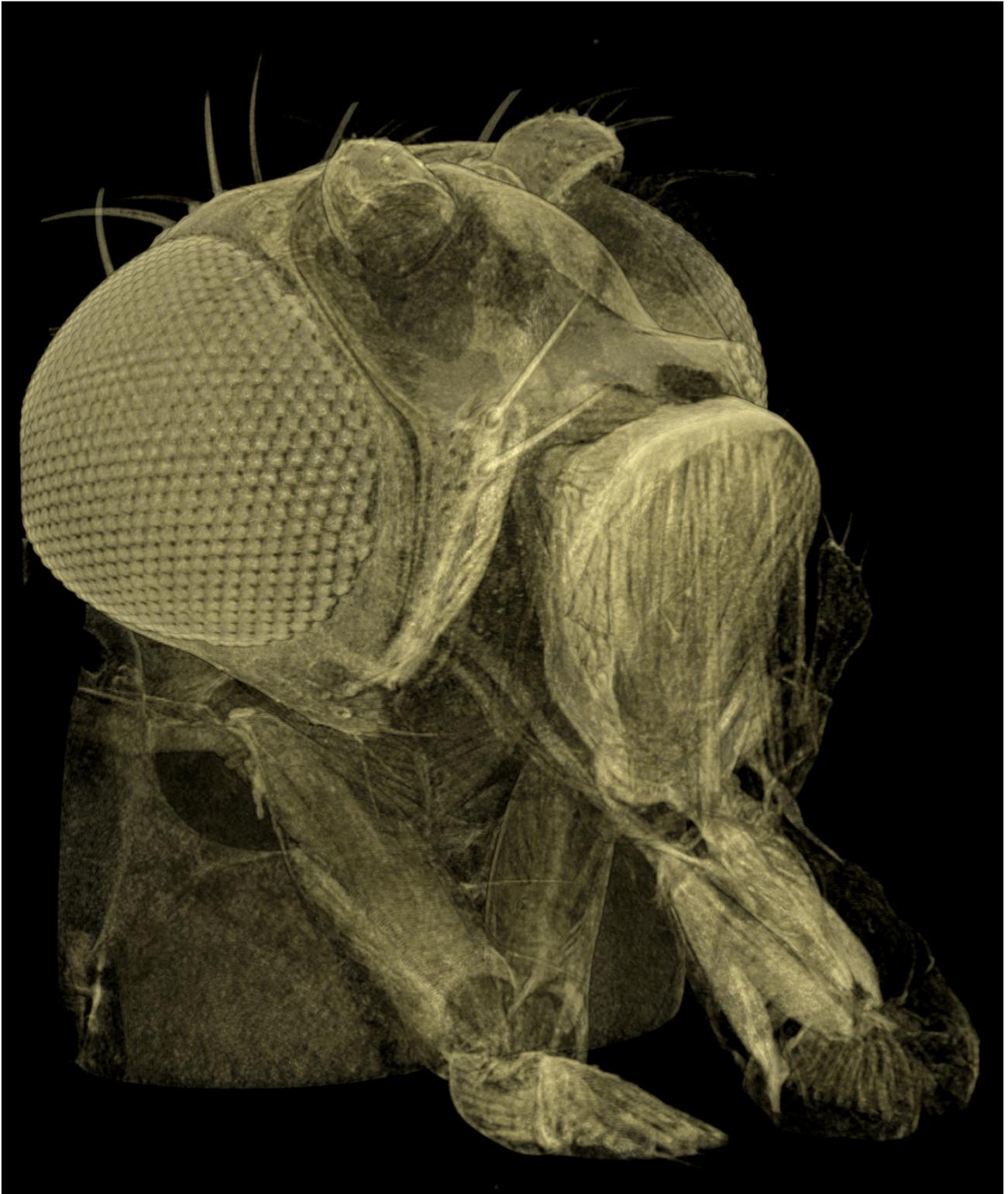


Figure 2: Fly Thru.

Somewhere in between the scale of a building and the molecular forces that constrain its materiality is the 'Fly Thru'(4). A *Drosophila* encased in resin and then sliced into micron thin slivers. Each slice is photographed using a microscope and then volumetric modeling tools reassemble the *Drosophila* to construct a monster fly thru. The viewer can travel through its carapace to the centre of its brain. The view from here through its multifaceted eye provides a unique perspective. Likewise the discovery of a parasite living in its abdomen, waiting to burst out (had it not also been sliced into micron slivers).

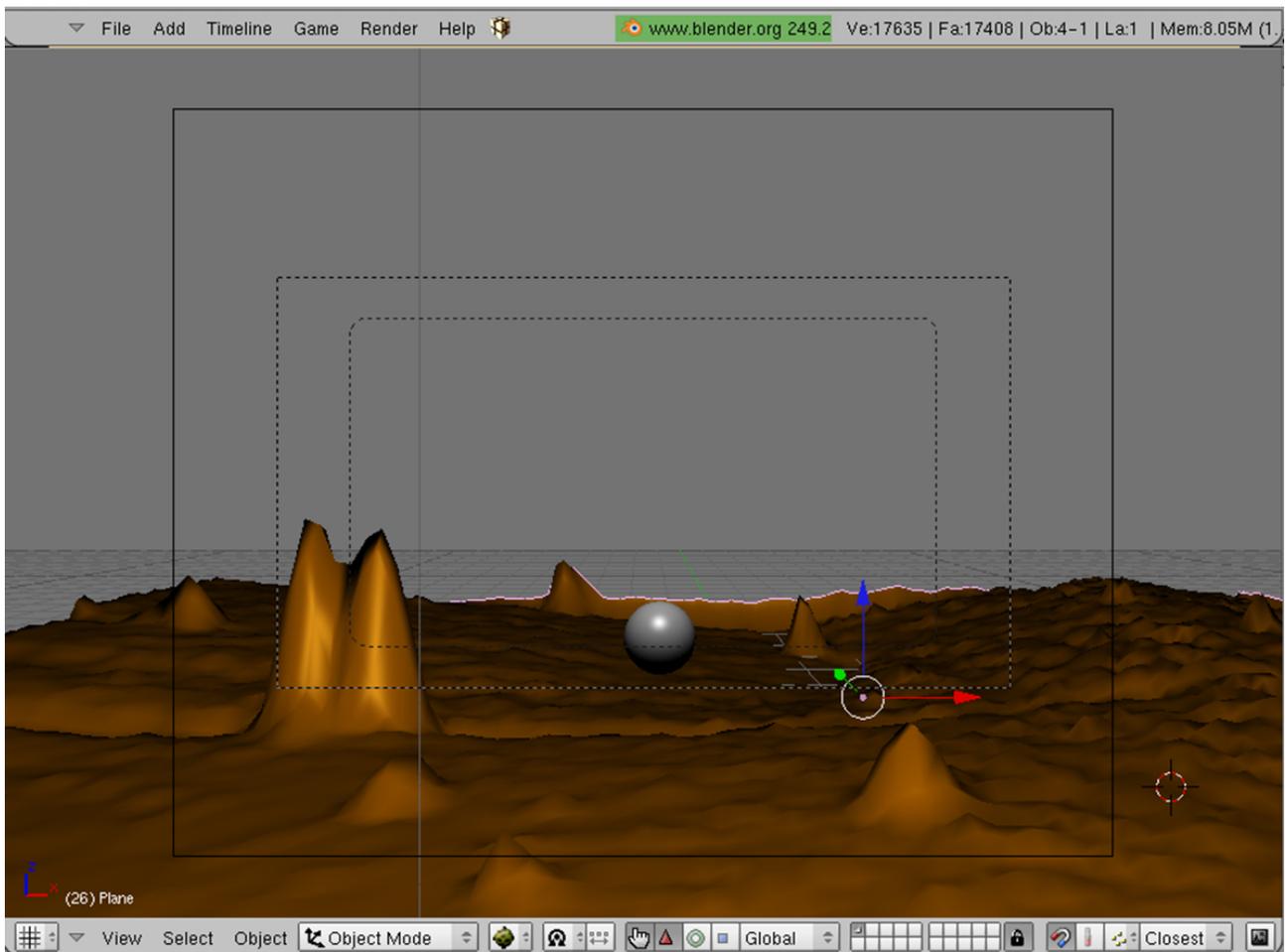


Figure 3: Molecular landscape.

Likewise the Scale Electric workshop (5) in collaboration with the Wolfson Nanotechnology Laboratory coupled the power of the Atomic Force Microscope to touch the infinitesimally small with the potential of the Full Dome environment to immerse participants in visualisations of the incomprehensibly big. Throughout the last Century we were reintroduced to the idea of an invisible world. The development of sensing technologies allowed us to sense things in the world that we were unaware of (or maybe things we had just forgotten about?). The Scale Electric - the invisible 'hertzian' landscape was made accessible through instruments that could measure, record and broadcast our fears and desires. These instruments endow us with powers that in previous centuries would have been deemed 'occult' or 'magic'. Our Twenty First Century magic instruments mark a dramatic shift from the hegemony of the eye to a reliance on technologies that do our seeing for us - things so big, small or invisible that it takes a leap of faith to believe they are really there. Our view of the 'real world' is increasingly understood through images made of data, things that are measured and felt rather than seen. What we know and what we see is not the same thing - if you see what I mean? Our ability to shift scales, from the smallest thing to the largest thing has been described as the 'transcalar imaginary' (6).

Our Picture Will Centre on the Picnickers Even After They've Been Lost to Sight.

Our current view of the world is limited by our perspective, perspectives constrained by tradition, discipline and prejudice as much as any location in the world. In his postfix to the "The Future in Space" (circa 1958) (7), Eisenhower frames the global clarion call to break free from the confines of the planet to "take Man where no human has ever gone before."

The pamphlet also identifies the nature of these brave explorers; the 'Ideal Spaceman' must be "Normal to an Abnormal Degree." And further specifies a fundamental requirement that defines this 'normality' - they "must want to come back"! As with the opening sequence of Powell and Pressburger's 'A Matter of Life and Death' (8) (which predates the slow zoom of Powers of Ten (9) by some twenty years), the slow zoom to a 'real English fog' shifts to the radio wavelengths of a young David Niven's conversation. For the super normal spaceman, the picnic family and David Niven the coming back was a repositioning of resolution, no distance was travelled as the universe moves through and around them. It is hard to shake the complacency of centuries of viewing the world through an Albertian window that places us at the centre of the Universe. Operating Systems aim to make manifest and play out representations, trajectories, scenarios and probabilities, enabling subtle but powerful shifts of perspective. Not only can we see our own reflections in these technologies, but we can also see them in relation to circumstances normally outside of our frame of reference... "The Earth diminishes..."(10).

1: Manovich, L. The Language of New Media. MIT Press. 2001. pp47

2: Vonnegut, K. Sirens of Titan. Gollancz, 2006. Pp7

3: <http://www.i-dat.org/ahobartletti-dat/>

4: Drosophila (Fruit Fly). i-DAT/Immersive Vision Theatre. Musaab Garghouthi (i-DAT), Pate Carss (i-DAT), Peter Smithers (School of Biomedical and Biological Sciences, & Dr. Brian Metscher (Dept. of Theoretical Biology, University of Vienna). Volumetric rendering composed of 600 slices at 6 µm Software : DICOM data to OSG, Drishti & 3d Studio Max.

5: <http://www.i-dat.org/scale-electric-19-20072010/>

6: Mcconville, D. <http://www.twine.com/twine/12vx9k6qs-2zp/transcalar-imaginary>

7: President Eisenhower's Statement in 'The Future in Space'. Produced by the United States Information Service circa 1958.

8: Powell, M. Pressburger, E. "A Matter of Life and Death". Opening sequence. Eagle-Lion Films, 1946.

9/10: Charles and Ray Eames. Powers of Ten. <http://www.powersof10.com/>. 1968.

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Mike Phillips is director of i-DAT, a Principal Supervisor for the Planetary Collegium and a supervisor of the Transtechnology Research Groups. His R&D orbits digital architectures and transmedia publishing, and is manifest in a series of 'Operating Systems' to dynamically manifest 'data' as experience in order to enhance perspectives on a complex world. The Operating Systems project explores data as an abstract and invisible material that generates a dynamic mirror image of our biological, ecological and social activities.

These projects and other work can be found on the i-DAT web site at: www.i-dat.org. i-DAT is a Research Group that acts as a catalyst for creative innovation across the fields of Art, Science and Technology, facilitating regional, national and international collaborations and cultural projects. As a networked organisation and 'cultural broker' i-DAT's transdisciplinary agenda fosters 'open innovation' and knowledge exchange between companies, institutions, communities and individuals. i-DAT is developing new 'tools' for production, dissemination and participation that challenge traditional models of creation and consumption, and embrace the shifting relationships between audiences and cultural producers.