DIGITAL VIDEO and ARCHITECTURAL DESIGN

Gavin Hogben

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Introduction

This paper examines the potential use of Digital Video as an integral part of the design and execution of construction projects, illustrating a number of digital and narrative techniques through two live DV case-study projects.

DV convergence

Digital Video challenges multiple aspects of the traditional CAAD production model. At its introduction, CAAD enjoyed the prestige of forcing the pace of IT development for the newly evolving desktop PC environment. The information processing demands of highly visualized production work set patterns for other working environments. By comparison, todayÖs frontiers are more dispersed, but, if they have an epicenter, it lies in the science and business of entertainment, and thus in the ubiquitous vernacular language of the moving image. Few, if any. disciplines or environments are exempt from the effects of the force-field that is the moving image, and, however imperfectly, the moving image is the engine of the imaginary, the pivot of desire, and the hub of transparency in today's developed and commodified world.

DV, represents a technical convergence and expansive confirmation of these powers. This arises from advances in four areas:
- firstly, from the inexpensive accessibility of the tools;
- secondly, from the ready synthesis of digitally captured and simulated sources ;
- thirdly, from the promotion of the 'home movie' society,;
- fourthly, in the personalization of time as the cardinal navigational interface with events.

DV production

How can DV become integral to the developmental/contractual areas of the construction process? This can be answered, in part, by examination of the CAAD applications that dominate the current production environment, Autocad, Microstation, Minicad, etc.. DV has to go beyond a mere emulation of these standards by addressing their shortcomings, andby engaging new horizons of production.

The 'point-line-plane-volume-texture-motion' approach of CAAD confirmed an existing corporate investment in C19 paper-based modes of project organization and oversight, creating value through labor savings in the development and management areas. The reductive linearity of the process re-inforced a prevalent ideology, where character and iconography were felicitous outcomes of geometrical operations, were super-added or were contrived outside the contractual process. Indeed, CAAD largely failed to penetrate the privileged originative moment of design, and merely updated the 'inspiration/perspiration' divide as a damaging dis-connect between the pencil-paper sketch and the mouse-screen executive process. The sterility of 'fresh-out-of-the-box' animated walk/flythroughs was equally symptomatic of an architectural regime concerned with the idealized artifact rather than the as-lived experience.

DV, by contrast, can address the temporal/transient phenomena that characterize our lived environments, and can deal directly with the iconographic dimensions . Until now, this powerful asset stood outside the fabrication process, being limited to behavior and presentation studies. But today, reverse engineering of products is a digital commonplace in many industries, and is set to take off within architecture. Working both from digitized physical locations, components or models and from X-dimensional animations or operational simulations, DV, supported by rapid prototyping and CNC technologies, and by real time cost management/scheduling techniques, can reach beyond traditional tools of investigation and synthesis. Frank Gehry's use of CATIA, an auto/aerospace application, at the Bilbao Guggenheim offered a high profile endorsement of such procedures and their cost effectiveness, mirroring Hollywood events where digital animation/virtual production technologies are the new box office stars. Widely affordable applications like MAYA now include point cloud digitizing and multiple projection technolo-

gies so the Guggenheim is unlikely to be unique as an event.

And, just as the Hollywood animations took off with the marriage of traditional narration skills and and digital wizardry, as in the case of Disney's 'Toy Story' made by PIXAR under John Lasseter, DV as a design asset will depend as much on investigations of moving image narrativity as on raw pixel magic. The projects which follow aim to make a contribution to the emergence of a DV culture of architectural enquiry.

DV capture

The short DV piece presented here is the 'teaser' exploring issues and techniques for a long term project which tracks the restoration of the Roquebrune E.1027 house of 1926-9 by Eileen Gray.

Structured as a hybrid between a documentary and a TV commercial, the piece opens with a rhythmic succession of still images focusing on furniture settings. These are 'captured' from print sources which document the museum shows of the early 1970s that rescued Gray's reputation from obscurity and opened her small body of architectural works to study. These stills are intercut with 'historical' stills published at the time of the house's completion, and with 'contemporary' stills documenting the present state of the same rooms. At one level, the montage re-populates the rooms with their original furniture, but it also exposes the distance between their desolate present and the stagey artificiality of the museum environment that might be their future.

Woven into the same sequence of stills are 'historical' shots that have been overwritten with contemporary shots that include murals painted by Le Corbusier. These were painted without Eileen Gray's consent in the post-war years when Le Corbusier built his summer cabin nearby, perched above the rocks from which he later swam to his death. Gray

felt the atmosphere of the house was violated by Le Corbusier's bawdy works, and the incident draws attention to wider historiographic questions, specifically the way masculinized design histories have overwritten the contributions of women like Eileen Gray and Charlotte Perriand. Should E.1027 be returned to the Eileen Gray state, or to the Le Corbusier state, and for what reasons? While the physical restoration must make a choice, the DV pieces can follow multiple narrative choices, digitized virtualities complementing the executed actuality.

The first stills sequence leads through a change of pace to an animation sequence that deals with Gray's ideas of the world as apprehended by the body, and as mediated through the domestic world of architecture and the prosthetics of its furnishings, and then finally moves to live DV footage situating E.1027 in terms of the wider landscape.

The goal of the E.1027 'teaser' is to take you 'there', not merely to show you 'it'. The aspiration is to share an immersive experience of what it signifies to be present to the place in all of its complexities, and to be momentarily in the thrall of its conflicting narratives.

DV projection

While the E.1027 project simulates possible future re-constitutions based on varied interpretations of the past, the two final DV projects deal with situating and developing designs for new constructions. The first deals with a modest timber-framed private house in NY State, and the second with a teaching clinic in Sofia. These projects do not deal comprehensively with the possible range of DV roles from site reconaissance to precedent exploration, thematic statement,,,volumetric study,,,detail study...operational record,,,etc. but they illustrate how DV offers a matrix for disparate design procedures and expertise.

The house project began life in Photoshop, playing with elements from an earlier project with the carpenter owner. Stills were assembled into character sketch sequences to act as discussion documents with the owner's family, and plan options were roughed on paper alongside quick dimensional checks, to confirm the viability for use allocations, element costs and zoning envelopes etc.. From this early work, three aspects of the building emerged that benefited from 3-D animation development:
- firstly, the deployment of mobile screens that transform the house envelope;
- secondly, the construction assembly sequences to be underrtaken by the owner carpenter;
- thirdly, the skinning of the house which is to be entirely muralized.

In line with the hybrid nature of the work process, the modeling work freely mixed lens-captured and digitally-generated source material, emulating collage, and the screen language of reactive mixed-feed genres like news and sportscasts. The DV work acts as a communications hinge in the absence of standard contract documents, and its role resembles those of the templates /models from which the construction industry worked in pre-C19 regimes.

The final project, for the Sofia day clinic, covers only the schematic design phases, and is part of a funding campaign. The issues here relate to the patient environment as much as to health delivery technologies, and the digital presentation re-processes DV material through an elaborated QTVR panorama interface to allow multiple narrative pathways and pacing. DV is used to prepare a debate that will lead to a an effective brief for the clinic, one that balances the complex stakes of the patients and the professionals. The scale of the project, and the complexity of services and their co-ordinated performance makes the clinic apt for a model-driven reverse engineering approach resembling that of the Guggenheim. High cost/per-

formance structures are likely to be the first to normalize such techniques within the architectural world.

DV time

DV is not a natural good. Just as the traditional paper-based production processes held blind spots, DV foregrounds and manipulates certain phenomena more readily than others, and in both cases experienced practitioners develop formal and informal compensatory mechanisms. And again, just as paper-based approaches have their empty rhetorical formulae, the most open risk of DV is the development of a fashion parade of stereotypical usages that limit debate and integrity in the design process. However, DV can engage with two key challenges of this age, the situation of temporal effects, and especially of transient phenomena, within the architectural field, and the delivery of transparency within the architectural process.

Gavin Hogben
University of Cambridge
gh218@cam.ac.uk