

OPENING OUR EYES AND SELVES: THE IMPORTANCE OF THE CASE AGAINST DIGITAL ARTS

Whatever is to be said concerning digital arts, in the context of programmatic initiatives available through the Center for Media Study, must be balanced against commitments and inertia that have been put in place at all levels of our collective interests: administrative, artistic, and career lines have been drawn with the inclusion of digital arts in mind, and these commitments seem resonant with external social and cultural factors. None of these important elements are considered in what follows; the intention here is to open discussion of intrinsic difficulties in any digital arts curriculum or program, without reference to the specifics of the Center for Media Study.

The case in favor of a digital arts concept must, however, clearly position itself to be responsive to the challenges represented by a number of fundamental and profound difficulties. The interest represented here is that of stating these difficulties all and for once, so that they can neither be waved away nor misrepresented as being larger than the answers which they will hopefully provoke.

What does a digital arts program make? Unlike studio arts courses, digital arts does not produce art or artists, nor is it devoted to artistic training. The fallout of some appreciable art (and artists) in the environment of the Center for Media Study is inevitable; however, such product is not inherently bonded to the core curriculum, nor to the core research effort. Perhaps then the product of digital arts is research: but here, as well, a systematic effort is wanting. The publication of research results, as an issue, has been held in abeyance. Perhaps the strongest opportunities for development in this area would be related to studies in informal development of educational strategies, and in peripheral research concerning arts technology development. In order to move strongly toward a coherent research program, it would be necessary to impose strong definitions of a programmatic character upon the loose structures which have been defined to date. Perhaps the effort represented herein could be viewed with this as an end in mind.

In essence, what digital arts generates is programmers. In this respect, the record is clear and strong; Center for Media Study graduates have articulated this productivity eloquently in their subsequent career moves. The Center for Media Study needs to examine its motives and interests in fostering this endeavor. We could train persons for career opportunities in many areas; why programming? The questions of consistency between this sort of engineering training and the balance of our interests in humanist studies is examined further below; for the moment, let us leave ourselves poised to

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respond within a view of ourselves as contributors to the construction of a vital future society. Basic computer literacy might be conceived as a factor of basic media literacy, for the citizen of the 21st century. The election of this view is certainly rational, though not preordained; many of our students are still not literate in English. Moreover, the preparation for programming that is available through digital arts is one which barely pauses at the point of literacy, but that it rushes on to arm our graduates with a considerable pre-professional depth of commitment. In spite of the salary and life-style opportunities which this development opens to them, it might be argued that other career options for our digital arts graduates should be pressed upon them.

The next problem to examine derives from an alternative construction: if digital arts is in some respect dedicated to an intensive research effort, then the generation of programming expertise in the graduating student population is a byproduct of a more fundamental and intensive environment.

Research and development in digital arts is not research in applied mathematics, nor in computer science systems development. It must be subordinated to some conception of digital systems as a background or foreground structure which interfaces with problems of image and communication. Precedent suggests a variety of roles for computational schemata in the context of communications systems: image and sound synthesis, image and sound manipulation (or processing), logic and control structures involved in the sequencing and control of image/sound presentation, interactive control structures with interfacing to real-time environmental inputs, constructs related to artificial intelligence and the development of natural language/machine language interactions, and user-interactive systems (games, instructional programs) are all areas suitable for treatment under the digital arts rubric.

Each of these areas has the potential to foster a community of independent producers, who might perhaps be artists or others with aims that establish their autonomy from industrial/mainstream interests. In fact, some established networks of young computer buffs already prefigure this cultural development. Their work, however, cannot yet be seen as a systematic body of digital art, with its own canons, critical environment, and historical lineages. Even with the piratical bias of some independents taken into account, it is difficult to segregate independent computing from the larger concerns of industry at large; whereas the film and video industries are distinct from independent art activities in these fields, independent digital buffs are like young scientists: they stand at the brink of assimilation into the industry. Hence, in fact, the successes of our graduates as programmers.

The failure of digital arts to stand for an independent cultural stream is in some respects arguable. Symptomatic of the overwhelming case against independence, however, is the towering importance of industrial research and development in each facet of the field. When industry turns its attention to computer/image problems, it sweeps up the developments of the independent community before it with alarming directness. University-based programs in computer science need a considerable focus and intensity to remain afloat in fields which are sustaining this kind of incursion from industry. The "action" in games, image-enhancement, speech synthesis, image synthesis, and communications data-stream handling is now predominantly inside industry. University programs remain strong and active in artificial intelligence, some areas of image processing, and in areas less dominated by requirements for applied technologies.

Digital art is at heart bonded to computer applications, rather than to mainstream research in computer science. In order to function as a vital research program, it must discover alternatives to a total subordination by A T&T, JPL, and Silicon Valley. The alternative is to succumb ultimately to another role: digital arts could be used to simulate and introduce industry's concerns (a role which has been rejected in the other media components of CMS), or as a free agent devoted to the production of illustrative applications of more essential research being conducted elsewhere.

Digital arts is dependent upon industry for its hardware, and its scale of hardware resources restricts its ability to realize abstruse aims. Incidentally, the modest hardware commitment possible within the Center for Media Study will necessarily threaten our ability to attract top-flight instructors for purposes of training programmers, or for the research options which we might suppose CMS to entertain.

Perhaps, in a more modest reframing of the concept of "research," we might construe the applications efforts of artists (who are interested in doing work which incorporates digital systems) as the proper realm of digital art research. In this event, "research" becomes a more informal and exploratory process, in which the artist accepts a status as a student of computer science and explores novel applications. Such applications development need not be limited to the illustration of paradigms deriving from applied mathematics or computer science itself, but could herald incursions of novel technologies into the arena of arts production. Such work, which has a value acknowledged by artists like David Tudor and by universities like MIT, represents a cultural and social interface between art and technology. The critical confinement of such work, regarded from the perspective of the artistic community, tends to be somewhat more indulgent than is the case when artists work with traditional media or other established technologies; this works to the advantage of the younger or less self-assured artist.

Both confidence and skepticism are in order, when viewing this approach as a core commitment within the CMS digital arts arena. The extant program derives from interests and experiences of faculty artists whose work stands head and shoulders above any needs for reliance upon the cushioning critical context afforded by technological art. We urgently need direct consultation with these artists in this regard; the tentativeness of their address to this particular issue of demarcation has to be seen as a misfortune for all of us, especially as the prospects for real communication are eclipsed. In any event, a few tentative observations are possible.

Digital systems may function as a support for art making; "digital" itself is not a medium. There might be two general approaches to using digital systems in support of making. One is the specific and idiosyncratic incorporation of digital devices into a project conceived from a perspective extrinsic to digital systems as such: using a microcomputer to file images, or to run slide projectors, for example. These individual and project-specific applications can not easily be weighed in support of a digital arts program. The other approach, which is most evident in the virtual aspirations of the present program, involves what might be termed an "art machine." By devoting care to the structuring of program and hardware resources, it might be possible to devise an instrument of sufficient generality and complexity that it could be used as a production device by many artists working on many projects, with a great variety of outcomes. The conceptual model here is the (video or audio) synthesizer, which could be extended in a computerized version to incorporate peripheral instruments of a wide variety (speech synthesizer, image processor, music system, etc.). The artist then becomes a user of this "machine," which might be likely to commit the artist thereby to becoming a programmer of the machine.

The Center for Media Study has hosted the development of a number of "art machines" already. Most of these are limited in their generality: the computer controlled film printers and music performance systems. On the other hand, Hollis' IMAGO system is aimed at a more refined and rarified objective. It seems to aspire to an area of generality in processing and constructing images. Somewhat hampered by its implementation within a very limiting hardware context, its full power and mobility await a resolution of proprietary questions, the resolution of its final scale as a software structure, and the exploration of its limitations and advantages in a wider-reaching user context.

What are the considerations to be taken into account in accepting the "art machine" model as a base for the implementation of academic (and administrative) program? It is certainly necessary to discriminate two phases in the practical implementation of an "art machine" model. During the development of the machine, training and programming efforts will be extensively committed to building the hardware, software, and conceptual matrix within which it (the machine) can be realized. This is the phase which has to date occupied much attention within the Digital Arts Lab. Subsequently, we might conjecture, there could follow a more stable period, during which the emphasis could shift toward a user orientation.

In the stable phase, students might learn programming, and might also learn to be art machine users. Of course, the art machine might never be adequately finished, so that some retention of Phase 1 might be inevitable. The question of whether the art machine ever achieves completion is not transparent. Two major areas of opacity may be examined: First, the original conception of the art machine must be delicately handled. There are enormous and unanticipatable risks involved; most of these concern the generality of the machine's original concept. The machine has to be able to achieve flexibility across a wide range of parametric concerns: the channels of input and output which various users will wish, the varying logics of different users' needs, the introduction (even, in the high pace of today's technology, during the machine's development!) of new hardware or software systems which the machine must accomodate, revisions of the original concept for the machine which the experience of production will suggest, and the practical variability of funding, work support, and other factors. These many factors make most art machines defunct even before they are fully realized; competition is very demanding; and the requirements for generality act to make the project bigger, longer in execution, less immediate in its rewards. The second obstacle to completion, then, is practical, in this sense: there needs to be a payoff, and yet the design of a machine of sufficient strength to have lasting value may require very extended commitments before one begins to see anything at all happen. The intersection of these factors generally results in developmental stages or generations, just as with the evolution of computers themselves.

In an environment of unending nurturing, the art machine has a tendency to begin evolving its own parametric environment of objectives; it absorbs energy that might be spent in the development of wider critical perspectives, wears at the independence of the artist's regard of the world, and develops absorption within its own world as a habit or addiction. This habituation need not be seen as intractable; the artist needs to keep a clear vision ahead of him or her of the specific and ultimate character of their critical working objectives. Otherwise, the machine moves to the center of attention as a fetish, becomes an end in and of itself, and moves aside from its proper role as a tool. This conceptual movement may be symptomized by a rationalizing move of the artist's vocabulary; work on the machine, as it supplants (but does not become) the artist's work, becomes "research." We have already examined the role of research within the extended system of digital arts.

Though it is difficult to claim an overt objective basis for the pitfalls outlined in the scenario of the last paragraph, it should be mentioned that the "symptomatology" of art machine habituation is pandemic in the community

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of technologically based art making. It remains to others to trace the stylistic consequences of this phenomenon. Suffice it to say here that a penchant for illustrative implementations of the technology internal to the developmental processes of art machines marks the course of many programs which commit themselves to artistic work achievable through an evolving technology.

Let us presume that the sights of the distinguished artists who join together within the Center for Media Study can remain elevated above a horizon of limitations imposed by technological systems; though this is a difficult presumption, it seems remarkable that we may in fact proceed in confidence that it is behind us. The impact of such assurance and scope upon the CMS student body is an invaluable object lesson for them, even where their own vision absorbs itself within the confines of systems development. What could be negative in a student-level experience which embodies a confrontation so essential to the cultural modalities of the computer age ahead of us?

Within the University structure as a whole, digital arts appears increasingly to play a very interesting role. Students of engineering can enter the Arts and Letters painlessly, even with a sense of liberation, and still remain on familiar ground. The reflection of this fact, from within CMS, is that Digital Arts forges a bridge to engineering (not science). We must examine the effects of this channel on us, and on the students involved.

Engineering, as a discipline, is patently devoted to job training. Part of the reason that CMS is training programmers is that the sensibility of engineering studies arrives among us with the body of students attracted to Digital Arts. As a department of Arts and Letters, but even more specifically as a group whose individual enterprises are largely devoted to humanistic, original, independent, and self-authorizing outspokenness, the faculty of CMS embodies in every one of its members a commitment to autonomy from job-market dominance. It cannot be consistent with the aims in teaching of this liberal arts unit to consort with the industry-preparedness orientation endemic to engineering.

As a curriculum for digital arts instruction evolves, crises must also appear along this axis. What is to be done to retreat properly from a posture of programmer-training? Such a retreat must be executed strategically and deliberately, so that lines are drawn clearly; this much is due in the representation of our offerings for students, as most of our course descriptions already establish. Perhaps, where technological preparation in its undiluted form is essential (say in the case of an introductory programming course), we should remove ourselves from an undue commitment by posting prerequisites drawn from other programs.

It is clear that certain students, who've gone from engineering through the Center for Media Study and out again into professional programming or engineering, have represented an invaluable resource which has been tapped by the faculty in the interest of programmatic or project-related aspirations. The appropriateness of this eventuality is evident in the contributions made, and growth experienced, by outstanding graduates (J. Schier, R. Franki, e.g.). However, it must still be maintained overall that the incorporation

within CMS of a sizeable coterie of engineering students represents a potential torpedoing of our underlying bias. Is this cost worth the advantage accrued in attracting large numbers of border-crossers from less humanistic components of the University?

"Digital arts" is an affecting characterization; what it means is something that awaits our specific clarification. The phrase does not stand for something which is clear even among us; "film art" or "video art" are phrases which may remain opaque to those outside of our field, yet they identify specific traditions and sets of values, aspirations, and expectations of competence in each of us. "Digital arts" is a concatenation more in the sense that "psychological arts" or "social arts" might also function to suggest a premise for placing a composite enterprise in motion. Do we find it apt to consider a reliance at the core of our program for studies in "psychological arts" or "social arts"? By comparison with "digital arts," these phrases offer us less to go on primarily because of the precedent among us of an active commitment to program development in "digital arts."

These comments and critiques of the position of Digital Arts within CMS are not intended to forestall rebuttal; to the contrary. They are, on the other hand, intended to open consideration of important questions, and to remove us to a perspective less dominated by the flow and inertia of our own precedents. An active course in shaping our own response to the current challenges will not only profit us bountifully in times ahead, but will represent a clear voicing of our own authority on questions that must assume increasingly historic significance in coming years.

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