What can studio Art have to do with the engineering curriculum?

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In past decades, Art schools have focused their efforts on teaching students how to use production software to extend their "visual" traditions to the realm of technology, but could do little or nothing to uncover the nature of the underlying medium, "bits and atoms", and the complex relationship in which their structures operate. Yet that relationship that is at the core of the ongoing mutations of our means of perception. In the art curricula, computation has been mostly reduced to graphic design using commercial packages. At the same time electro-digital technology remained largely absent from the traditional artist's studio in which artwork is produced through a raw, direct contact with the physical matter of its media:

Engineering schools, on the other hand, and more so in less developed regions, have met increasing difficulty at giving students a large measure of hands on, physical, encounter with the fundamentals of their medium. Their practice subtly shifting to computer simulation, as the only way to integrate the increasing amount of concepts they have to learn to face today's technologies. In doing so, in particular in third world contexts, they tend to distance themselves even more from the social realities which surrounds them, and which remains very close to traditional artistic expression.

Between these two cultures, traditional art practice and engineering, there have been few working interfaces.

In this paper we describe an attempt to establish, from inside the EE curriculum, an interface between technological culture and traditional studio art which combines aspects of both worlds. The Studio of Art and Programming, a one semester elective course, takes a large group of students of various disciplines, (EE and Computer Science as a majority, and, as a sizable minority, Art, Architecture, Music, Communication) with very different levels of skills, for a sustained immersion into an exploration context.

The axis of the work is a constant mix of both physical manipulation and programming. On one hand, assembly, fabrication and interconnection of expressive , modular and functional physical structures(from PC's to microcomputing nodes) and, on the other hand, the production of a documentation of the process by means of simple expressive programming in various languages (html, javasrcipt, java, c, python, forth).

To displace the focus away from a mindset of "products", towards production of symbolic value (Art) we eliminate the question of monetary cost by restricting the resources to a large accumulation of obsolete computer and electronics parts and open source software.

Emphasis is on team work, with no individual projects, but rather a continuous, cumulative process of investigation and transmission of skills, organized around a few thematic "poles": electronics, systems, programming languages, computational cinema.

The class is animated by an artist holding a PhD in physics, with a large experience of studio art and proficient in the fundamentals of science and technology. This experiment has been run for three years, with an increasing number of students (45 ,90,150), generating a methodological framework that we detail in this paper.