Abstract:
This paper analyses the documentation of the special session delivered by Douglas Engelbart and William English on December 9, 1968 at the Fall Computer Joint Conference in San Francisco.

The Mother of All Demos

Claudia Salamanca
PhD Student, Rhetoric Department University of California Berkeley
1929 Fairview St. Apt B.
Berkeley, CA, 94703
1 510 735 1061
csalamanca@berkeley.edu

ABSTRACT
This paper analyses the documentation of the special session delivered by Douglas Engelbart and William English on December 9, 1968 at the Fall Computer Joint Conference in San Francisco.

Categories and Subject Descriptors
A.0 [**Conference Proceedings**]

General Terms
Documentation, Performance, Theory.

Keywords
Demo, medium performance, fragmentation, technology, augmentation system, condensation, space, body, mirror, futurality, utopias, heterotopias.

1. INTRODUCTION

Engelbart with a no-hands mike, talked them through, a calming voice from Mission Control as the truly final frontier whizzed before their eyes. It was the mother of all demos. Engelbart's support staff was as elaborate as one would find at a modern Grateful Dead concert.

Steven Levy

Douglas Engelbart and William English delivered a special session at the Fall Joint Computer Conference (FJCC) in San Francisco on December 9, 1968 called A Research Center for Augmenting Human Intellect, which is now known as "The Mother of All Demos." While English was behind the scene controlling the video and sound of the presentation, Engelbart performed on the stage addressing the camera. The title "The Mother of All Demos" signals the birth of something, though that something is difficult to locate. The offspring of this presentation are all demonstrations; there is no specificity regarding the object produced by this demo, by a name nor by particular birth date. This session presented for the first time the computer mouse; it was the first computational instantiation of hypertext and introduced the technologies of videoconference, and email. In spite of these, the session is not called the mother of the mouse or the mother of the graphic interface. On the contrary, "The mother of All Demos" is the mother of all demonstrations; the emphasis is not on products but on performance. The demonstration as Steven Levy describes it, takes us on a voyage. Engelbart is the guide situated at the mission control and from there he takes us into another location: a location that Levy calls the final frontier. This description offered by Levy as well as the performance in itself, shows a movement in time and space. The name, "The Mother of All Demos," refers to a temporality under which all previous demos are subcategories of this performance. Furthermore, the name also points to a futurality that is constantly in production: all future demos are also included. What was delivered on December 9, 1968 captured the past but also our future. In order to explain this extended temporality, Engelbart's demo needs to be addressed not only from the perspective of the technological breakthroughs but also the modes in which they were delivered. This mode of futurality goes beyond the future simple tense continuously invoked by rhetorics of progress and technology. The purpose of this paper is to interrogate "The Mother of All Demos" as a performance, inquiring into what this session made and is still making possible. The possible, I argue, comes from the spaces that the demo opens as fabrications and juxtapositions of different mediums. The orientation of these spaces is configured as an articulation of bodies, Engelbart on stage, on the screen, the audience at the conference, the team of the Augmentation System Research at Menlo Park and evidently us. This configuration of space, time and bodies is developed in this paper through the lens of Michel Foucault's utopias and heterotopias. This typology of space offered by Michel Foucault will allow me to present a process of constant movements inside the typology that are not exhausted in the construction of one paradigmatic space/time but precisely in the act of doing and undoing performance.

"The Mother of all Demos" was a special session, an arrangement of different mediums, TV, film, microwaves, and digital technologies, all of them converging onto one screen that corresponded to the presentation of a paper written by English and Engelbart. However, there is a radical difference between the paper and its staging. It is not a matter of words versus images, or writing versus speech. The live session at the Conference is not a presentation of the results of their research. Some of the technologies showed at the conference were not even fully operational at the time. For example, the control display system was a work in progress. In order to show the Augmentation System not as a collection of artifacts, the session assembled different mediums through which a new medium was created. To analyze "The Mother of All Demos" implies to look at what became possible through this assemblage, and this can only be done through the study of the documentation of the session, which paradoxically was produced in an old medium: film.

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2. THE MOTHER OF ALL

The film provides regular information like the title, date, researchers' name and sponsors, but also it gives an explanation of the way in which the session was arranged. It reads,

This movie captures directly a technical session presentation made at the Fall Joint Computer Conference in San Francisco, on December 8, 1968.

The movie screen will show what was projected by a high-powered TV projector onto a 22' X 18' Screen mounted at the front of the 2000-chair convention-center arena, and the sound track will reproduce what came over the loudspeakers.

The description of what the film captured locates us in a specific spatial arrangement: the screen is in *front* and *above* 2000 people *surrounded* by a sound system. And the description continues,

On the stage, below and to the audience's right of the screen, was seated the main speaker [Doug Engelbart] at the controls of an on-line computer display workstation whose display output was projected on the screen [and simultaneously captured in film].

Here the reference for the organization of the space is the screen; everything is around it. It becomes a funnel that condenses a multiplicity of locations and bodies. The main speaker is Engelbart, however, it can be anyone. His name is bracketed signaling that his appearance is circumstantial. Through the TV screen located in front of the audience this demo produces, delivers and performs two processes: fragmentation, and condensation. The TV screen condensed different locations: San Francisco, and Menlo Park, but also different actors: the speaker, the performers/crew and the audience. Between these different locations, the screen rearranges the relationships between the actors, their actions as well as the perception of dislocation of their bodies. This occurs not only through the session but also in the documentation. The film as a record of the session brings back the audience; we hear the laughter, and responses to Engelbart's comments. The sounds of the audience in the documentation supplements and realign our bodies in reference to the screen. What we see in the film is a screen of a screen. And the audience's sounds remind us of our own location as dislocated bodies. The sounds produced by the audience, their laughter, are incorporated back into the screen guided by Engelbart's gestures, jokes, and apologies addressing them. The session starts with Engelbart on the screen saying,

I hope you go along with this rather unusual setting, the fact that I remain seated when I get introduced and the fact that I am going to come to you mostly through this medium here (Engelbart points with his finger to the camera/screen. See Figure 1) *for the rest of the show. And I should tell you that I am backed up by quite a staff of people* (Engelbart looks up. See Figure 2) *between here and Menlo Park from Stanford research located some 30 miles south of here. If everyone just does their job well*, (Engelbart looks up) *it should go very interesting, I think. The research program that I am going to describe to you is quickly characterized by saying if you, in your office, you as an intellectual worker, were supplied with a computer display backed up by a computer that was alive for you all day and is instantly responsible, responsive, hahaha, instantly responsive for every action you had, how much value can you derive from that, well that is basically how we can characterize what we have been pursing for so many years in what we call the Augmenting Human Intellect research center at the Stanford Research institute. Now the whole session is going to be devoted to trying to describe and present to you the nature of this program, but unfortunate… fortunate, the products of this program, the technology of it, lends itself well in interesting ways to portray it for you, so we are going to do our best to show you rather than tell you about this program, a very essential part of what we have developed technologically is what does come through this display to us and I am going to start out without telling you very much about the program and just run through a little bit with the action that this provides us.*

The screen becomes the way of communicating with the audience. However, this is done not only through what is being displayed on the screen but also through what remains outside of it. Engelbart looks up when he speaks about the staff that is behind the staging of the show. This gesture acknowledges that the communication through the screen is only possible through the interaction of different spaces, inside and outside, front and behind the screen. Engelbart starts by acknowledging the unconventionality of the setting, specifically of the fact that he is going to remain seated and that he is only going to speak to the audience through the display. This initial statement sets up two different bodies in relation to each other: the speaker and the audience. Engelbart is fixed in one location, which is in front of the console, and the audience is fixed in front of the screen. The screen mediates between the two. This fixity of bodies is compensated through the condensation of different locations through the screen. The audience looks at the screen in the same way Engelbart does. Both of them direct their eyes to the events on the screen. Most of the time Engelbart's hands are not visible to the audience. We see his typos, and gestures condensed in the letters appearing on the screen and the cursor moving. The audience shares Engelbart's space of work, which is a space of vision. Neither the audience, not the viewers of the documentation are directly into the position of a user or spectator. The audience is not a fully operational user and not a fully identified spectator. The audience shares Engelbart's field of vision but at the same time lacks, not only the hardware, but also the extended prosthetic body of Engelbart.

Engelbart introduces the control devices, his extensions, which include the mouse, the standard keyboard and the keyset, by shifting the view from his screen to an overhead camera. The overhead camera focuses on the set up in front of him; we see his Henry Miller station, his hands and the devices (See Figure 3). The shift from the previous screen, which presents a list of the control structures of the Augmenting system, is done by a video effect called wipe up. The wipe effect slides one screen over another in any direction, down, up, left or right. In this case the wipe up performs as a curtain being raised. The computer screen is lifted letting us see the controls that act upon it. However, as happens over and over in this demo, the computer screen remains partly in the frame. The frame is split in half horizontally, showing the computer screen in the top half, and the hardware and Engelbart's hands, in the bottom half. This partition produces a foreground and a background space that function and affect each other simultaneously. We have seen Engelbart interacting all the time, showing us around with the mouse, exploring the system; we are already familiar with the devices. However, he decides to shift to Menlo Park to instruct us in what it is already familiar. The curtain falls again, and there is a wipe from the right side. The image that we get on the screen from Menlo Park is a disembodied hand (See Figure 4). The hand is shown by an

overhead shot. From the left side of the screen, with a wipe left, enters a blank screen with a cursor that follows the movement of the hand; again we have the screen split in two, the foreground and the background, the screen and the hand. Whereas the shot of the hand is a bird's eye view, the screen is shown from the perspective of the user. So, we need to ask what kind of sensory formation is happening in the division of the screen?

The screen in "The Mother of All Demos" is an arrangement of different mediums. The demo organized sight, touch, and hearing, not only by presenting a series of artifacts as prostheses but through the organization of the screen. The screen apart from being the surface of projection, also organizes the field from where machine and man can orient each other, in a shifting between foreground and background. The split screen provides two different points of view, the first one is an overhead shot of the user's hands and the second one is an eye-level shot of the screen. This presupposes a user that sees his or her own hands as separated from him. The overhead shot produces a fragmented body: a disembodied hand. This body cannot recognize his hand, but can recognize the relationship between the hand and the cursor on the screen. The relationship between the eye, the hand and the cursor is not of an extended body through prosthesis. Here the hand is already removed from the body. The prosthesis in this sense, the mouse, is not attached to a complete body that by means of the artifact is extended into the space of the screen. The mouse and the cursor on the screen create a short circuit that allows a connection directly between the eye and the cursor.

Engelbart explains that if you move the mouse over a surface tracking some closed trajectory back to the point of origin, the cursor will not go back to the same point on the screen, and for that reason the mouse will not work for tracing map or diagrams. The mouse is not made to map an actual representation outside the screen. The mouse functions by continuously adjusting its position in reference to the previous coordinates of the cursor on the screen. The actual position of the mouse on the surface does not matter. He explains that at times, users of the mouse have moved it in an arc in order to make it go horizontal. The mouse and the cursor are not directly connected. The body is directed through sight; the reference is on the screen and not in the arm. The short-circuited body described above, is the result of a fragmentation that allows the creation of new relations between the parts and spaces in which those parts are located.

Michel Foucault in his text "Of Other Spaces" describes two typologies of space, utopias and heterotopias. Heterotopias are spaces of contestation that constantly refer back to utopias. Utopias in this sense are "sites that have a relation of direct or inverted analogy with the real space of society. They present society itself in a perfected form, or else society turned upside down, but in any case these utopias are fundamentally unreal spaces." [4: 24] Foucault gives an image that materializes the relationship enacted between the utopia as this unreal but normative space and the heterotopia, as the real site of contestation, inversion and representation; that image is the mirror. The mirror for Foucault unfolds in the play of two different spaces that cannot remain static in relation to each other. The here and there of the mirror, and the position the subject occupies on them is not defined by the weight of the body in time and space but is derived from a virtuality that emerges in the continues exchange of gazes. I am interested in approaching the fragmentation and condensation of bodies and space in "The Mother of all Demos" through this Foucauldian mirror.

To use the mirror literally as well as metaphorically to explain the computer screen is not new. [5,6] The emphasis, in the approaches that emerge out of this metaphor, identifies the medium as a mirror in which the user is reflected. This reflection can be either the result of taking the machine as a mirror in which human behavior is reflected or the machine as mirroring specific human functions or organs like the brain. In these approaches the identity of the user is constituted out of the interaction with the medium (See Bardini on the virtual user and the augmentation system, 2000). [1] However, I am interested in seeing the mirror as the condition through which space is constituted; a space that emerges between being in two places at the same time, fragmenting the body and constituted it again. This process is not reducible to a process of fragmentation on the screen and constitution back into the real world, but one in which constitution and fragmentation happen at both ends constantly: a movement between heterotopias and utopias. In the description that Foucault offers, the virtual space in which I see myself does not become the site through which the real, the space where I am, appears as a site of deficiency and the virtual as a site of compensation. For Foucault the virtual is a point over there through which we have to pass in order to connect with what is around us. This expanded body can happen only through a disembodied moment, in which we become conscious of our own absence over here by being over there reflected in the surface of the mirror. In other words the reflection opens up a space that is always behind me; it, as a background, becomes apparent as my image on it.

In Engelbart's demo, the background and foreground is instantiated not as a two separate different spaces but as passing through the virtual point. Engelbart types; we see his face projected on the screen above the audience. However, this image is not the only one we see. His face is superimposed with the actual image of the computer screen by way of dissolving effects. His eyes do not address the audience at the conference room; he is not looking directly at the camera. His eyes follow the cursor and with it, he calls the audience into the same action. The background and the foreground come together as the eyes of Engelbart and the eyes of the audience follow the activity of the screen as if it were the result of their own bodies. They do not meet in a process of mutual recognition, of identification of two distinct bodies but to the contrary in a disembodied moment in which we are aware of both our absence and presence.

Michel Foucault describes one of the principles of heterotopias as the capacity of "juxtaposing in a single real place several spaces, several sites that are in themselves incompatible." [4: 25] As examples of this principle, he cites theater, cinema, objects like a rug, and architectural spaces like the garden. In these examples whether it is the stage or the screen the space is marked by a boundary. This boundary not only demarcates the zone of conflict but the frame is precisely one of those thresholds of contestation. The borders are a matter of continual negotiation between the inside and outside, foreground and background. The screen can be seen then as a funnel through which a flow of information passes, however, the flow of information travels through the network of collaborators, the staff at the conference, as well as the one at the laboratory at Menlo Park and the audience; it is not unidirectional. To the contrary the information is fragmented and dispersed and with it the bodies embedded in the network.

"The Mother of All Demos" produced a fragmented body as well as reconstituted body through the rearrangement of senses. This fragmented body is not a static result of regenerative interaction; the body is rearranging constantly. The Mother of All Demos incorporates different mediums in order to disclose the inner workings of the mechanisms that are the subject of the demonstration, but at the same time, it inaugurates a medium that more than being an apparatus is a mode of production, a system. Theses mediums and its combination are an important part of the performance, of the ways in which the body of the audience and possible future users of these technologies fragment their bodies and reassemble again through the different mechanisms. Today we find the documentation of December 9, 1968 online, in sites like youtube.com or in the mouseSite at Stanford University. The documentation today delivers, from TV, microwaves, film and now internet, not only a moment in history of computers but an event that is still with us, and at the same time is a future that has not yet arrived.

3. FIGURES

Figure 1: Engelbart points with his finger to the camera/screen.

Figure 2: Engelbart looks up.

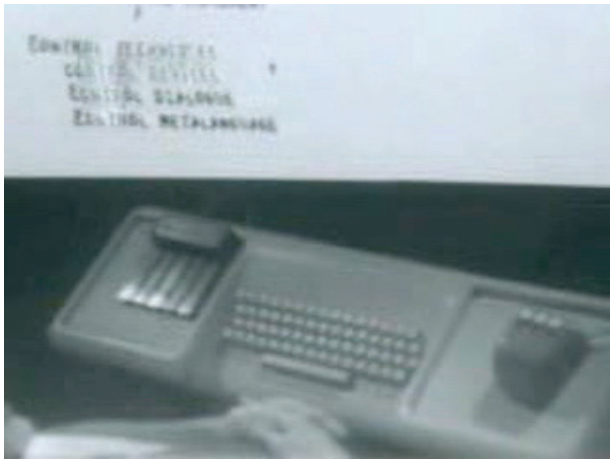

Figure 3: Henry Miller Station.

Figure 4: Demonstration of the mouse

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