

# Cinematics: A Sensori-motor Archive for Design

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## Abstract

**Background** Over one hundred years of cinema has created one of the most vivid archives available to designers and design researchers, depicting a diverse range of cultural perspectives from around the world. As one of the most modern art forms, cinema provides a particular perspective on how people adopt new behaviors through design, assuming the gestures, poses and patterns of contemporary global society.

**Methods** This essay uses the methodology illustrated in the book *Cinematics: Architectural Drawing Today* (McGrath and Gardner, 2007) to present a drawing system to data-mine film scenes, frame by frame, to measure the ways people, as sensori-motor actors, interrelate with designed objects, intermingle in social groups and interact with various environments.

**Results** Three episodes filmed in three continents during the middle of the 20th century are analyzed, measured and drawn here in order to provide an archive of the ways people “become modern” through design.

**Conclusion** Traditionally design archives are composed of objects and artifacts taken out of context and displayed in museum settings. Often the relationship between objects, environmental contexts, social life and human behavior is lost through this dislocation. *Cinematics* provides a sensori-motor archive of the relationships between human behavior and design objects and environments.

**Keywords** Cinema, Design archive, Sensori-motor system, Design and modernity, Drawing systems

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## 1. Introduction

*Cinematics: Architectural Drawing Today* was written with the intention to expand the definition of drawing in the digital age (McGrath and Gardner, 2007). The book encourages readers to “lose perspective” by “finding duration” in order to leave the world of illusionary representations to a systemic approach to imaging reality as matter-flux. The book is organized in six chapters based on Gilles Deleuze’s two books on the philosophy of cinema (1986, 1989). Deleuze utilizes cinema to analyze the human sensori-motor system in order to discover when, where and how new creative thoughts arise. In order to accomplish this he develops a vocabulary of different types of “images” from cinema. For Deleuze, sensori-motor images are both how the world presents itself to us, and how we are living images in an open and constantly changing whole of existence. *Cinematics* developed an architectural drawing system based on Deleuze’s taxonomy of images using three films made between 1956 and 1967 as reference.

This essay furthers the book’s analysis in order to mine these film episodes and cinematic drawings to construct a **sensori-motor archive for design**. This essay is specifically focused on the period after World War II when modern American style consumer society constructed around the designed objects and interiors of the nuclear family home. This essay will focus on cinema’s ability to provide a rich source of knowledge, not just of these objects and environments themselves, but of how humans as individuals and social groups interact with designed worlds, and in fact, develop a way to measure those interactions as a novel form or ergonomics that engages the human sensori-motor system beyond mechanical movement.

Cinema, as described by Deleuze, is composed of perception, affection, impulse, action, reflection and relation images. These images together comprise the human sensori-motor system as described by Henri Bergson as “the cerebro-spinal nervous systems together with the sensorial apparatus in which it is prolonged and the locomotor muscles it controls” (1907, p. 124). Deleuze expands Bergson’s concept: “A “sensori-motor schema” organizes and coordinates the perceptions, affections and actions of each living image, and from this schema issues a particular configuration of the world...” (Bogue, 2003). Beyond ergonomic analysis of the mechanical motor apparatus of the human body, a systemic sensori-motor analysis attempts to measure signs of perception, affection, impulse and memory.

Since its publication, *Cinematics* has been widely used as a drawing and design tool in architecture schools around the world. Additionally, it has been the basis of research workshops on the relationship between the human sensori-motor system and the designed environment. The success of these workshops is based on a careful, measured study of short episodes from three films directed by Yasujiro Ozu, Jean-Luc Godard, and John Cassavetes. All three episodes are domestic scenes involving a married couple, the first in Tokyo in 1956, the second in Rome in 1963, and the third in Los Angeles in 1967. Together, the three scenes form the basis of a set of drawings which form an archive of the effect of modernization on domestic life across the globe at the middle of the 20<sup>th</sup> century.

## 2. Early Spring, Yasujiro Ozu, Tokyo, 1956

The film opens looking into a bedroom of a sleeping couple in the soft light just before dawn. The camera is positioned sitting on the floor, looking frontally at some distance from one room into another. Framed by sliding doors, the shot faces the feet of two sleeping figures on a futon with a sliding shoji screen behind. The shot lingers for ten seconds as the viewer takes in all the objects in the scene. This long distance shot in Deleuze's taxonomy is a **perception image**, a 'set of elements, which act on a center, and which vary in relation to it' (1986, p. 217). The set of elements framed includes a threshold separating the room of the camera from the room of the sleeping couple, the figures lying on a futon, a cabinet to the side, and sliding doors with shades in the back. The viewer is in the position of the camera, outside the scene, a center on which these elements act as images. The characters act as other centers themselves of the scene unfolding around.

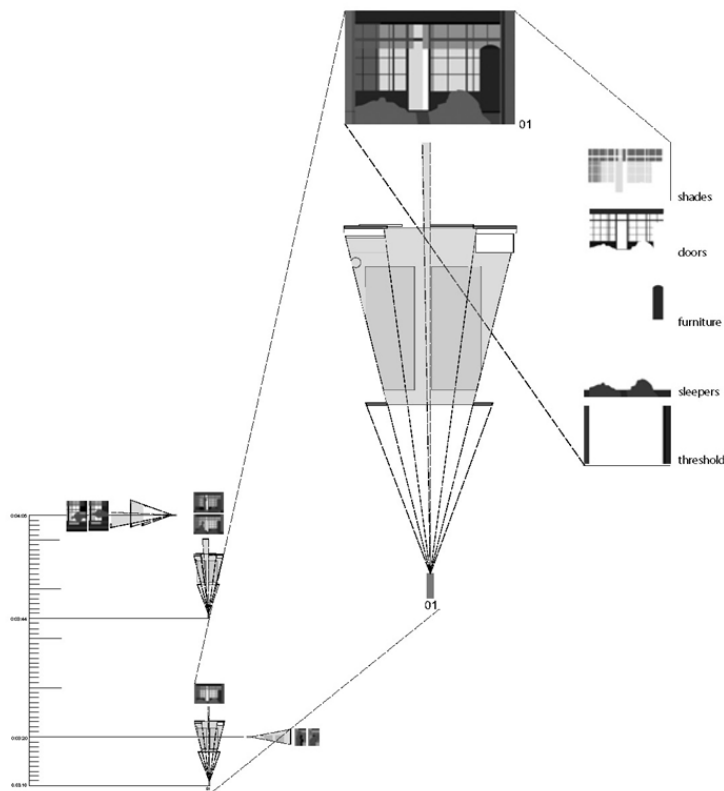


Figure 1

Caption: The cinematic drawing system inspired by Ozu combines time lines (lower left), reverse perspectival construction techniques (the plan is derived from the film frames), orthographic drawing, and traced elements from film frames. All the drawings for an information set of figures and frames that can transparently layered for second by second comparison of movement and time.

There is a cut to another camera position rotated 90 degrees clockwise. We are close enough to touch the face of a sleeping woman, Masako, in profile, her head stiffly tilted up on a pillow. This time the camera holds still for twenty-four seconds, constituting what film critic

Noel Burch has referred to in reference to the “pillow worlds” of Japanese poetry, as a “pillow shot” (1979, p. 162). A pillow is a designed object, a point of view and an illusion to traditional poetry. The camera gives an intimate position of resting our head on a pillow ourselves, giving us time to familiarize ourselves with Masako’s features as she sleeps. What could be more intimate? Her face is calm. Her breathing is easy. She sleeps straight like a corpse. The pillow shot radically shifts our point of view from a distant position outside the set of objects and actions in the first perception image, to one implicated within the world we have just entered. Deleuze refers to this type of close-up shot as an **affection image**, ‘that which occupies the gap between an action and a reaction, that which absorbs an external action and reacts on the inside (1986, p. 217).

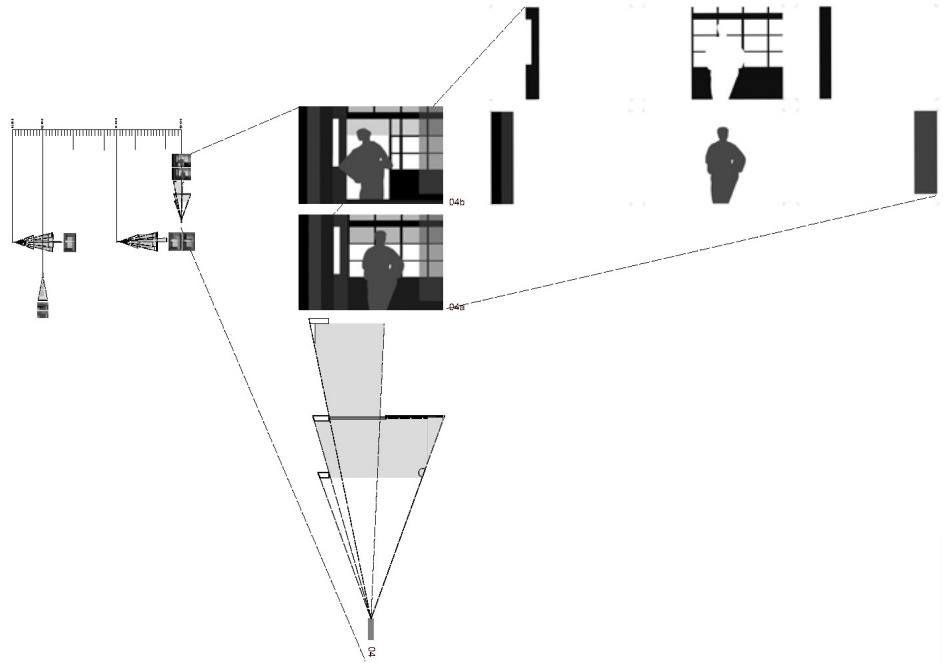
The film director, Yasujiro Ozu, takes his time on this second shot. Its duration is 2½ times longer than the first shot, which included many more elements for the viewer to visually recognize. Here duration is employed not for the viewer to acquire quantitative information, but to produce a qualitative effect. Deleuze locates the affection image in the close-up and the face, but the close-up also *facializes* objects (1986, p. 88). In addition to the Masako’s face and pillow, we see the pattern on her kimono, and the texture of her blanket. Surfaces and patterns in the soft morning light also generate affection images for the viewer, as we empathize with the tactile sensations of waking up in the morning.

At the end of the shot an alarm clock rings and Masako mechanically reaches and bends her left arm up to turn off the alarm without moving her head. In the background her husband, Shoji, turns over and covers himself with his blanket. Masako rigidly sits up and the shot cuts as the narrative action of the scene begins. The edit cuts directly into the continuous movement of Masako’s body as she sits up, returning to the first camera position looking at the foot of the bed from an adjacent room. We have returned to the original set of elements of the opening perception image, but now one of the objects in the set, the sleeping woman, is varying in relation to the other objects. Masako throws off her bedcovers, sits up, breathes deeply, rotates to a standing position, wrapping her kimono tightly around her body, turns and walks towards the sliding doors behind the bed. She opens the curtains, turns to her left and walks out of the frame as the shot cuts again.

Movement has begun to bring the objects of the room alive as non-human actors: futon, blankets, kimono, doors, curtains, and daylight. Masako’s daily routine of waking up in the morning enlarges our perception of the set of elements in the scene. If the first shot presented a closed set of domestic objects – an archive of furniture, objects and architectural interior elements, this third shot put them in relation to human behavior and activity. As such, when measured, it becomes a sensori-motor archive for design: costume, furniture, product, and interiors, not as objects and artifacts, but as sensate images that act on an embodied center.

In the fourth shot the camera rotates again 90 degrees, but this time counter-clockwise. Taking the position from Shoji’s point of view, the camera frames the Masako’s figure as she steps down from the bedroom into a small kitchen and opens a sliding door to an alley outside the home. If the first and third shots were framed in long-distance as perception images, and the second shot was framed as a close-up affection image, this shot, focusing on

Masako's gestures as she steps down and opens a sliding door, is a medium-distance **action image**, a 'reaction of the center to the set' (1986, p. 217). This reaction begins at the end of the close-up shot, carries through the return to the long-distance third shot, before being the focus of this, the fourth shot of the scene.



**Figure 2**

Caption: In shot three, Masako's body is framed in a medium shot action image as she enters the alley outside her kitchen. We can measure the spatial position of objects and architectural elements, and the movement of her body in relation to these objects and elements over time.

This continuity of action and movement through camera cuts is one of the hallmarks of Ozu's cinematography. Ozu "continues physical action across a cut" (Bordwell, 1988, p. 99). One can imagine Ozu filming the actress in the simple movements over and over again in order to perfectly match the postures and gestures of the action in relation to the objects and environments around her. *Cinematics* carefully measures movement and time as a translation in space frame-by-frame, but there are also qualitative transformations in time, between viewer and film, and between actors in the set. The scene is shot from three 90-degree camera angles placed at three different distances from the actors, which produces a 360-degree archive of human activity immersed amongst a world of things. These things are not just static objects but generate images, sensations, perceptions, affections and actions. The careful cinematography of Ozu served as inspiration to develop a drawing and measurement system that can produce a sensori-motor archive for design.

As shown in Figure 1, the cinematic drawing system inspired by Ozu combines tracing elements from film frames, reverse perspectival construction, orthographic drawing, time lines, and transparent layering of figures and frames. Because perspective construction from

orthographic plans allows the measurement of elements that diminish and recede in depth of field, the construction can be reversed to reconstruct and measure three-dimensional space and moving bodies in time. Drawing archives are assembled as data sets that can be superimposed or arrayed as separate layers. Its as if an entire film was unwound shot by shots, with each frame used as a perspective drawing from which plans and elevations of rooms, containing bodies and objects, can be constructed in movement over time.

*Early Spring* is an archive of modernity arriving to Japan through quotidian scenes of every-day-life. Masako and Shoji wake up in a traditional world of tatami, futons, sliding screens and kimonos, interrupted by the sounds of a train and an alarm clock, signs of the “pathos of white collar life” (Bordwell, p. 335). By the end of the scene the characters are wearing Western clothing, and the husband has joined thousands of others commuting to a mundane job in the center of the city. The narrative plot of the film is located in the gap between these two worlds, and the film provides detailed evidence of how people struggle to make themselves at home in a rapidly changing world, between industrially designed and traditionally crafted objects.

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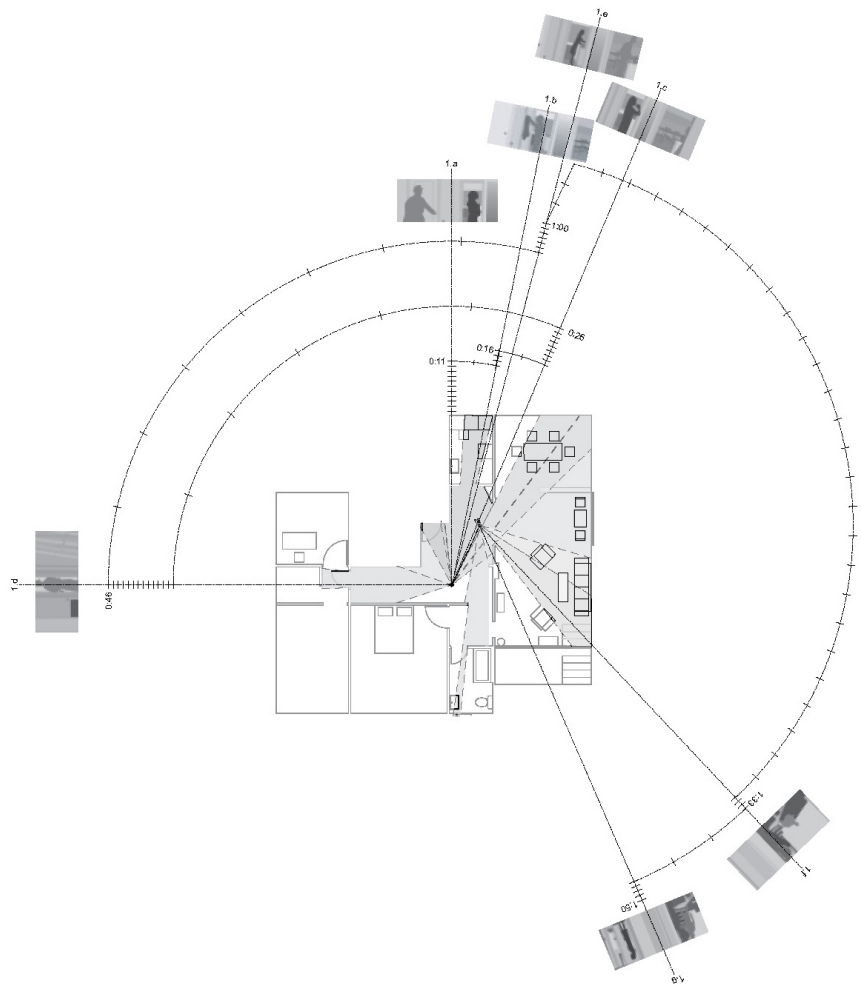
### 3. Contempt, Jean Luc Godard, Rome, 1963

The camera frames an unopened door and small galley kitchen from inside an apartment at standing eye level. Paul, with a hat, tie and suit jacket slung over his shoulder, opens the door and enters, followed by a woman, his wife Camille, carrying a large coffee table book. The camera holds for eleven seconds as the couple enters the apartment and Paul closes the door behind them. The camera pans a few degrees to the right following Paul, stopping for four seconds framing his gestures as he hangs up his coat on a hook outside the kitchen, where Camille has entered. The camera continues to pan to the right following Paul into the living room before he disappears behind a wall out of the frame. Meanwhile, Camille opens the refrigerator the kitchen at the left of the frame. Paul reenters the frame, removing his tie as Camille emerges from behind him standing in profile drinking a bottle of coke. But this is not just a woman, a character in a film, but Bridget Bardot, a global movie star. Her gestures are not everyday movements but self-conscious poses as if in a soft drink advertisement.

For the next half hour of film time the camera continues to mechanically pan back and forth in the hallway, bathroom, bedroom and study, holding momentarily between movements in ten slow shots. The camera becomes the semi-subjective center within the set of elements in the scene, a kind of robotic presence, unacknowledged by the actors, but seeming to respond to the events in the space. There is only one brief moment in the continuous opening shot where the camera tracks forward slightly in order to look into the living room. Walls and objects produce numerous “blind spots”, continually block the camera’s view, and subsequently ours.

The apartment is a modern flat located in a new suburb of Rome. Newly decorated with contemporary furniture in bright primary colors, the apartment is sterile and feels uninhabited. In fact the couple have just moved into the apartment and are in the middle

of renovations. A ladder services as a prop in an unoccupied room set up amidst open paint buckets. Paul and Camille, in contrast to the actors in Ozu's film, pose stiffly in relation to the furniture and objects in the flat. Objects and walls get in our way, as viewers of the scene, but also separate the two characters as they avoid each other.



**Figure 3**

Caption: The cinematic drawing technique developed with Godard uses a rotating clock-like arc to measure the movement of the camera, and the space and objects it films, within each shot. The camera is a scanning device, trying to take in the whole scene, but limited by its frame. Action continually disappears out of frame or behind objects and walls into “blind spots.”

Harun Farocki writes that in the scene, Godard, instead of focusing on a conventional drama of a couple having a quarrel where neither articulate the main issue, he films discrete everyday interactions: “Man in hat. Man in towel. Blond woman. Woman in black wig. Sheets on couch. Sheets off couch. Dishes on table. Dishes off table. Love. Anger. Contempt. Tenderness.” (Silverman and Farocki, pp. 42-43) The scene is a display of all the possible variations of a couple, amidst an argument, coming home, trying to eat, bathing, dressing and going out again, and how objects capture their attention and provide shields and hiding

places from each other. Unlike the tight space of the traditional Japanese house in Ozu's *Early Spring*, the spacious, multi-room flat in *Contempt* provides many places to escape, interfering with Paul and Camille's ability to resolve the misunderstanding between them.

Here the clearly described perception, affection and action images of Ozu blur and overlap as the camera maintains mostly a medium distant framing of the constant coming and going, gesturing and posing of the actors, but occasional capturing a face or object in close up or a fleeting figure in the deep space of the living room or down the long hallway. New kinds of images from Deleuze's taxonomy appear in this sequence. Deleuze describes a type of image located between affection and action, which he calls the impulse image, 'the energy which seizes fragments in the ordinary world' (1986, p. 124). After a center is affected by a sensation and before it acts, there is a primal energy, which pulsates. Do we act or not? How do we act? The impulse image becomes evident and humanizes the camera in this frame as it becomes a sensing and moving mechanisms based on the affect of the other elements in the scene – the two actors, the walls, windows, doors, furniture in the apartments, and especially the primary colors of the décor and art direction of the set. Paul and Camille also can be seen acting on impulse as they are caught in an unending argument throughout the scene, distracted and shielded by clothing, beverages, books, telephones, tables, chairs, sofas, lamps, bed, bath, toilet, etc.



**Figure 4**

Caption: Man in hat carrying jacket, woman with book, woman drinks from a bottle of coke, man takes off tie, woman washes dishes. The second scene of Godard's *Contempt* is an archive of how everyday objects and spaces can keep people apart as well as bring them together.

If this series of long, continuous panning shot at the center of *Contempt* distinctly breaks with Ozu's static camera and careful action matching editing, there is also a break in the continuity when Godard introduces a montage of unrelated images during the dramatic climax of the scene. In a split second of screen time, Godard introduces a series of flash backs and flash forwards that seem to capture the conflicting memories of the couple. Paul tries to remember what he did to make Camille start to feel contempt for him. Camille wonders why he cannot. Paul seems to scan through romantic images in his mind of better times together, while Camille precisely remembers the moment when her husband betrayed her, offering her as a sexual lure to seal the deal with the Hollywood producer, with the producer's red sports car the agent that put the decline of their marriage in motion. In addition to this sequence's initial screening, it is replayed as memories from both Camille and Paul's point of view, before finally being repeated again in this montage.

In addition to the four movement images of perception, affection, impulse and action, this montage demonstrates what Deleuze defines as two types of time images: the **reflection image**, '... deformations, transformations or transmutations... which go beyond the question of the action-image ... by reflecting on it' (1986, p. 178), and the **relation image**, 'an image



which takes as objects of thought, objects which have their own existence outside thought, just as the objects of perception have their own existence outside of thought, it is an image that takes as its object relations, symbolic acts, intellectual feelings' (1986, p. 198). Designed objects and environments are implicated in these two forms of time images. They are agents in generating, capturing and preserving memories for reflection and relation.

Figure 3 depicts the cinematic measurement technique developed from Godard. It uses a rotating clock-like arc to measure the slow movement of the camera within each shot. The time arc spirals out from the first shot of Paul and Camille as they enter the apartment to the last one when they exit. The cone of vision of the camera leaves a grey trace on the plan reconstruction from the film frames through reverse perspective construction. From this you can read in the darkening grey tones where the camera lingers, but also reveals the blind spots left unrecorded by the camera, which appear in white. The camera records both their troubled relation with each other and with the furnishings, objects and architectural elements of their apartment. But it also demonstrates moments when design objects and spaces have the ability to bring them together and close to reconciliation.

The circuit of the sensori-motor system is now fully described. We are thrown into a continually changing world that we perceive through "the cerebro-spinal nervous systems together with the sensorial apparatus in which it is prolonged and the locomotor muscles it controls" (Bergson, 1907, p. 124). We sense, feel, act, reflect and relate back to previous senses and feelings. *Cinematics*, when applied as a way to measure a sensori-motor understanding of design, can lead to new ways of creative thinking and empathetic design. While the objects and walls in the apartment often keep the couple apart, there are moments of great tenderness – when they share a book, are together in the bathroom, and across a table with a desk lamp that Paul switches on and off – that demonstrate the power of designed objects and spaces to bring people together.

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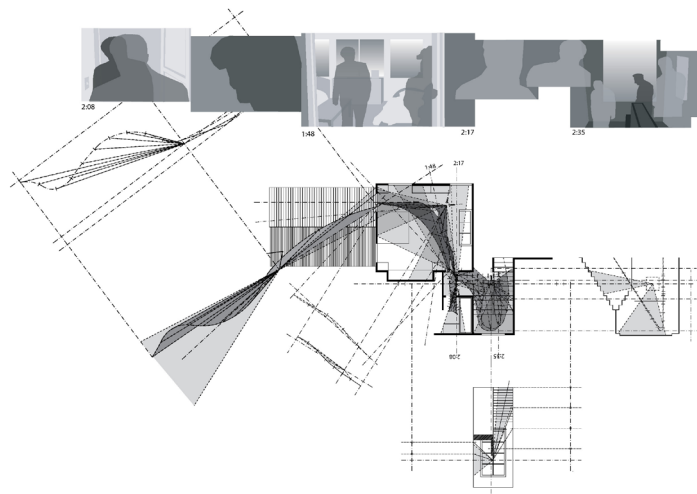
#### 4. Faces, John Cassavetes, Los Angeles, 1967

The last scene of John Cassavetes' *Faces* begins with a close-up of the outside of a car windshield reflecting a lush tree canopy above. A man, Richard Forst, jumps out of the car and pirouettes towards the front door of a substantial suburban home as the camera attempts to follow him. The camera pivots in the middle of the pathway of the actor, and he jumps into frame as he dances by. The camera is hand held, so it freely moves as if following Richard like a dance partner, knowing where he is going, but not quite able to predict how he is going to get there. Cassavetes hand-held camera broke all the existing rules of Hollywood cinematography. While the art of film previously endeavored to perfect reality, offering highly composed, perfectly lit and staged settings, Cassavetes scripted improvisations was based on contingency, chance and accident.

The camera continues to both anticipate and follow Richard, as he happily returns home to his wife Maria, following an overnight tryst. First he pirouettes in front of the camera in the entryway, and then as he bounds up the stairway it is waiting for him on a second

floor landing. Again the actor nearly knocks into the waiting camera before stopping at the entrance of the bedroom. The next shot attempts to look over Richard's shoulder. We can't see what has stopped Richard dead in his tracks as the back of his head blocks the frame. The shot continues with the camera following Richard running across the bedroom, pushing past Maria reflected in an ornate dresser mirror, and running around the king size bed to an open window.

The camera is then repositioned on a rooftop below the bedroom window in order to capture a second man, the interloper, Chet, escaping from Richard's rage through the bedroom window. Chet athletically bounds across the ridge of a roof, jumping to the ground and escaping down a suburban street below. The camera returns to the bedroom with a long and excruciatingly slow series of close-ups, first of the back of the Richard's head, then his face as he turns to the camera and then Maria's tear stained face. If in Ozu and Godard we learned a cinematic taxonomy and developed a drawing system described as a sensori-motor system, in Cassavetes' last scene of *Faces* we experience a sensori-motor breakdown. Home and furniture are no longer aids to domestic comfort, but props within a rollicking, farcical misadventure. According to Ray Carney, Cassavetes was "the poet of breakdowns (in every sense of the word)" (p. 83).



**Figure 5**

Caption: The third measurement technique, inspired by Cassavetes' *Faces*, traces the relation between the position of the camera lens and the center of the position of the actor. A topological figure is generated that describes incidents in the relational movement between actor and camera second-by-second. The figure generated is three dimensional, and is projected in plan and elevation.

According to Carney, John Cassavetes creates a non-contemplative art in *Faces* where "The goal is to force the viewer to pay extremely close attention to the second-by-second progress of what he actually sees and hears, to bring him to his senses by keeping him in the realm of the senses. In the service of that goal, Cassavetes delays presenting clarifying background information and withholds categories of understanding that would simplify what we see by allowing us to fit into a preestablished intellectual category" (p. 78) The normative sensori-motor schema established in conventional films is not provided, and like the actors, we don't know how to understand or act in the situations we find ourselves in.

While Ozu has filmed *Early Spring* in a sound stage, controlling all the elements of the set including light and sound, and Godard has worked with an art director to find the appropriate modern apartment and stylish furniture to create his domestic scene for *Contempt*, Cassavetes films the last scene of *Faces* filled with the bric-a-brac of countless possessions of his own family accumulation in his large suburban American home. Few of the objects and spaces are used as intended, and the designed world of *Faces* operates much like the social realm –improvisational, unpredictable and uncategorical. This unmooring of sensible action opens up the viewer to continuously thinking the new in relation to a world of behavior prescribed by normative design.

According to Carney “Cassavetes’ goal is to force a viewer to confront the full complexity of sensory reality for as long as possible before making the simplifying move from perceptions to conceptions” (p. 81). “Cassavetes plunges the viewer into a realm of such intensity and outrageousness that it is difficult to know what to think, or what to make of it” (p 82). This inability to act within a normal sensori-motor schema should not be seen as problem, but as an opportunity to create and think the new. Chet, the character who jumps out the window in the last scene of *Faces* embodies the generous and creative spirit of the filmmaker. Chet is a model of a new kind of domestic actor, using the suburban home as a parkour course.

Figure 4 shows the third measurement technique drawn from Cassavetes’ *Faces*, tracing the second by second relation between the position of the camera lens and the center of the position of the actor. A topological figure is generated that describes the relational movement between actor and camera over time. The figure generated is three dimensional, and is projected in plan and elevation. These topological figures suggest new kinds of human-object relations possible when we think beyond the conventions of domestic life, separated in rooms for singular functions performed on prescribed furnishings with normative utilitarian objects.

Cassavetes provides an archive of the breakdowns between people, things and the environment in suburban America at the end of the 1960s. Cassavetes writes “My films are expressive of a culture that has the possibility of attaining material fulfillment while at the same time finding itself unable to accomplish the simple business of conducting human lives. We have been sold a bill of goods as a substitute for life” (Carney, 1994, p. 74). The third drawing system of *Cinematics* provides a method to measure breakdown of modern design. Cassavetes provides material for a sensori-motor archive to think the new to confront today’s environmental and social breakdowns.

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## 5. Conclusion

Films provide a wealth of situations that can be mined to create a sensori-motor archive of and for design. This archive, as shown in the example of the drawings of Ozu’s *Early Spring*, can measure how objects and environments are perceived, produce affects and generate action comprising a sensori-motor schema. Through the example of the drawings from Godard’s *Contempt*, the archive can reveal impulse, reflection and relation images that produce blind spots that interfere with our ability to understand the social implications of

the designed worlds around us. Finally, through the drawing examples from Cassavetes' *Faces*, the archive can reveal when the automatic repetition of the sensori-motor schema breaks down, and how those breakdowns, provide insights into opportunities to experience life fully attentive and engaged in the newness of the present. The three drawing techniques introduced in *Cinematics* measures and categorize actors in relation to objects and environments as a sensori-motor archive of and for design.

Ozu, through careful framing, smooth intercutting within continuous movement provides a sensori-motor archive of the micro gestures of bodies transitioning from traditional to modern culture. In the film *Early Spring*, Shoji forgets his traditional ceremonial duties and is unfaithful to his wife, Masako. He is trapped in between the intimacy of traditional home life and an impersonal world of office cubicles, desks and files. In between is a third world of bars, restaurants and clubs where he can escape the routine of traditional domesticity and the boredom of white-collar work. Masako remains faithful to tradition, and the camera carefully records here dutiful devotion.

Godard writes that *Contempt* is "the story of castaways of the Western world, survivors of the shipwreck of modernity" (1972, p. 201). The contrast between the modern apartment that Paul and Camille share and the magnificent Casa Malaparte in Capri, the setting for the last scene in the movie, demonstrates how Paul and Camille are adrift in a world of celebrity, media, advertising and consumer objects that has replaced classical, humanist European culture after World War II. Godard goes on: "Whereas the Odyssey of Ulysses was a physical phenomenon, I filmed a spiritual odyssey: the eye of the camera watching these characters in search of Homer replaces that of the gods watching over Ulysses and his companions" (1972, p. 201).

Cassavetes creates a world where the human sensori-motor system has broken down. There is no comfort from the material world, only chaos and disorder. However some characters find moments of play and imagination, remaking the environments and altering the use of the objects around them. Cassavetes describes *Faces* as "a barrage of attacks on contemporary middle-class America, an expression of horror at our society in general, focusing on a married couple – old-fashioned in nature, safe in their suburban home, narrow in their thinking. The script gives them new situations to cope with, takes them out of their house, releases them from the conformity of their existence, forces them into a different context when all barriers are down" (Carney, 2001, p. 137).

Through these three examples, *Cinematics* moves cinema from a narrative plot, spectacle to a source for an archive of perception, affection, impulse, action, reflection and relation images. This images can be measured, as described in the three drawing systems, to form a sensori-motor archive for design. The drawing methods of *Cinematics* ask us stop and start, slow down and speed up, zoom in and out, codify, classify and trace, draw and measure people, objects and environments in film, but also in life. While the three film directors are all men, this archive also shines light on feminist inquiries into the hazards of building a modernity based in a particular construction of domesticity based on defined gender roles.

In the three examples above, *Cinematics* has been employed to produce a sensori-motor archive that measures three scenes from 1956 to 1967 in Japan, Italy and the US. In each scene, a married couple struggles with the experience of modernity through direct relationships with designed objects and spaces as well as with each other. This archive is not just a collection of scenes, objects and styles, but a sensori-motor catalogue of mid-20<sup>th</sup> century life. Designed objects are collected as material archives. Films are archived as cultural artifacts. The sensori-motor archive is a drawing set of relations between people, objects and environments. More and more designers need to draw from archives that comprehensively situate objects and artifacts in lived situations, especially as we seek playful, joyful and created solutions to the challenges of social and environmental breakdowns within our fragile planet.

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