

## Capture, Record, Play

Christoph Schenker

Central to our conversation is your long-term project *Enzyklopädie der Handhabungen* (*Encyclopaedia of Manual Operations*)<sup>1</sup> which comprises 29 modules to date. It mainly involves film footage of hands and faces during the manual operation of machines and devices in a work context, footage of automated operations, and of coverbal gestures. How do you as an artist outline your field of interest?

Anette Rose

In my body of work titled *Encyclopaedia of Manual Operations* I examine implicit knowledge embodied in hand movements and in machines that I record using various methods, such as video, high-speed, and motion capture. Since 2006, I have been filming processes of manual and industrial production as well as scientific practices. I have developed modes to render implicit knowledge visible: I film with several cameras simultaneously, thus breaking down what I see into synchronous units of observation and frames, which I then re-synchronize — and re-relate to one another — as multi-channel installations in the exhibition space.



*Enzyklopädie der Handhabungen*,  
Setphoto #2, 2009

<sup>1</sup> Anette Rose, *Enzyklopädie der Handhabungen. 2006–2010* (*Encyclopaedia of Manual Operations, 2006–2010*) (Bielefeld: Kerber, 2011); Anette Rose, *Captured Motion* (Berlin, 2017); Ines Linder, "Captured Motion. Bewegungsnotationen im Raum," in *Gesten*, Jana Bressemer and Ellen Fricke, eds. (Chemnitz: Universitätsverlag Chemnitz, 2019), 150–157; Anette Rose, [www.anetterose.de](http://www.anetterose.de), accessed March 25, 2022.



*Enzyklopädie der Handhabungen*,  
Modul #4, 2006,  
Modul #15, 2008,  
installation view,  
Bauhaus-Archiv,  
Berlin, Germany,  
2013

CS You mean the synchronous recordings of face and hands at work?

AR Exactly. I am interested in hand-eye coordination, the way the eyes guide or coordinate the hands. I developed the method of synchronous observation with multiple cameras in order to not only focus on the face of a person telling a story or on the hands of a person doing work. I wanted to highlight the interplay of hand and eye, to interrelate facial expression and gesture. In 1997, I already filmed with multiple cameras simultaneously to be able to capture the language of gestures, the coverbal gestures in interviews and during the telling of stories. And the year before that I had created the film *What you lose on the swings you gain on the roundabouts* for which I interviewed passersby on the street in London about "losing" and "finding." That's when I noticed that the people gestured a lot in responding, and that this non-verbal form of expression constituted an important part — the visual part — of their stories. To be able to capture the expressive gestures, I filmed with four cameras synchronously for my first installation, *Telling Tales* (1998), and with three cameras for the film *16 Traumstücke* (*16 Dream Fragments*, 2001). As a result, I ended up with synchronous image sequences that are combined into a consecutive montage in the film. Reportages or documentaries for TV often involve editing asynchronous recordings between talking heads. What was special about this early film project is that, having only synchronous recordings, I could decide in postproduction what to focus on: the facial expressions or the body language.

From 2006 on, I again used this method for my *Encyclopaedia of Manual Operations*. I was amazed to see to what extent the camera with its focus on hands and face can be a research tool. One can observe how the concentration in the face changes depending on the complexity of the work. It's also possible to see involuntary movements of the facial muscles relative to the energy the body expends while working. I have used the technique of synchronous observation not only for the face and hand, but also for the

coordination of the right and left hands.<sup>2</sup> The interplay of movements is particularly evident in teamwork, as when the bakers' hands interlock while working the dough.<sup>3</sup> After the bakery, the Kahla porcelain factory was the second company where I filmed.<sup>4</sup> Besides other machinery and equipment, they used a plate robot there that I was particularly interested in. In buffing the edges of the plates, it interestingly didn't simply copy the hand movements, but did it a different way.

CS In outlining your interests, you effectively describe the shift from coverbal gestures to work gestures and, in a further step, from handcraft to the manual operation of machines.

AR To the automation of manual operations.

CS And the human hand no longer plays a role in the production process?

AR From the start, my focus was on manual and mechanized processes; only the emphasis shifts. In a way, implicit knowledge is also embodied in machines. This concerns the coordination of the senses, especially sight, tactile sense, and hearing. Two-handedness and the mirroring of the hands are some of the factors involved in forming this embodied knowledge. A lot of production machinery exhibits the principle of two-handedness: for example, the toilet brush robot I filmed picks up not just one or as many as three blanks with its grippers, but precisely two.<sup>5</sup> The mechanization of grasping hands is particularly evident here. It's striking how often machines are



16 Traumstücke,  
2001, film stills,  
ZDF–Das kleine  
Fernsehspiel

obviously conceived with the body in mind. And of course, the knowledge of the various stages of automation is incorporated in the construction of the next machine.

CS One is tempted to say that the human “gesture of making,” as Vilém Flusser calls it,<sup>6</sup> is adopted by the machine.

AR It is incorporated in the construction of the machine as cumulative knowledge, I would say. Practicing and imitating is essential in learning an activity, yet one-to-one imitation is not common in the construction of machines. Such translations apply not just to single movements, but to entire movement sequences. The shaving brush machine is a good example of how the manual work has been divided into a sequence of individual processes and translated into the machine sequence.<sup>7</sup> The translation remains obvious. At the Osram company, in turn, there is a machine that folds cardboard packaging for light bulbs.<sup>8</sup> A very different feat of engineering, a different production logic is at work here. It looks very clever when the flap is guided along a metal rail and the box closes. A beautiful description of such phenomena is provided by the artist and system-icist Heiner Büld. In my interview modules of 2007 and 2008, he and the designer and cabinetmaker Axel Kufus reference, among other things, the handle of a hammer, seizing on different aspects of the interaction between body and tool.<sup>9</sup> In those two interviews I also used two cameras to film face and hands separately. But I nevertheless ended up editing the synchronous material consecutively. If the sequences were shown synchronously, viewers would likely focus on the face all the time. I wanted to draw attention to the body language as well, which adds emphasis to speech; I wanted to show how the search for — and the finding of — words and descriptions motivates coverbal gestures.

CS Following Hans-Jörg Rheinberger, instruments and machines can be understood as “sedimentation products” of work and knowledge traditions.<sup>10</sup>

- 2 Modul #6. prägen, stempeln, stanzen, binden (Module #6. embossing, stamping, die-cutting, tying), 2006–2007. See Rose, *Encyclopaedia*, 120.
- 3 Modul #1. Teig wirken, in Saaten wälzen (Module #1. working dough, rolling in seeds), 2006. See Rose, *Encyclopaedia*, 64–65, 120.
- 4 Modul #4. entgraten, schleifen, verputzen – automatisiert (Module #4. deburring, grinding, cleaning – automated), 2006. See Rose, *Encyclopaedia*, 72–73, 120.
- 5 Modul #10. bohren, stopfen, entnehmen, abscheren – automatisiert (Module #10. drilling, stuffing, removing, cutting off – automated), 2007–2008. See Rose, *Encyclopaedia*, 121.
- 6 Vilém Flusser, “The Gesture of Making,” in *Gestures*, trans. Nancy Ann Roth (Minneapolis: University of Minnesota Press, 2014), 32–47.
- 7 Modul #8. abteilen, greifen, umstülpen, klopfen, auskämmen, rütteln, beschneiden, ringen – automatisiert (Module #8. dividing, gripping, turning over, tapping, combing, shaking, cutting off, bundling – automated), 2007–2008. See Rose, *Encyclopaedia*, 44–45, 120.
- 8 Modul #9. ansaugen, auffalten, einknicken, umklappen, einschieben, zufalten – automatisiert (Module #9. suctioning, unfolding, creasing, turning around, pushing in, folding up – automated), 2007. See Rose, *Encyclopaedia*, 121.
- 9 Modul #11. Interview #1 (Module #11. Interview #1), 2007–2008. Modul #13. Interview #3 (Module #13. Interview #3), 2008. See Rose, *Encyclopaedia*, 48–55, 121.
- 10 Hans-Jörg Rheinberger, *Experimentalsystem und epistemische Dinge: Eine Geschichte der Proteinsynthese im Reagenzglas* (Göttingen: Wallstein, 2001), 25.



*Captured Motion*, 2016, installation view,  
Edith-Russ-Haus for Media Art, Oldenburg, Germany

AR Yes, stocks of knowledge obtained through the observations and practices of different periods are sedimented into the machines. Individual engineers are less concerned with the technological history of machines. They have their very specific issues, and that's what they are guided by. The machines have already been designed, after all, and automation is now taken a step further each time. But at some point, it comes to an end, even if only temporarily. In the case of the radial braider, for instance, the bobbins must be unclamped by hand in order to wind new yarn onto the bobbins. It's not like everything is automated. At the Kahla porcelain factory, the edges of the plates are clean finished by a robot, whereas those of the bowls are done by hand. Plates are produced in large numbers so that automation pays off.

CS With the radial braider, in particular, it feels like you can still see where it comes from.

AR Yes, it's not always as obvious as in the case of the radial braider. Which makes it a particularly fine example: it shows that practical knowledge as stored in bodily movements also underlies the machines. Central to the 2016 installation *Captured Motion*<sup>11</sup> is the production of three-dimensional weaves. The radial braider turns out to be an automated realization of the traditional braiding movements that occur in a maypole dance. In Provence, this same sequence of movements has been preserved in the ropemakers' guild dance. The bobbins rotate around one another and around the axle of the rotor, just as the dancers rotate around their partners and the tree.



Enzyklopädie der Handhabungen, Modul #22 flechten – Maibaumtanz, 2016, Archive photo, 1920

11 Modul #20.1–20.2 flechten – automatisiert (Module #20.1–20.2 braiding – automated), 2016. Modul #22 flechten – Maibaumtanz (Module #22 braiding – maypole dance), 2016. See Rose, *Captured Motion*, 2–5, [www.anetterose.de/publications](http://www.anetterose.de/publications), accessed March 25, 2022.

CS How did the *Captured Motion* project come about?

AR On the recommendation of the gesture researcher Irene Mittelberg, I was invited as 2011–12 artist-in-residence by the Excellence Cluster of RWTH Aachen University. My *Encyclopaedia of Manual Operations* had just been published. I gladly accepted the invitation to produce a new body of *Encyclopaedia* work, not least because Irene Mittelberg runs an amazing motion-capture-based gesture research laboratory, the Natural Media Lab, at her school. After visiting multiple technical institutes, I then opted for a collaboration with the Institute of Textile Engineering, because the mechanical processes of the machines are clearly visible here. I also found it fascinating that they didn't just produce any textiles there, but rather lightweight construction textiles, meaning high-tech fabrics: carbon fibers used to make bicycles and fiberglass meshes used to develop car crash absorbers. Such meshes can be produced by a radial braider. In architecture it is now possible to use weaves rather than steel to reinforce. The small narrow fabric loom I filmed as part of my *Captured Motion* series can produce fabric ribbons that in the future can be used for medicinal purposes.<sup>12</sup>

CS The far-reaching significance of such machines and textiles for our everyday lives barely registers in public awareness.

AR For my projects I especially selected production facilities where I could render implicit knowledge visible. In addition, I am interested in highlighting and appreciating work and in recording social realities. Such work in companies is hardly ever shown; it is barely present in cultural memory.

CS In a recorded conversation with the coppersmith and writer Georg Glaser, Harun Farocki asks: "How do you explain that society today is so focused on having work hidden behind walls?" To which Glaser responds, "Because it has turned into something that must not be shown."<sup>13</sup>

AR It's also important to me to make the processes publicly accessible and create a kind of archive of work, though not, of course, in the comprehensive way of Denis Diderot, in whose encyclopedia many authors were involved.

The Industrial Revolution was closely related to the development of the textile industry where the automation process can be easily understood. Automation can be witnessed and seen especially clearly in one of my works, *Pattern in Motion* (2017).<sup>14</sup> The filmed Jacquard

12 Modul #21. weben – automatisiert (Module #21. weaving – automated), 2016. See Rose, *Captured Motion*, 9, [www.anetterose.de/work/modul-21](http://www.anetterose.de/work/modul-21), accessed March 25, 2022.

13 Harun Farocki, Georg K. Glaser, *Schriftsteller und Schmied*, in *Filme 1967–2005* (Berlin: Absolut Medien, 2009; original 1988), digitized 16 mm film, color, sound, 44 min, DVD.

14 Modul #29.1–29.2 seidenweben – automatisiert (Modules #29.1–29.2 silk weaving – automated), 2017. See Rose, [www.anetterose.de/work/modul-29](http://www.anetterose.de/work/modul-29), accessed March 25, 2022.

loom is not only an important part of industrialization, but also at the root of the digital code of ones and zeroes. What interests me about the loom is precisely this digital principle on which punch card technology is based. One can follow beautifully how the programmed heddles pull the warp threads up and down and, in doing so, produce complicated patterns. In filmic terms, I presented the digital code of the computer-operated loom as an abstract motion diagram of individual operations, while the projection on the opposite wall simultaneously shows an actual, floral pattern being created.

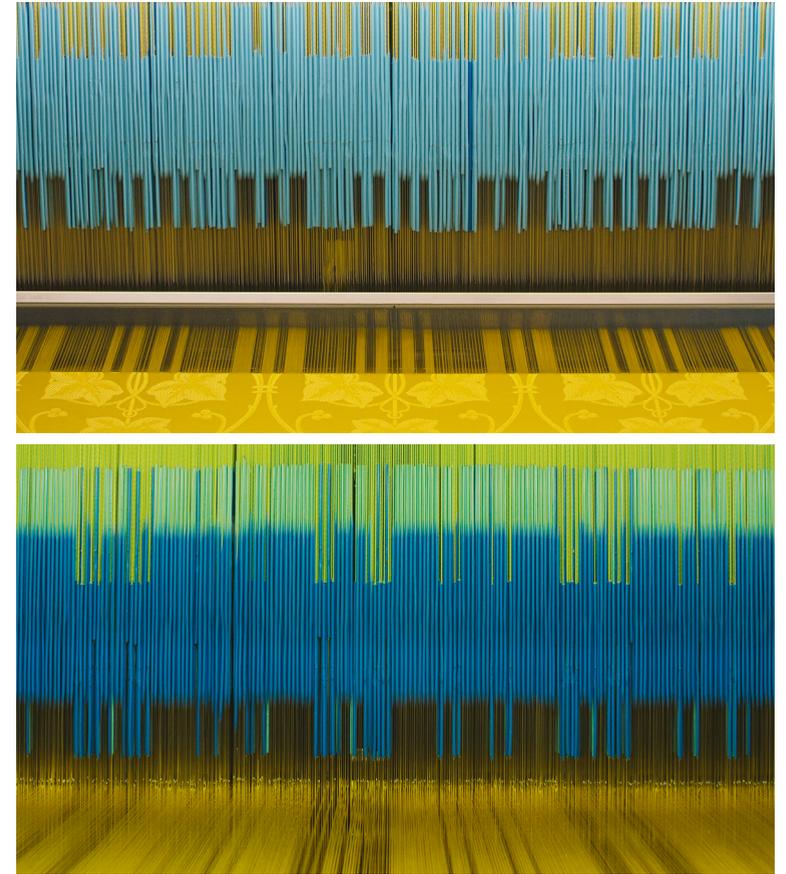


Enzyklopädie der Handhabungen, Modul #29.1, 2017, video stills

CS Over the years, your projects have focused on manual and mechanical, automated work and, eventually, the digital field as well. You wanted to show knowledge that is sedimented in instruments, tools, and machines and that presents itself as skill in manual operations. These skills are especially evident in the double projections where hand movement and facial expression are related to one another on separate walls. It is impossible to say precisely how expression and work gesture are interrelated, but you see that they are connected. What filmic means do you use to create this impression?

AR It's the framing that is absolutely essential. In my installations there is no spoken word, no voiceover; I create clarity solely through the visual. I choose the camera positions, break down the

movement sequences into multiple camera frames and determine the pace and duration of the shots. The sequences of facial expressions and manual work, respectively, are edited into a linear and synchronous two-channel montage which I then project on walls on either side of a corner in the exhibition space. In the installation I relate them spatially, re-synchronizing, as it were, what had been filmed simultaneously. Ultimately, I was only able to develop this methodical instrument because I work in the field of art and not TV.



Enzyklopädie der Handhabungen, Modul #29.2, 2017, video stills

CS Recently, I watched a 2010 DVD titled *China's Potters at Work (Abgedreht! China töpft bodennah)*,<sup>15</sup> which looks at Chinese pottery from the perspective of the anthropology of technology and aims to show how the body's knowledge informs the way Chinese potters do their work. While there is no commentary — the films were conceived as part of an exhibition — it is the gesture of explanation that prevails here. The skin of the potters' hands stretches under the pressure exerted on the wall of the earthenware vessel, and you come to understand why this happens; you also feel you understand why this detail is shown. Your films, by contrast, are not didactic.

15 *Abgedreht! China töpft bodennah* (Zurich: Ethnographic Museum of the University of Zurich, 2010), DVD, color, silent, 51 min.

AR I limit myself to showing. I am interested in patterns. As an artist, I bring out the visual incisiveness of the processes.

CS In the synchronous projection of face and hand, I as a viewer appreciate the dexterity of the hands, and I notice that the eye monitors this intuitive activity. The eye follows the practical knowledge.

AR There are gradual differences, though. In fact, I also filmed a module focusing on the monitoring activity. The moment it's about monitoring, the focus of the work shifts from the hands to the eyes. At the Osram company I filmed a mirror and microscope inspection in 2006.<sup>16</sup> Here the eye has considerably more work to do, while the hand just provides support.

CS In *Module #15*<sup>17</sup> there's the one and only scene when the gaze of the working woman turns away from the machine, the object and the hand, wanders into the room and returns again. Obviously, there are moments in the activity sequence that do not require control.

AR Yes, indeed, that applies to *Module #15*. The designer of Kahla porcelain, Barbara Schmidt, deliberately decided to not have the machine apply an even glaze. She wanted to allow for something irregular, something adding a handcrafted touch, and had these plates glazed by hand. No inexperienced person can do this work because you need to have developed a feeling for it. Since the movement should be slightly different each time, experience and well-practiced skills are even more important here.

CS You have repeatedly made reference to the research work of Frank and Lillian Gilbreth.<sup>18</sup> The motion studies they conducted in the 1910s using film and photography served, among other things, to optimize production processes. In the course of their research, they also refined their own recording technique. In our context, I would like to draw attention to two films by Harun Farocki, the 1988 film *Georg K. Glaser – Writer and Smith* (*Georg K. Glaser – Schriftsteller und Schmied*), from which I cited earlier, and *The Expression of Hands* (*Der Ausdruck der Hände*) from 1997.<sup>19</sup>

AR Farocki's film about Georg Glaser is a really beautiful work. It's powerful when Glaser describes how much time he needed to put the momentary, single blow of the hammer into words. He talks about the polar coordinate and the correct angle of wrist, elbow, and shoulder, and he talks about how, rather than a matter of coincidence, everything is precisely calculated for the blow to hit. Georg

16 *Modul #7. kontrollieren und sortieren* (*Module #7. controlling and sorting*), 2006–2007. See Rose, *Encyclopaedia*, 106–107, 120.

17 *Modul #15. verputzen, beischleifen, stanzen, stempeln, ketteln, einziehen, tauchen, ringen, walzen, eindrehen, schleifen* (*Module #15. cleaning, fine grinding, die-cutting, stamping, linking, pulling in, dipping, bundling, pressing, winding, sanding*), 2008. See Rose, *Encyclopaedia*, 14–15, 122.

18 Rose, *Encyclopaedia*, 95–101, 114–117; Rose, *Captured Motion*, 11.

19 Harun Farocki, *Der Ausdruck der Hände*, in *Filme 1967–2005*, DVD (Berlin: Absolut Medien, 2009). 1997. Video BetaSp, color, sound, 30 min.

Glaser is a writer as well and possesses the skills to describe his own actions in detail. It's really implicit knowledge he is talking about.

CS If every blow is calculated anew, then tacit knowledge doesn't mean it just happens automatically. Tacit knowledge is developed knowledge; it is acquired intuition, the result of work and increasing precision, of the interaction of brain, hands, and eyes. Glaser talks about the "body's knowledge" and about "thinking hands." It is a form of calculating based on the movements of the body. In this way, "the body makes an accord with things that goes over and above our heads," as Walter Benjamin writes.<sup>20</sup>

AR Yes, this is also the subject of an article by Hans-Arthur Marsiske about embodied intelligence I came across in 2013. As the author writes, "There is a growing awareness that thinking happens not just in the mind, but throughout the body. To date however, the relevant research has been lacking a theoretical approach — this is now supposed to change."<sup>21</sup> But to get back to Harun Farocki: As a filmmaker who later went on to exhibit in an art context, he developed interesting formats. As an artist, I have long been concerned with filmmakers who don't focus primarily on the subject of work, but who were interesting to me in terms of the genre. I studied the use of the camera and the visual language in documentary-style films. Jean Rouch, Frederick Wiseman, Johan van der Keuken, Claire Denis, and Chantal Akerman are very important to me. Akerman's work *Bordering on Fiction* (1995), for instance, was conceived as an installation. Still, she first realized it as a film, called *D'Est* (*From the East*), in 1993.<sup>22</sup> I was particularly impressed with the segmenting of moving images in the film and the installation.

CS Harun Farocki's other film, *The Expression of Hands*, is analytical and equally interesting in our context. In it the director sits at the editing desk and presents short scenes from the history of film showing isolated hand gestures. In the process, Farocki ponders what conditions would have had to exist for a distinct repertoire of cinematic gestures — that is, an authoritative sign language of film — to develop. He begins his analysis with a clip from a film where the hand does something different from what the face suggests: in a crowded subway car a man quietly opens the purse of a young woman standing right in front of him and robs her, while multiple intercut shots of his and her facial expressions suggest a flirtation. The pickpocket's face and hand, shown in alternating close-ups, do not seem to relate to one another.

20 Walter Benjamin, "The Lucky Hand: A Conversation about Gambling," trans. Esther Leslie, in *The Storyteller: Tales Out of Loneliness* (London, New York: Verso, 2016), 193.

21 Hans-Arthur Marsiske, "Verkörperte Intelligenz. Dem Denken auf der Spur" ["Embodied Intelligence. On the Trail of Thought"], *c't Magazin für Computertechnik* 11 (2013): 84–87, <https://docplayer.org/49507595-Magazin-fuer-computer-technik.html>.

22 Chantal Akerman, *D'Est* (Brussels: Paradise Films, 1993), 16 mm, color, 110 min.; *Bordering on Fiction: Chantal Akerman's D'Est* (San Francisco: San Francisco Museum of Modern Art, 1995; Wolfsburg: Kunstmuseum Wolfsburg, 1996) u.a.

AR You are probably referring to the great Robert Bresson film *Pickpocket* (1959).<sup>23</sup>

CS It's from *Pickup on South Street* (1953) by Samuel Fuller.<sup>24</sup>

AR The discrepancy of expression and gesture is interesting. What is important is that the scene involves double acting. For the pickpocket in this fictional film that discrepancy is part of the job, and his job is acting. An experiment on lying led to my first installation project, *Telling Tales* (1998). There I worked with four cameras. I had asked the subjects to lie to me in order to find out whether it would show in the recording. A certain agitation could be observed, but it didn't allow me to infer that they were lying. Credibility in storytelling was also a subject in *16 Dream Fragments*, a film project featuring various individuals talking about dreams. There I drew attention to the difficulty of translating the non-narrative structure of nightly dreams into a narrative. Facial expressions and gestures play an important role in this process. The hands circumscribe what a person would like to express.

CS In *The Expression of Hands* Harun Farocki asserts a certain autonomy of the hand. In a way, you do the same when you accord the hand tacit knowledge in its actions. In the previously cited examples, the films perform various functions. *China's Potters at Work* is primarily a techno-anthropological documentation or description of skills. The work of Frank and Lillian Gilbreth was, among other things, about testing and demonstrating the optimization of work processes. And Farocki, in *The Expression of Hands*, explores the different meanings of hands in the context of film, as if seeking to create an archive of expressive gestures in film. How would you succinctly define your research interest?

AR My work is about rendering visible. My approach is conceptual and my form is minimalist. I stopped saying a long time ago that I work in a documentary manner. The documentary principle is powerfully seductive. The term itself implies a presupposed reality, but every gaze is, of course, constructed. There are different ways of directing the gaze and employing language. I limit myself to rendering something visible. There's no didactic aim. The aforementioned filmmakers developed different ways to tell and show something. It's wonderful to see those forms side by side. It allows you to more consciously develop your own strategies. Films like those of Jean Rouch were important to me during my studies. But as an artist I do not share his references to reality and his objectives; to me, art is a completely free field. But to learn about the rules imposed on filmmakers and the forms and formats they work through — that does train the eye, of course.

CS What prompted you as an artist to assemble your research in a book?

23 Robert Bresson, *Pickpocket* (France, 1959), black-and-white, 75 min.

24 Samuel Fuller, *Pickup on South Street* (US, 1953), black-and-white, 80 min.



Anette Rose,  
*Enzyklopädie der  
Handhabungen.*  
2006–2010,  
*Bildmontage*, Kerber,  
2011, 96–97

AR Doing a book made it possible for me to publish my research and the compiled archival material without blurring the clarity of my video works and without disrupting their mode of showing. In addition, I created a montage and a picture index<sup>25</sup> with extensive metadata, such as titles, captions, quotes, descriptions, source, and location references. It includes material from the fields of medicine, anthropology, and work science. Frank and Lillian Gilbreth are quoted repeatedly because, among other things, they compiled a vocabulary of gestures for surgeons — calling it a “manual signal system” — that was to be used for communication during medical procedures.

CS The Gilbreths play an important role in this chapter.

AR As opposed to other scientists of work, they have accomplished amazing things at the visual level. Sometimes it doesn't seem entirely clear to me whether they were merely interested in the optimization of work processes or whether there wasn't also an aesthetic delight in coming up with visual forms. Frank and Lillian Gilbreth developed a really astonishing range of visualization formats. They worked, among other things, with stereoscopic cameras and with a grid to be able to identify points in space for curves of work movements. And they used a microchronometer to find out why a worker had found the optimal form of movement and how they could render it visible. In this sense, the Gilbreths can be considered actual pioneers of motion capture. They were very important for automation as well, even though it was not necessarily an objective they pursued. They divided individual processes of physical work into different categories of motion and created iconic signs for them which they called “therbligs” by spelling the name Gilbreth backwards. They were highly analytical and at the same time very

25 Anette Rose, “Bildmontage” (“Montage”) and “Bildindex” (“Picture Index”) in *Encyclopaedia*, 76–119. [www.anetterose.de/work/montage](http://www.anetterose.de/work/montage).

visually oriented. Based on the identified points in space, they created three-dimensional wire models to make motion traces tangible and propagate the “one best way” as a model. Their work should not be seen only in connection with economization, however, as they also made significant contributions to ergonomics. For me, this was the background when I came into contact with the motion capture lab in Aachen. Motion capture is typically used for film animation. To adapt it to the needs of gesture research is not easy, but rewarding and fascinating.



*Captured Motion, Module #25, 2016–2017, installation view, Museum of Industry, Chemnitz, Germany, 2017*

CS And in Aachen you had access to this laboratory, if I understand correctly?

AR Yes, that was a great gift, especially in combination with the textile institute of RWTH Aachen University. While the institute operates with linear structures of threads, the motion capture lab operates with linear structures of graphic representation. It quickly became clear to me that I wanted to invite an engineer to describe the textile machines I had filmed. Using motion capture, I was able to record the hand gestures he made while describing. This then led on to *Modul #25. flechten, wirken, weben – motion capturing (Module #25. braiding, warp knitting, weaving – motion capturing, 2016)*.<sup>26</sup>

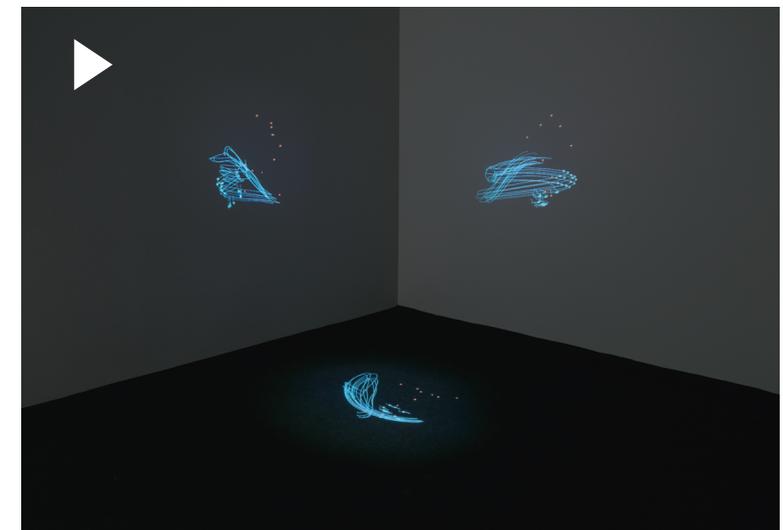
CS As a result, actual motion drawings were created. And because you captured those gestures synchronously from three different sides — frontally, from the side, and vertically — the graphic recordings together create a spatial dimension as well, becoming sculptural.

<sup>26</sup> See Rose, *Captured Motion*, 6–7, 10.

Finally, since the gestures also serve to rhythmize speech, they have an acoustic effect as well.

AR Yes, I wondered how to conceive a spatial installation from the generated data and opted for the projections of the x, y, and z aspect in a cube. I think we have found a perfect shape in the black cube that was specially built for this purpose at the Chemnitz Museum of Industry in 2017. I designed it together with the architect Helmut Möller and had it installed across a corner in the museum’s huge hall. As a visitor to the exhibition, you headed straight towards the three projections of the motion notation. The right wall showed the motion trace from the front, the left wall presented the lateral view and the bottom the view from the top. In the viewing process the two-dimensional projections could thus be reassembled into a moving three-dimensional form.

CS In the art context, the motion capture process is rarely found in this form.



*Captured Motion, Module #25, 2016–2017, installation view, Museum of Industry, Chemnitz, Germany, 2017*

AR Yes, hardly in this or any similar form. Irene Mittelberg made the project possible. She opens her gesture research laboratory up to artists and architects as well, thereby enabling new collaborations.

High-speed recordings are, in addition to motion capture, another form of notation I introduced into my work. High-speed cameras are used to render something visible that the naked eye can no longer see. Engineers, for example, use them to find sources of error in automated processes. Such industrial cameras tend to record in black-and-white only. They stretch time and can massively magnify what is filmed. Even in the case of the knitting machine, the eye cannot register the process because it is extremely fast.<sup>27</sup> And so it made sense to me to have highspeed recordings made

<sup>27</sup> *Modul #23. stricken – high speed (Module #23. knitting – high speed)*, 2016. See Rose, *Captured Motion*, 5.

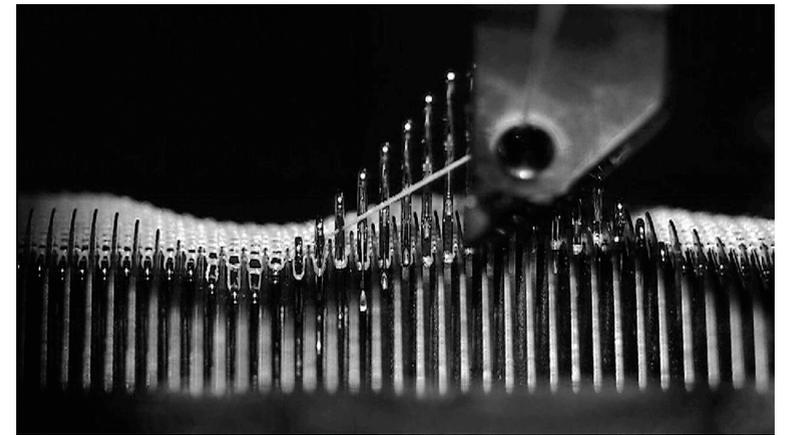
of the movements of the radial braider, to show in detail how the bobbins circle around one another.<sup>28</sup> I found the abstract and almost disconcerting effect of the black-and-white images very attractive as an element of the multi-part installation *Captured Motion*. The variety of modes of representation I was able to work with greatly enriches the cinematic repertoire and my installations. It pushes my work forward and motivates me to further develop it also in the three-dimensional, sculptural area.



*Enzyklopädie der Handhabungen, Modul #26, 2016, video still*

<sup>CS</sup> In your work you reference various scientific, artistic, and technical fields; on the other hand, you show your installations both in art institutions and in a technology museum. These different contexts give rise to the different meanings of your work. Finally, this also contributes to the current discourse of artistic research.

<sup>AR</sup> Yes, I have shown the installations in scientific and art contexts alike. The extensive *Captured Motion* series, for instance, was first exhibited in 2016 at the Haus am Lützowplatz exhibition space in Berlin and the Edith-Russ-Haus for Media Art in Oldenburg, before I then realized the three-channel installation *Captured Motion* (2017) — at the invitation of the Chemnitz University of Technology — as a cube at the Chemnitz Museum of Industry. There, it needed to be framed, if only to make clear that it was neither a technical-historical nor a didactic exhibit. The cube functioned both as a frame and as part of the artwork. The different locations and contexts shift attention and allow different readings. Sometimes it is the content — that which is represented — that takes center stage



*Enzyklopädie der Handhabungen, Modul #23, 2016, video still*

and at other times it is above all the representation itself, that is, the formal aspect.

Ultimately, the work I've been doing for years is a long-term research project.<sup>29</sup> My work starts from a basic figure and continues to develop from there; in retrospect, it evolves systematically. It was “artistic research” before the term was even coined. My work achieves its full incisiveness in the installations. Only in three-dimensional space does my synchronization develop its entire potential. Seeing becomes a physical experience — especially when the rhythmic sound of the machines is part of the work.

<sup>28</sup> *Modul #26. flechten – high speed (Module #26. braiding – high speed)*, 2016. See Rose, *Captured Motion*, 5.

<sup>29</sup> Anette Rose, “Sichtbarmachung als Wissensproduktion. Zur künstlerischen Methode der Enzyklopädie der Handhabungen,” in *LaborARTorium. Eine Methodenreflexion*, Anna-Sophie Jürgens and Tassilo Tesche, eds. (Bielefeld: transcript, 2015), 199–212.

## List of Works

Shirin Barghnavard, Sepideh Abtahi,  
Mina Keshavarz, Sahar Salahshoori,  
and Nahid Rezaei with Firouzeh Khosrovani  
and Farahnaz Sharifi

*Face to Face – Face to Screen*, 2018  
German with English subtitles  
Three channels, HD, color, sound,  
12:54 min.

*Profession: Documentarist*, 2014  
Farsi with English subtitles  
Single channel, DCP, color, sound,  
80:00 min.

Bina Elisabeth Mohn  
and Geesche Wartemann

Laura Coppens

*Taste of Hope*, 2019  
French with English subtitles  
Single channel, DCP, color,  
sound, 70:00 min.

*Wechselspiele im Experimentierfeld  
Kindertheater (Interplay in the  
experimental field of children's theatre)*,  
2009  
German  
DVD, 8 videos, SD, color, sound,  
various durations

Louis Henderson  
within *The Living and the Dead Ensemble*  
(Léonard Jean Baptiste, Mackenson  
Bijou, Rossi Jacques Casimir, Dieuvela  
Cherestal, James Desiris, James Fleurissaint,  
Louis Henderson, Cynthia Maignan,  
Sophonie Maignan, Olivier Marboeuf,  
and Mimétik Nèg)

Uriel Orlow

*The Visitor*, 2007  
English  
Single channel, SD, color, sound,  
15:58 min.

*Ouvertures*, 2020  
Haitian Creole, French with French  
and English subtitles  
Single channel, DCP, color, sound,  
132:00 min.

Anette Rose

*What you lose on the swings you gain  
on the roundabouts*, 1996  
Video film, Betacam SP, 4:3, color,  
sound, 31:00 min.

Heidrun Holzfeind

*The 49th Year*, 2021  
Storyboard, pages 94–105  
in the present publication

*Telling Tales*, 1998  
Four-channel video, SVHS, 4:3, color,  
sound, 29:00 min. loop

Daniel Kötter and Constanze Fischbeck  
(With Rani al Raji, Amira Soleh,  
Antoine Moultaqa, Karim Makarem,  
Nesrine Khodr, and Maxime Hourani)

*16 Traumstücke (16 Dream Fragments)*,  
2001  
ZDF – Das kleine Fernsehspiel  
Video film, Digibeta, 16:9, color,  
sound, 51:00 min.

*state-theatre #5 BEIRUT*, 2014  
Arab, German, English, French,  
with German and English subtitles  
Single channel, HD, color, sound,  
65:00 min.

*Enzyklopädie der Handhabungen,  
Modul #1. Teig wirken, in Saaten wälzen  
(Module #1. working dough, rolling in  
seeds)*, 2006  
Two-channel video, DVCAM, 4:3,  
sound, 2x 4:53 min. loop

Bina Elisabeth Mohn, Pip Hare,  
and Astrid Vogelpohl

*Wordless Language Game 01: Frühe  
Kindheit digital (Early Childhood Goes  
Digital)*, 2018  
German and English  
Interactive installation with 178 filmic  
fragments, HD, color, sound,  
various durations

*Modul #4. entgraten, schleifen,  
verputzen – automatisiert  
(Module #4. deburring, grinding,  
cleaning – automated)*, 2006  
One-channel video, DVCAM, 4:3,  
sound, 1:15 min. loop

*Modul #6. prägen, stempeln, stanzen,  
binden (Module #6. embossing,  
stamping, die-cutting, tying)*, 2006  
Two-channel video, DVCAM, 4:3,  
sound, 2x 4:49 min. loop

Modul #7. kontrollieren und sortieren  
(Module #7. controlling and sorting),  
2006–2007  
Two-channel video, DVCAM, 4:3,  
sound, 2x 5:05 min. loop

Modul #8. abteilen, greifen, umstülpen,  
klopfen, auskämmen, rütteln,  
beschneiden, ringen – automatisiert  
(Module #8. dividing, gripping, turning  
over, tapping, combing, shaking,  
cutting off, bundling – automated),  
2007–2008  
One-channel video, DVCAM, 4:3,  
sound, 2:00 min. loop

Modul #9. ansaugen, auffalten,  
einknicken, umklappen, einschieben,  
zufalten – automatisiert  
(Module #9. suctioning, unfolding,  
creasing, turning around, pushing in,  
folding up – automated), 2007  
One-channel video, DVCAM, 4:3,  
sound, 1:12 min. loop

Modul #10. bohren, stopfen,  
entnehmen, abscheren – automatisiert  
(Module #10. drilling, stuffing, removing,  
cutting off – automated), 2006  
Two-channel video, DVCAM, 4:3,  
sound, 2x 3:17 min. loop

Modul #11. Interview #1  
(Module #11. Interview #1), 2007–2008  
One-channel video, DVCAM, 4:3,  
sound, 5:33 min. loop

Modul #13. Interview #3  
(Module #13. Interview #3), 2008  
One-channel video, DVCAM, 4:3,  
sound, 5:44 min. loop

Modul #15. verputzen, beischleifen,  
stanzen, stempeln, ketteln, einziehen,  
tauchen, ringen, walzen, eindrehen,  
schleifen (Module #15. cleaning, fine  
grinding, die-cutting, stamping, linking,  
pulling in, dipping, bundling, pressing,  
winding, sanding), 2008  
Two-channel video, DVCAM, 4:3,  
sound, 2x 13:14 min. loop

Modul #20.1 – 20.2 flechten –  
automatisiert (Module #20.1 – 20.2  
braiding – automated), 2016  
Two-channel video, HD, 16:9, sound,  
0:49 and 3:45 min. loop

Modul #21. weben – automatisiert  
(Module #21. weaving – automated),  
2016  
One-channel video, HD, 16:9, stereo,  
3:08 min. loop

Modul #22. flechten – Maibaumtanz  
(Module #22. braiding – maypole  
dance), 2016  
Slide projection, variable size

Modul #23. stricken – high speed  
(Module #23. knitting – high speed),  
2016  
One-channel video, HD, 16:9, without  
sound, black-and-white, 6:12 min. loop

Modul #25. flechten, wirken, weben –  
motion capturing (Module #25. plaiting,  
warp knitting, weaving – motion  
capturing), 2016  
Three-channel video, HD, stereo,  
3x 2:25 min. loop

Modul #26. flechten – high speed  
(Module #26. braiding – high speed),  
2016  
One-channel video, HD, 16:9, without  
sound, black-and-white, 4:37 min. loop

Modul #28. flechten – motion diagram  
(Module #28. braiding – motion  
diagram), 2016  
Floor piece, digital print, 300×300 cm

Modul #29.1 – 29.2 seidenweben –  
automatisiert (Module #29.1 – 29.2 silk  
weaving – automated), 2017  
Two-channel video, HD, 16:9, color,  
stereo, 2x 11:03 min. loop

Enzyklopädie der Handhabungen,  
Setphoto #2, 2009/2010  
Digital print, 90×60 cm

Lena Maria Thüning

Future Me, 2016  
German, Spanish, Portuguese, Turkish,  
Albanian, Macedonian with English  
subtitles  
Single channel, HD, color, sound,  
11:49 min.

How to decide what to do with your life,  
2016  
German with English subtitles  
Two-channel video installation, HD,  
color, sound, 31:30 min.  
Iron structure, ropes, dimension  
variable

How to decide what to do with your life,  
2016  
German  
Performance, two channels, live  
stream, 40:00 min.  
Iron structure, ropes, dimension  
variable

Zheng Mahler

A Season in Shell, 2013–2016  
English  
Two-channel video installation, HD,  
color, sound, 37:51 min.  
Red sea abalone calcium carbonate  
glazed porcelain dinner set, table,  
chairs, dimensions variable

Deep Water, 2017  
3D animated anaglyphic video,  
VR headset, spatial sound  
07:23 min.

Zheng Mahler and Gavan Blau

Debt and the Making of the Khmer  
Working Class, 2017  
Khmer with English subtitles  
360° video, VR format, color,  
sound, 10:21 min.

Trading Zones: Camera Work in Artistic  
and Ethnographic Research

Published as Volume 26 of the Institute  
for Contemporary Art Research series,  
Zurich University of the Arts

Edited by

Barbara Preisig,  
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and Jürgen Krusche

Publishing coordination

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Barbara Preisig, Rani al Raji, Nahid  
Rezaei, Anette Rose, Sahar Salahshoori,  
Christoph Schenker, Amira Solh,  
Lena Maria Thüring, and Zheng Mahler

Translations

Bram Opstelten  
Pip Hare (for Bina Mohn's contribution)

Transcriptions

Flavia Trachsler

Proofreading

Mark Kyburz  
Corinne Butta

Graphic Design

TM – David Mamie, Nicola Todeschini

Typefaces

Aldine  
ES Alphabet

Printing and binding

Arti Grafiche Bianca & Volta S.r.l.  
Truccazzano, Milano, Italy

Print run

1000 copies

Acknowledgments

Silvy Chakkalakal, Kris Decker,  
Pascale Grange, Goran Galić and  
Gian-Reto Gredig, Nina Kerschbaumer,  
Ines Kleesattel, Franz Krähenbühl,  
Michael Oppitz, Christoph Schenker,  
Noëmie Stähli, Lorenzo Tripodi,  
Julia Weber, and Artur Żmijewski