# DELETED FILE INFORMATION IS LIKE A FOSSIL... – INTERVIEW WITH MICHAELA LAKOVA

**Andreas Zingerle (AZ) :** In your practice based research project *DEL?No, wait!REW* you contextualize the process of data recovery in a forensic approach to a collection of discarded hard drives. In the installation, the audience is asked to either delete a recovered file or to publish it online. Can you tell a little bit more about this work? Where did you get the hard drives from? Can you describe the installation setup?

**Michaela Lakova (ML) :** The installation *DELETE?No, wait!REWIND* aims to explore the notion of "deletion", confronting the audience with larger questions of how to secure deletion of data from a magnetic medium, data ownership and the ethics of data recovery.

The installation setup consists of three core elements: display screens showing the graphical user interface (GUI); a tangible physical interface, or controller; and a spatial element – a lit table top, which acts as one of two light sources. A spinning hard drive is connected to Display Screen No. 1, which shows the data recovery process in real time using open source software (testdisk). A cold steel controller reminiscent of an industrial machine is placed at the center. The controller has two buttons: Delete and Save. Delete provides the option to permanently remove a file from the system; Save uploads the file online. Display Screen No. 2 highlights a custom written software, which facilitates user interaction by communicating with the

controller. Once the save option is chosen, the retrieved file is saved on a remote server and published in an online gallery. Saved files are projected on Display Screen No. 3. The physicality of the hard drives, the source of the data recovery procedure, is present in the exhibition space.

**AZ :** Were there any reactions from the audience? If so, what kind of feedback did you receive?

**ML :** People are sensitive about their personal data, but they lack technological knowledge about the structuring, storing and deletion of their electronic data. Another insight, which can be concluded based on participants' interaction, is that often the viewers associate themselves with the actual owner(s) of the hard drives, who remain unknown. In that sense the installation achieved a greater awareness, which in some cases makes participants rethink the fallibility of technology and what happens when they trash their hard drives or files into their digital recycle bins.

**AZ :** Your work calls the ownership of the data into question. It raises questions like: Who actually owns that data? Is the creator, the audience, or are you the owner of the data?

How do you reflect on these questions?

**ML :** The notion of ownership is polemic. The work is confrontational in that it creates a moral dilemma. On one hand I became the owner by purchasing a collection of hard drives with a legal transaction. So the physical carrier and the accompanying content become mine in a sense. Then I am passing my ethical question(s) to the audience by given them a temporary ownership or control over the content. However, this is illusionary due to the fact that the recovered files have already been copied to software, and even when the delete

button is pressed and the data has been deleted from that software, it still continues to exist on the magnetic disk, which is present in the exhibition space. Because of the slippery nature of the digital information, I think that the notion of ownership is blended out. In other words there are multiple owners of the same content.

**AZ :** In your work *Estimated Time to Recovery* you created an automatized system, which recovers and deletes files without the consent or the knowledge of the previous owners.

What were the ideas you wanted to bring forth with this work? Can you reflect on the development phrase of the work and how you came up with the automatized installation format?

**ML :** The work proposes an insight to processes which often remain hidden and run in the background on our machines, *Estimated Time to Recovery* is an automatized system or a feedback loop of recovery and deletion as an attempt to display these processes, over which the users have no direct control. The installation consists of a metal box, which contains a mini computer Raspberry pi running open source software, which recovers and deletes data from a hard disk. The displayed numbers show the estimated time to recovery until the process is completed, and a screen, connected to the pi, shows recovered images in a random order. When the procedure is finished the machine starts the reverse process of erasing the recovered data. The choice to enclose all the hardware in a box is a metaphor of the black box of our general understanding of the machines.

**AZ :** If files are deleted and recovered over and over again, could you observe whether this affects the recovery or deletion? Do the images alter through the process, e.g. become glitchy or un-recoverable?

**ML :** *"Deleted file information is like a fossil – its skeleton may be missing a bone here or there, but the fossil remains, unchanged, until it is completely overwritten."* A beautiful quote from Dan Farmer and Wietse Venema, *Forensic-Discovery* serves for the purpose.

When images are restored they often inherit a sign of the recovery process – a distortion of the file, a glitch or an artifact which is present. While performing the recovery process over and over again, I was also prompted to identify corrupted files without any metadata, which could be assigned as "un-recovered". Their content was blank. This also caused some technical issues with my installation, so I decided to deliberately avoid them.

**AZ :** In the first installation you give the visitor a choice to delete or recover data, whereas in the second work the deletion and recovery process is automatized. Can you reflect on how this human interaction or lack of interaction changes the interpretation of the recovery and deletion processes?

**ML :** In the first work *DEL?No, wait!REW* installation, the viewer becomes an active participant, to whom a certain choice has been given, but this choice is still very much determined by an algorithm. In my second work *Estimated time to recovery*, on the other hand, the visitor becomes merely a witness of the process with no possibility for interaction. I think both of these roles resonate in our current media realm.

**AZ :** Another of your works is called *Cold Storage* and consists of enlarged transparent prints and five glass cubes that display the circuit boards. Can you tell a bit more about the work ?

Can you describe your research for the work and describe your aesthetic choices?

**ML :** The *Cold Storage* installation was made in the context of the group show entitled "What remains – Strategies of Saving and Deleting" at esc (medien kunst labor) in Graz. Together with four other artists I was invited to explore themes of storage, data, reliability, and the loss of materiality and values. I started my research

by looking at digital forensics and data erasure as main themes. However, the direction of my research shifted towards an investigation into data storage, macro chips, circuit boards, integrated circuit (IC) diodes, and the process of zooming into their macro structures. Eventually that was reflected in the final work and its aesthetics choices.

The installation consisted of enlarged transparent prints containing macro photos of the most common memory devices (USB stick, SD memory card and PC hard drive) which were placed in the windows of esc, inviting the passers-by to glimpse inside "What remains". Five glass cubes displaying the circuit boards (used for the photographs) were lit by a light box. The glass created an illusionary effect, which makes the hardware to disappear. Text labels (extracts from datasheets) are attached to each cube, informing the viewer of what they are looking at.

The idea behind *ColdStorage* was to investigate the architectural dimensions of our storage devices and how they are translated into the physical world. While digital storage becomes increasingly disembodied and dematerialized, hardware becomes more and more invisible, microprocessors and components become smaller and smaller, and chips are designed to be uncrackable. The work proposes a poetic overview of the material quality of memory, asking what is the future of digital storage? Is it *"a glass cold memory which lasts forever"* or an imperfect storage technology that can impart its contents?

**AZ :** So far in your works the owner is always separated and distant from the data rather than involved in a participatory act. Is this a direction you plan to continue or what are your upcoming steps in your research?

**ML :** In most of the cases is quite difficult to trace back the original owner(s). But even then I am not interested in personifying that data, which might center my works around the relationship with the actual owner. Instead, I try to keep it open for different interpretations. My next step is producing a small publication, based on my research and the collection of thoughts and images I have gathered.

**AZ :** So based on your research and your artworks, did this process make you more sensitive about how you handle data, or how do you deal with your data both on- and off line?

**ML :** I learned a lot throughout the research and the process, but there are still many technical aspects, which I do not fully understand. I am sensitive about my data, but I am also not super cautious about it. Otherwise I would have to become a monk. My background is not in computer science, so my perspective is purely subjective and artistic. With this body of work I also attempt to showcase and discuss open themes that interest me.

**Michaela Lakova** (BG) is a visual artist and researcher based in Rotterdam. Subjects of interest are errors, systems malfunction and the inevitable generation of data traces and its problematic resistance to deletion. Currently she is investigating digital forensics and the disappearance of hardware. She completed a Master's program in Media Design and Communication at Piet Zwart Institute in 2014.