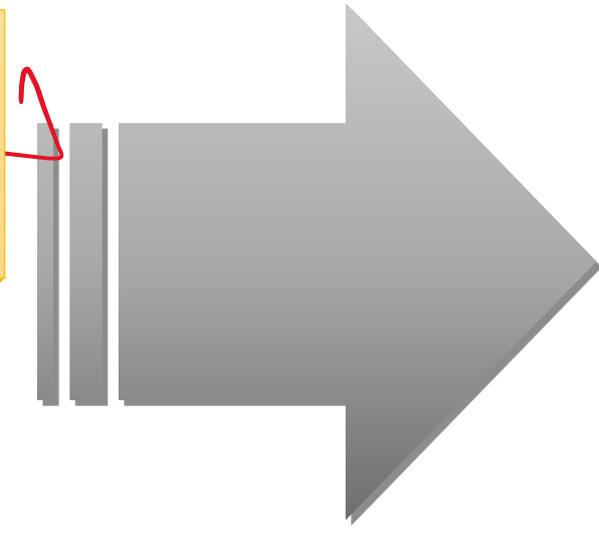
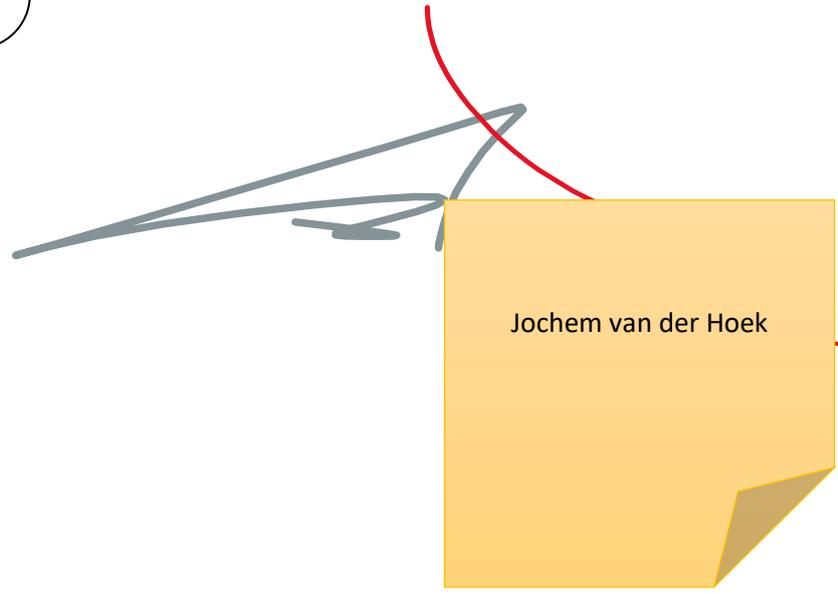
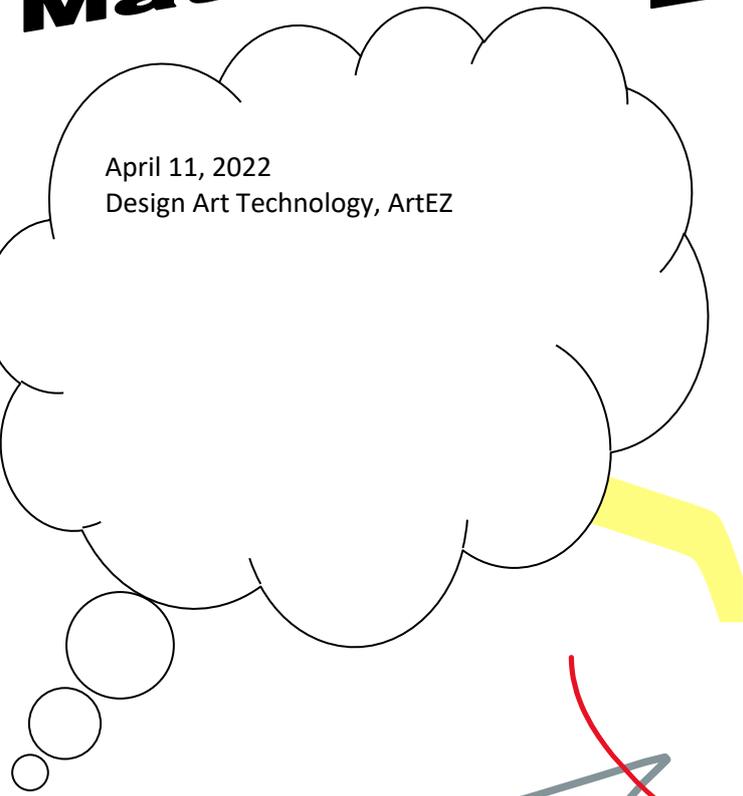
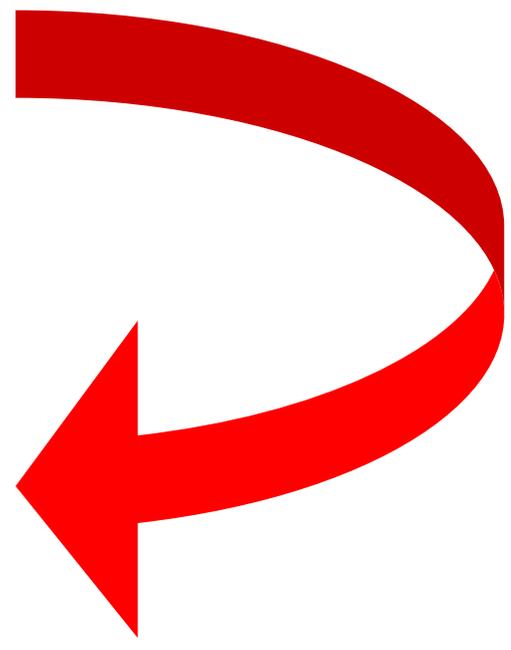


# Making Things, Software Materiality and the Value of Lo-Fi

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## Making Things, Software Materiality and the Value of Lo-Fi

During my first year of studying at the art academy I remember a teacher telling me to be careful that my Adobe Illustrator project wouldn't look too much like it's made with Illustrator. What I think my teacher meant by this is that creative software has a tendency to enforce a certain aesthetic which could get in my way of developing my own visual style, an important part of being an art student. This seemed to pose a challenge; how to escape the influence of the software that I use on the things that I make?

In this text I aim to structure ideas and observations on where this challenge comes from and on how to deal with it by using lo-fi as a methodology. The term lo-fi is short for low fidelity and usually refers to forms of sound recording that contain technical flaws like distortion and background noise. I argue that the lo-fi methodology is born from the value of materiality within music making but the term lo-fi has been misinterpreted by a society that uses digital tools for creation. It has been reduced from an honest methodology to a paradoxical aesthetic. I aim to restore the value of the term lo-fi because I think that the lo-fi methodology can be a straightforward way to work with software without falling prey to imposition of form or getting lost in fidelity.

### Form and Matter

The Greek philosopher Aristotle theorized that to create something is to bring together form and matter. This theory is called hylomorphism which comes from the Greek words hyle which translates to matter and morphē which translates to form. Bringing together form and matter implies that form and material exist separate from each other, I feel like this idea influences how people think about making things to this day; the advice that my teacher gave me aligned with this view.

During the second year of my studies I read a text that questions the hylomorphic model and taught me a different philosophy on making things. In the article "The Textility of Making" (2010) British anthropologist Tim Ingold writes about how form comes into being by a creator intervening between forces and material. Ingold gives the example of a woodsman following the grain of the wood when splitting it with his axe instead of imposing a preconceived form on the wood. The wood is shaped by the force of the woodsman intervening with the existing shape and qualities of the wood.<sup>1</sup> The same thing is going on when creating anything whether it's cutting wood with an axe, sculpting marble with a chisel and hammer or creating an image using software.

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<sup>1</sup> Tim Ingold, "The textility of making," *Cambridge Journal of Economics* 34 (2010): 91–102, <https://doi.org/10.1093/cje/bep042>.



*Figure 1 The woodsman follows the grain of the wood*

### **Software Materiality**

Even though software isn't a physical material, I think its qualities can be seen as material qualities and we can speak of the materiality of software. When looking for a definition of what materiality means in the context of art I found an article by Christina Murdoch Mills which describes the versatility of the term. Murdoch Mills explains that the materiality of an artwork is more than the qualities of the physical material that it is made of but that it includes all aspects that have to do with the physical existence of the work; like when it is made and by who and what its place is in history.<sup>2</sup>

Every piece of software has a distinct interface and different functions enforcing a different kind of behaviour from the user. This might seem obvious but I will show what this means with two illustrations:



*Figure 2 Paint frog*

*Figure 3 Illustrator frog*

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<sup>2</sup>Christina Murdoch Mills, "Materiality as the Basis for the Aesthetic Experience in Contemporary Art," *Graduate Student Theses, Dissertations, & Professional Papers* (2009): 1289, <https://scholarworks.umt.edu/etd/1289>.

The first illustration showed up as one of the first Google Images search results when searching for 'adobe illustrator frog', the second image is one of the first results for 'ms paint frog' (as of April 2022). Both of these images probably started out with someone intending to create an image of a frog. Both creators succeeded, but the resulting illustrations are significantly different. The limited set of options in Microsoft Paint enforces a rougher drawing style as opposed to Adobe Illustrator that provides tools to make perfectly straight lines and smooth shapes. Although quite hard, it would be possible to recreate the first image using Paint and the second using Illustrator and of course there are personal preferences of the creators reflected in the images that lead to different outcomes. But the point I want to make is that if the creators of the illustrations would have used different software, their illustrations would have been different.

According to Christina Murdoch Mills this is not only because of the differences between how the different pieces of software work, or the different visual style of the creators, but also because of the history that the image is created in. When drawing in Microsoft Paint you are not just making a drawing but you're making a *Paint drawing* which is a category with its own qualities and traditions. When using a material you are influenced by the cultural perception of this material. I think you can't really avoid being influenced by existing creations made using the same tool and by the way that you have learned how to use the tool, which is most likely informed by how people have used the tool before you. A creation is not a preconceived idea imposed on a material, it is an outcome of a stream of interactions between ideas and materials which is bigger than an idea in a single person's mind.

Until this point in the text I have only mentioned images, but I also want to write about sound. Since my childhood I have been making music in a number of different settings using different instruments and technologies and throughout my life music has grown to be one of my main inspirations. During the research for this text I realized that certain things I have learned from music can be used to deal with the challenge I described at the beginning of this essay.

### **Drum Machine Materiality**

I started making music by taking classical piano classes and playing in a band with some of my friends. For a long time I would be mostly interested in music that was created by musicians in a band setting or by pianists and keyboard players. Music made using electronic instruments and software instruments were not as interesting to me. I would feel like an aspect of music making was missing and I could not relate to the music. One of the tracks that got me interested in electronic music was Washing Machine (1986) by house music pioneer Larry Heard, also known as Mr. Fingers. I will explain why; When I got bored of the 'grand piano' sound and the 'rock organ' sound on the keyboard I used in the band I started to explore the different sounds on the keyboard and I would modify the sound of the keyboard using a guitar distortion pedal. This sparked an interest in exploring different sounds and I got interested in synthesizers, as they are often played using the keyboard I

was familiar with and opened up a whole world of new sounds. Using the knowledge I had gathered from videos and forums about synthesizers I could understand why the track Washing Machine sounded the way it did when I first heard it; The track is made using two instruments: the Roland Juno-6 synthesizer and the Roland TR-707 drum machine. The Roland TR-707 drum machine has a trigger output on the back that sends a signal every time the rimshot is played. This trigger can be used to synchronize another instrument to the drum machine, in this case the Juno-6. The number of notes played on the Juno-6 was not the same as the number of triggers in the drum pattern. This creates an effect where notes shift in relation to the timing of the sequence.

This realization made the track relatable and interesting to me. The understanding of the material enabled me to appreciate the music.



Figure 4 The outputs of the Roland TR-707 drum machine, with the trigger output at number 5

Larry Heard talking about the track Washing Machine during an interview in Music Technology magazine said:

“This is an endorsement for Roland, I guess. I had the clock out, I think, from the Roland 707 and hooked the wire into the arpeggiator clock in on the Juno 6, and it just happened. I just hit a chord with two hands on the keyboard and the Juno 6 arpeggiated it. I never could recreate that, it was just something that happened in the midst of me experimenting, and I got it on tape.”<sup>3</sup>

Noteworthy in this quote is that Heard says he could never recreate the sound and it was something that just happened. This shows that the music is not a static idea that Heard came up with and put out in the world using musical instruments. It was a back and forth process between Heard and his instruments and part of that process was captured on tape and became the track Washing Machine.

After learning about materiality and about hylomorphism and how it is limited to the imposition of preconceived ideas on material, I figured out how to use software in an intuitive way without feeling like the influence of the software detracts from the authenticity of what I make. While I do think it can be a pitfall for digital creators to lose authorship to the software they are using, I think that the tendencies of software aren't something to be avoided at all. I think that when a creator is aware of the functions and

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<sup>3</sup> Simon Trask, “Touching Bass,” Music Technology, May, 1992, <http://www.muzines.co.uk/articles/larry-heard/1009>.

limitations of the software this can be used to their advantage. Instead of *fighting against* the agency of the software, the creator should acknowledge it so they can start *working with* the software. Just like the woodsman follows the grain of the wood, a digital creator follows the structure of the software.

## Hi-Fi Versus Lo-Fi

Following the structure of the software seems straightforward, but it brings a different challenge; the amount of functions within software seems to increase with every new update and I easily find myself overwhelmed with technical terms and the amount of possibilities in modern industry standard creative software. When trying to create high definition images or sounds It can be easy to get lost in the pursuit of fidelity and end up watching YouTube videos on how to get the software to do what you want it to do instead of spending time making something. Even though I think it can be interesting to push the boundaries of what current technology can do by striving for detail and high resolution, and I think it can give insight to master all the options of a software tool and familiarize yourself with all the possibilities it has to offer, but the big number of specific options of software tools can make it hard to “follow the grain”.

A method that avoids getting lost in the material or imposition of form is lo-fi. To understand this method we should look at the history of music recording. In the book “Dawn of the DAW: the Studio as Musical Instrument” (2018) Adam Patrick Bell analyzes this history, from the first mechanical phonograph recording in 1877 by Thomas Edison to the current use of software studios called DAWs (digital audio workstations). In the first half of the 20th century when people started producing commercial vinyl records, a recording was generally thought of as a natural representation of a live music performance. Bell explains that this was a western cultural bias introduced by the music industry that was emerging at that time that was pushing for high fidelity records that sounded like live performances. In reality the recording process was never a neutral way to capture musicians performing existing music to a sound carrier. The process was significantly shaped by other people involved, the technology they used and the spaces where the recording happened.<sup>4</sup>

The introduction of the Tascam Portastudio, a four track cassette tape recorder, opened up the possibility to a lot of people to experiment with recording and mixing music at home. New styles of recording were being invented outside of the established music studios. These DIY musicians didn’t strive for the most neutral and technically perfect sound but used recording as the expressive tool it can be, this was the beginning of lo-fi recording.

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<sup>4</sup> Adam Patrick Bell, *Dawn of the DAW: The Studio as Musical Instrument* (New York: Oxford University Press, 2018)



Figure 5 The Teac/Tascam Portastudio 144 a 4 track cassette recorder

An acclaimed lo-fi musician is Phil Elverum who releases music as The Microphones and Mount Eerie. When asked about his feelings on the lo-fi genre during a Reddit AMA on the subreddit /r/indieheads he replied:

“ I am from a time before computers. For a person with minimal access to technology and tools, "lo fi" was a default mode. It's just the method I came up with. I have never valued prevailing perceptions of perfect sound. It has seemed artistically boring to me.”<sup>5</sup>

I think a lot of his contemporaries would have replied to this question with a similar answer. Musicians just used the tools that were available to them and made this part of their music. During an video interview Elverum is asked to talk about an artwork he likes and his approach to making music is reflected:

“the woodcuts took it [the practice of Edvard Munch] to another level for me, because of how raw they are. It looks like he carved his woodcuts like with a hatchet or an axe but somehow it captured the emotion of, I don't know, desolation usually. He didn't care about trying to appear refined , the feeling of the wood that it's made from is embodied in the thing itself, the material is inescapable.”<sup>6</sup>

Elverum seems to value expression over refinement and he recognizes that it is the lack of refinement that brings out the feeling of the material.

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<sup>5</sup>Phil Elverum. “Mount Eerie, AMA. I am available. Hello. It's me, Phil.” *Reddit*. Accessed February 26, 2018. [//www.reddit.com/r/indieheads/comments/80eib4/mount\\_eerie\\_ama\\_i\\_am\\_available\\_hello\\_its\\_me\\_phil/](https://www.reddit.com/r/indieheads/comments/80eib4/mount_eerie_ama_i_am_available_hello_its_me_phil/).

<sup>6</sup>De Canvasconnectie. “Mount Eerie,” aired April 26, 2015, on Canvas, [https://www.youtube.com/watch?v=\\_oS8OV-7c0Y&ab\\_channel=GregoryPovey](https://www.youtube.com/watch?v=_oS8OV-7c0Y&ab_channel=GregoryPovey).



*Figure 6 Old Fisherman by Edvard Munch (1897)*

### **Lo-Fi in the Software Society**

Lo-fi comes from a way musicians dealt with a technological division. A division that has disappeared during the last two decades; The same tools that are the base of established music studios can be downloaded (illegally) by anyone with a computer and access to the internet. Since this relative democratization of music technology the term lo-fi has taken on a different meaning which I think can be mostly credited to the rise in popularity of the lo-fi hip hop genre during the last half of the 2010s. A genre which the term lo-fi has become intrinsically linked with as it is part of its name.

When you search online for lo-fi you will find hours-long mixes of music consisting mostly of melancholic piano samples mixed with a layer of simulated vinyl crackle accompanied by old school hip hop inspired drum loops.

The beginning of this genre can be traced back to the music of hip hop producers like J Dilla, Madlib and Nujabes. The tape hiss and vinyl crackle in their music is not simulated using software but they were at a point in time where they had access to digital technologies that allow for a cleaner sound and they deliberately used lo-fi artifacts in their music for aesthetic reasons. I see this as an in between stage of the lo-fi music genre which Phil Elverum is part of who would just use the tools available to him and the lo-fi hip hop genre of today where the lo-fi sound is completely disconnected from the tools that are used.



*Figure 7 Nujabes performing. He has access to a laptop but uses vinyl records for aesthetic reasons.*

In the introduction of the YouTube video “How to NUJABES J DILLA beat” (2016) youtuber and musician FrankJavCee hits the nail on the head when he describes the aesthetic of lo-fi hip hop and its appeal:

“After listening to both producers [Nujabes and J Dilla] I found they shared a common aesthetic, that aesthetic being introspective soft beats featuring soft jazz piano and retro funk drums juxtaposing modern vibes with old-school flavor. First we're going to need drums that sound like boom bap, so I found this cool site called <http://rhythm-lab.com/breakbeats> where you can find vintage drum samples performed by real drummers from the 70s. Sampling drums is always fun because it makes the beat come to life as it was performed by someone who was actually alive not some soulless artificial robot that's just a glorified metronome”<sup>7</sup>

Jokingly FrankJavCee points out that that lo-fi hip hop offers an alternative to popular styles of music of that moment that use artificial sounding drums which is a sentiment I think many people shared. Later in the video FrankJavCee demonstrates how easy it can be to create lo-fi hip hop using music software FL Studio. Because lo-fi hip hop doesn't have much dynamic range, doesn't have lyrics and has a calm rhythm it can be played as background music in a lot of different settings. I think because of this and because of the genre being formulaic and easy to replicate the genre became extremely popular on YouTube.

Even though the genre got popular among people who got tired of artificial sounds and were looking for something that feels more authentic, lo-fi hip hop created on a laptop with a DAW that is trying to replicate the sound of vinyl records and hardware samplers is in conflict with its own materiality. The artificial robot drums created with software drum-machines are a more pure expression of the used technology. Lo-fi hip hop aims to invoke a sense of authenticity without being authentic.

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<sup>7</sup> Francisco Jav Contreras “How to NUJABES J DILLA beat,” FrankJavCee, July 10, 2016, 12:45, [https://www.youtube.com/watch?v=hGNz9nJD5ug&ab\\_channel=FrankJavCee](https://www.youtube.com/watch?v=hGNz9nJD5ug&ab_channel=FrankJavCee).

When I was searching for more in-depth analyses of the genre I found an article by Emma Winston a PhD student at Goldsmiths University in London. She described the genre to be paradoxical because of the type of nostalgia that underlies it, a form of reflective nostalgia, a term coined by cultural theorist Svetlana Boym. Reflective nostalgia is rooted in the feeling of longing and loss, it is a memory of a better past.<sup>8</sup> Only in this case it is a past constructed by pop-culture references of the listener's childhood and by more abstract nostalgic elements like certain audio and visual effects and melancholic sounding melodies. A past the listener knows is not real.<sup>9</sup>

The term lo-fi has become associated with a paradoxical internet music aesthetic which is influential and interesting on its own but has nothing to do anymore with the methodology that changed the course of music history during the 1980s.



Figure 8 The 'lofi girl'



Figure 9 Izotope Vinyl VST plugin

<sup>8</sup> Hal McDonald, "The Two Faces of Nostalgia," *Psychology Today*, June 23, 2016, <https://www.psychologytoday.com/us/blog/time-travelling-apollo/201606/the-two-faces-nostalgia>.

<sup>9</sup> Emma Winston, "Beats to Relax/Study To: Contradiction and Paradox in Lo-Fi Hip Hop" *IASPM Journal* 9. No. 2 (December 2019): 40-54, [https://doi.org/10.5429/2079-3871\(2019\)v9i2.4en](https://doi.org/10.5429/2079-3871(2019)v9i2.4en).

This doesn't mean that lo-fi as a methodology doesn't exist anymore, it just isn't labeled as lo-fi. I think that Dylan Brady's EP "Date Night ❤️" (2017) is a contemporary incarnation of lo-fi.

The EP consists of 4 songs that I would describe as hip hop that borrow influences from pop music, different types of electronic music, and pop-punk. The EP was never officially released but got shared as a zip file via messaging platform Discord.

The tracks fully embrace the sound of digital music production: the sound is very distorted, not because of worn-out tape or sampled vinyl, but because of low bit depth and digital clipping. Moreover Brady's voice is heavily processed using auto tune (an effect that is used in most popular music right now and didn't exist before digital music production) and pitch shift effects. The EP also embraces the influence of the internet culture that it lives in through the use of emojis and chat language in track titles like "date night !! 💎💎" and "Will u go 2 the dance w me"<sup>10</sup>

On first hearing there doesn't seem to be a connection between the music of Dylan Brady and that of musicians like Phil Elverum or others commonly associated with lo-fi, but when looking into their methods some connections can be made. Both musicians embrace distortion and other artifacts inherent to the limitations of their tools and use it to create a unique sound. Both musicians acknowledge the influence of the material that they use on the music they make.

### Lo-Fi Images

Lo-fi is a term that is used to describe practices in music recording but I think it can also be useful when talking about visual forms of art, like the woodcut by Edvard Munch. A context where lo-fi became mainstream in recent years is social media. Within meme culture, compressed images and badly cropped screenshots often become popular and it is not uncommon that the lo-fi-ness of the image is its main content. The most recognizable example of this is the deep fried meme format which peaked in popularity in 2018, but has a lasting impact on meme culture. It is an extremely self aware type of image. The visual qualities derive from the use of many layers of digital image editing techniques which replicates the feeling of the meme being screenshotted, edited and shared countless times. What is depicted on a deep fried meme is often a joke that seems to be purposely unfunny and because of the way how memes work – how they iterate and react on each other – the jokes become so abstracted that you could hardly call them jokes anymore. This type of humor might seem shallow and meaningless, but there is something more happening below the surface. It seems to make fun of being a meme itself; an image like this has no logical reason to be so popular and degraded but by being in this position a form of absurdist humor arises. Its context is the joke, it is a humorous reflection on the materiality of digital images.

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<sup>10</sup> Dylan Brady, "Date Night ❤️," Self-released, 2017, ZIP file, [https://www.youtube.com/watch?v=JTkSRbtY47k&ab\\_channel=Iscopeeee](https://www.youtube.com/watch?v=JTkSRbtY47k&ab_channel=Iscopeeee).



Figure 10 An example of a deep fried meme, the image and the text are barely recognizable

These types of images are celebrated by Hito Steyerl in her poetic article “In Defense of the Poor Image” (2009):

“The poor image is a rag or a rip; an AVI or a JPEG, a lumpen proletarian in the class society of appearances, ranked and valued according to its resolution. The poor image has been uploaded, downloaded, shared, reformatted, and reedited. It transforms quality into accessibility, exhibition value into cult value, films into clips, contemplation into distraction. The image is liberated from the vaults of cinemas and archives and thrust into digital uncertainty, at the expense of its own substance. The poor image tends towards abstraction: it is a visual idea in its very becoming.”<sup>11</sup>

At the end of the article Steyerl describes the poor image to be “about its own real conditions of existence”. I think this sentence captures the strength of the poor image the most. Just like the example of the deep fried meme, the poor image becomes more than just an image of something, but it becomes self-aware and something new that can stand on its own.

### **The Material is Inescapable**

I started this text with stating a perceived challenge: how to escape the influence of the software I use on the things I make. By analyzing different pieces of media that have inspired me I learned how this challenge disappears by changing how to think about making things and by using software – including its limitations – in a similar way to how lo-fi musicians used recording technology in the 80’s.

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<sup>11</sup> Hito Steyerl, “In Defense of the Poor Image,” *e-flux journal* 10 (2009) <https://www.e-flux.com/journal/10/61362/in-defense-of-the-poor-image/>.

I think it can be freeing to let go of the pursuit of high fidelity and focus more on expression guided by existing qualities of material. To conclude, I want to encourage you to give lo-fi a try and don't concern yourself with frame rates and resolutions – the same way Edvard Munch did not concern himself with refining his woodcuts. Let yourself be surprised by the material – the same way Mr. Fingers was by his drum machine – and create something that is true to its material just like a deep fried meme.