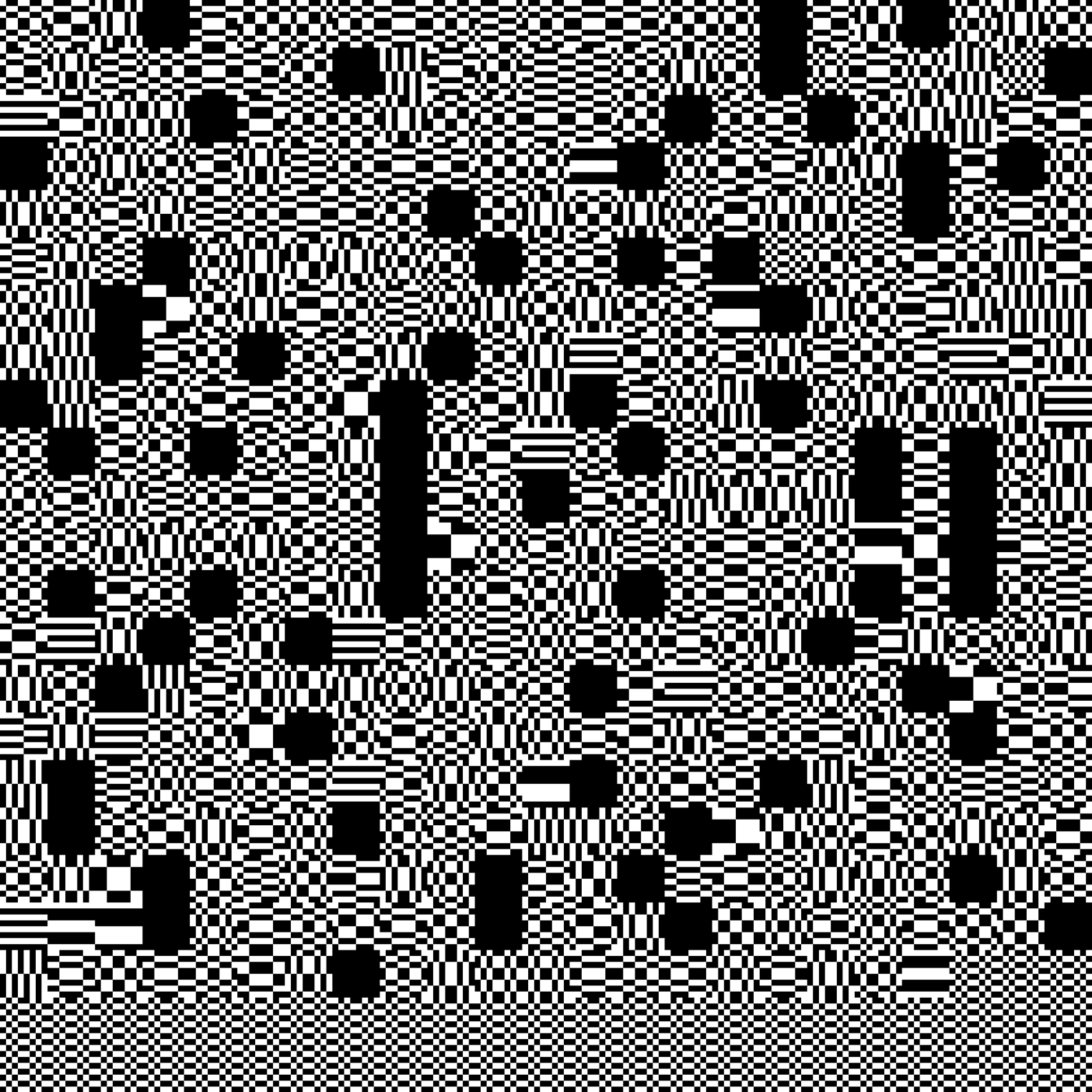
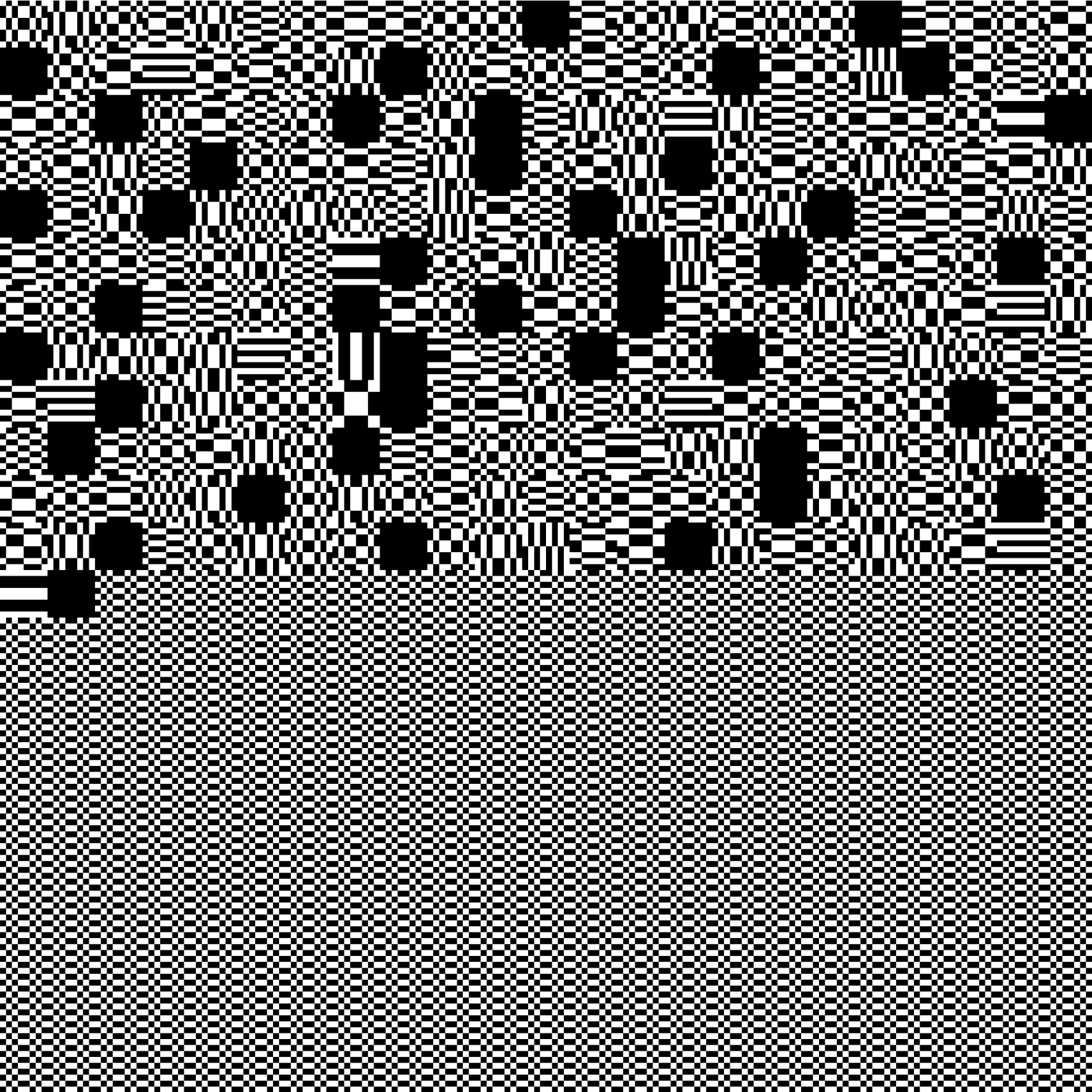


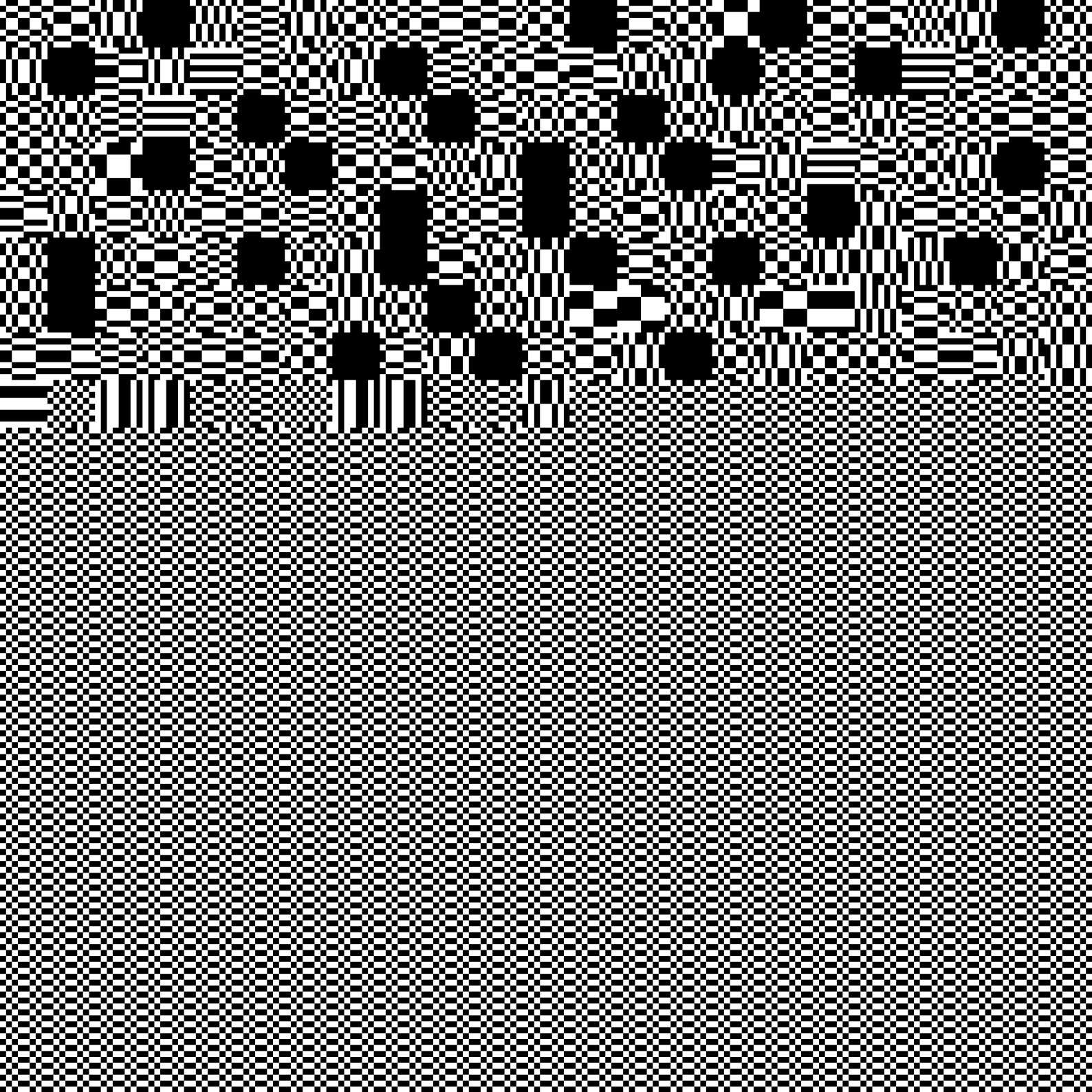
I.R.D.

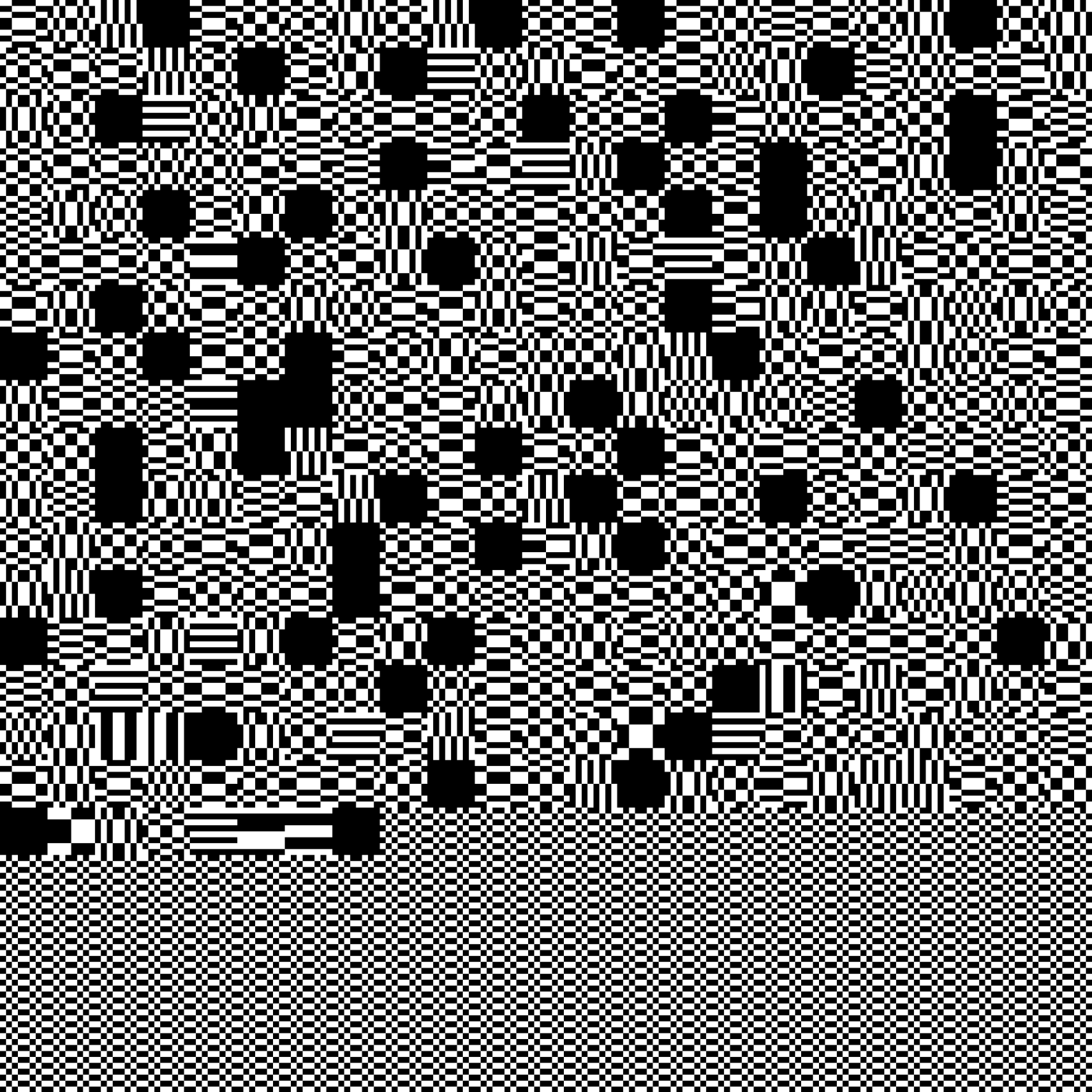
RLE 010 0000 - 101 1111

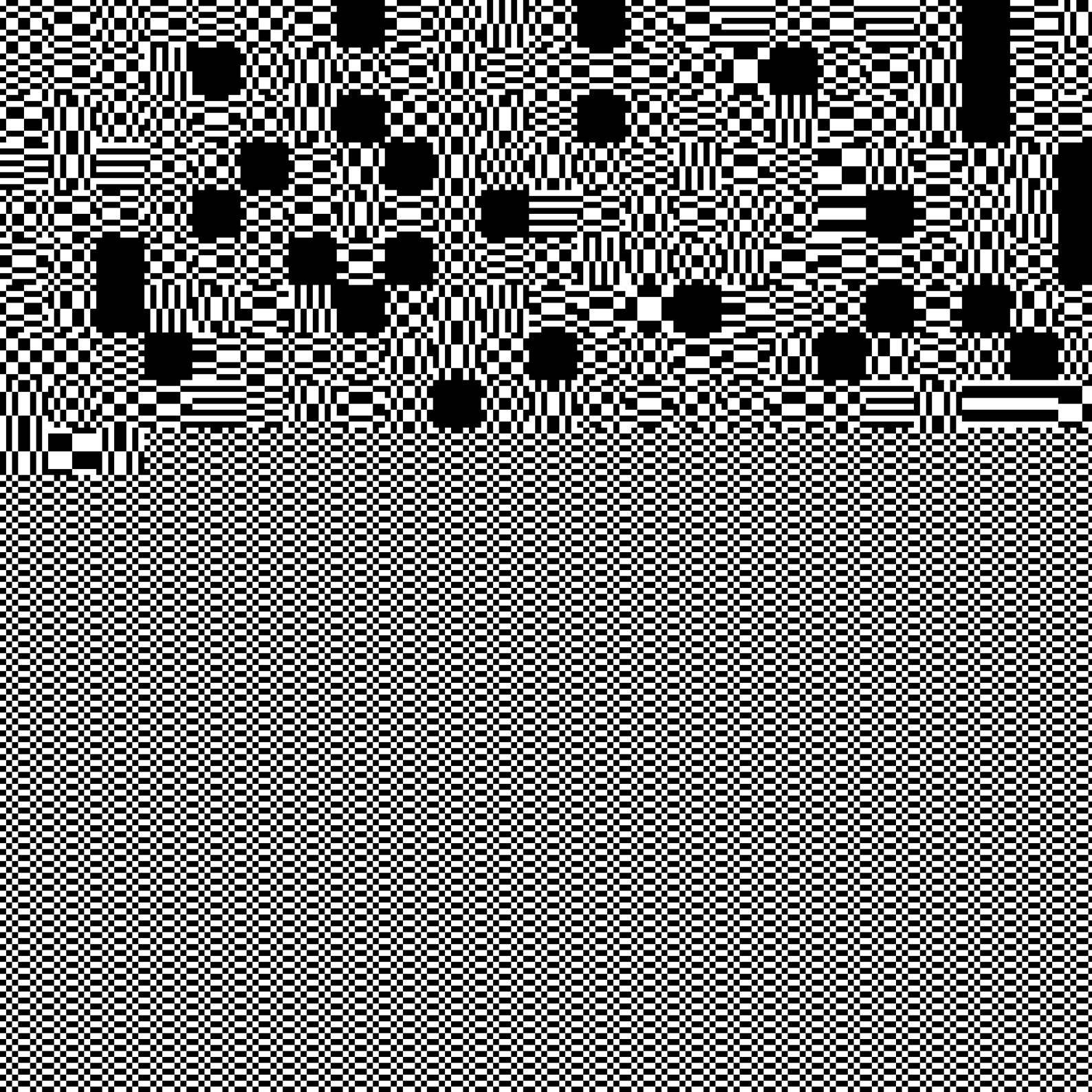
XXXXXX ☒ O ≠ 1984



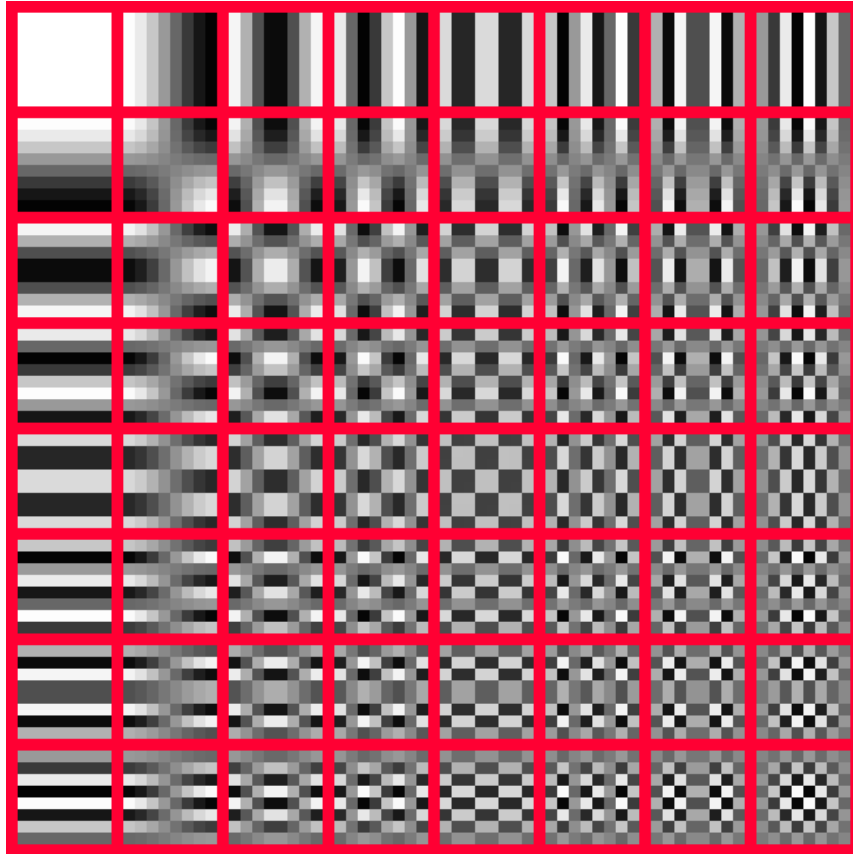






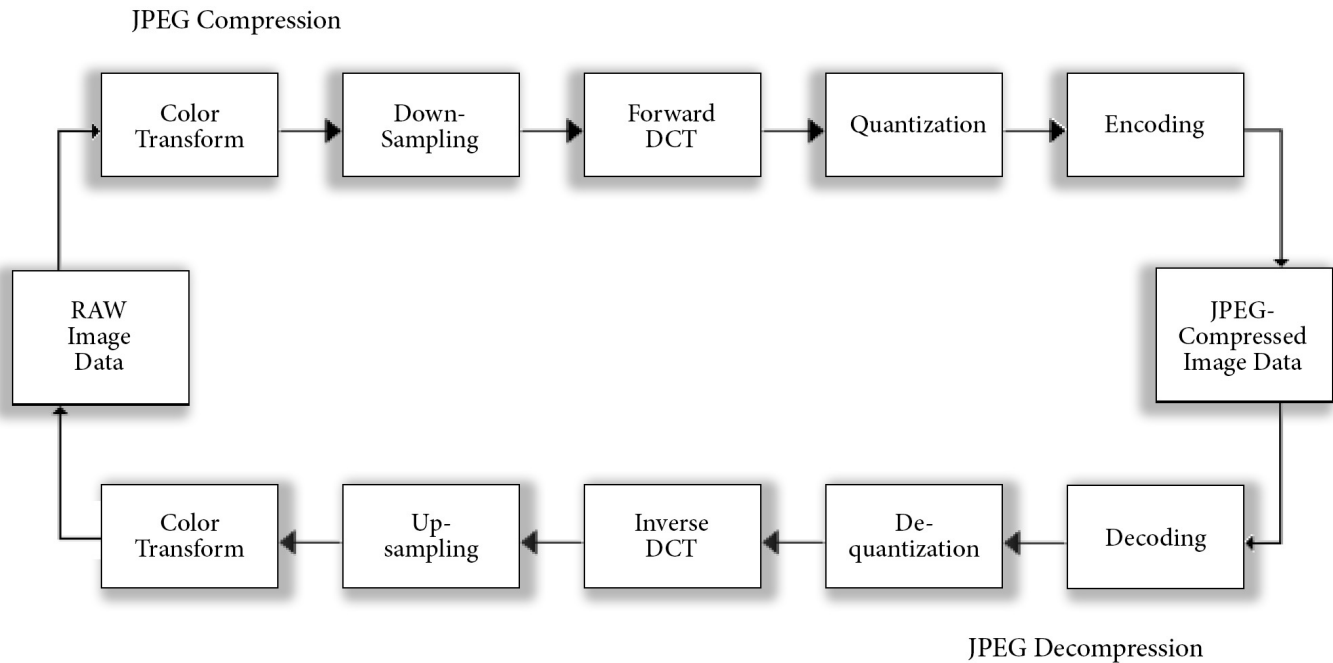


THE GUY BEHIND THE GUY BEHIND THE GUY¹⁰



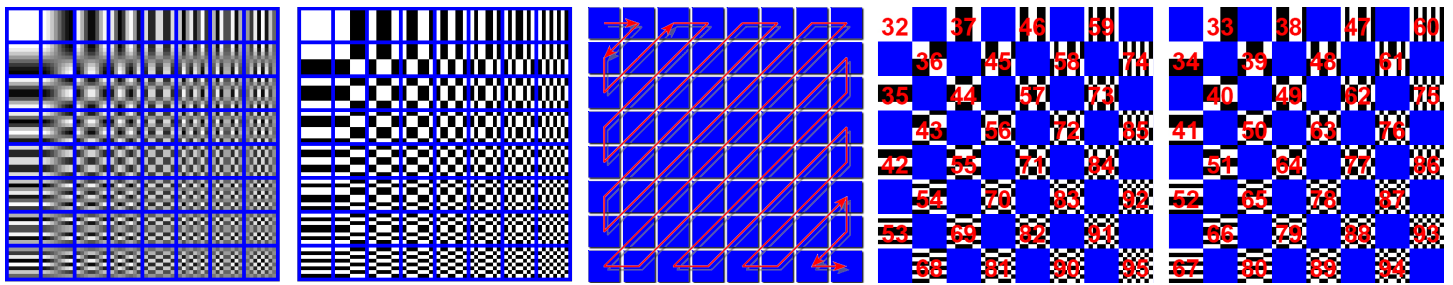
A Discrete Cosine Transform or 64 basis functions of the JPEG compression (Joint Photographic Experts Group) consisting of 8 x 8 pixel macroblocks.

¹⁰ Arcangel, Cory. *On Compression*, 2007.
see: <http://www.coryarcangel.com/things-i-made/2007-007-on-c/>



III JPEG compression consists of six steps:

- 1. Color space transformation.** Initially, the image has to be transformed from the RGB colorspace to Y'CbCr. This color space consists of three components that are handled separately; the Y' (luma or brightness) and the Cb and Cr values; the blue-difference and red-difference chroma components.
- 2. Downsampling.** Because the human eye doesn't perceive small differences within the Cb and Cr space very well, these elements are down-sampled, a process that reduces data dramatically.
- 3. Block splitting.** After the color space transformation and down-sampling steps, the image is split into 8 x 8 pixel tiles or macroblocks, which are transformed and encoded separately.
- 4. Discrete Cosine Transform.** Every Y'CbCr macroblock is compared to all 64 basis functions (base cosines) of a Discrete Cosine Transform. A value of resemblance per macroblock per base function is saved in a matrix, which goes through a process of reordering.
- 5. Quantization.** The JPEG compression employs quantization, a process that discards coefficients with values that are deemed irrelevant (or too detailed) visual information. The process of quantization is optimized for the human eye, tried and tested on the Caucasian Lena color test card.



Effectively, during the quantization step, the JPEG compression discards most of the information within areas of high frequency changes in color (chrominance) and light (luminance), also known as *high contrast areas*, while it flattens areas with low frequency (low contrasts) to average values, by re-encoding and deleting these parts of the image data. This is how the rendered image stays visually similar to the original and least similar to human perception. But while the resulting image may look similar to the original, the JPEG image compression is lossy, which means that the original image can never be reconstructed.

6. Entropy coding. Finally, a special form of lossless compression arranges the macroblocks in a zigzag order. A Run-Length Encoding (RLE) algorithm groups similar frequencies together while Huffman coding organizes what is left.

Errors depend on resolution. They are visible only at a certain scale or scope.

Mesmerized by the screen, focusing on the moves of the next superhero, I was conditioned to ignore the dust imprinted on the celluloid or floating around in the theatre, touching the light of the projection and mingling itself with the movie.

The dust — a micro-universe of plant, human and animal fibres; particles of burnt meteorites, volcanic ashes, and soil from the desert — could have told me stories that reached beyond my imagination; stories deeper and more complex than what was resolved in front of me, reflected on the movie screen.

... But I never paid attention. I focused my attention to where I was conditioned to look: to the movie, reflecting off the screen. All I saw were the images. I did not see the physical qualities of the light nor the materials making up its resolution; before, behind, and beyond the screen.

Decennia of conditioning the user to ignore these visual artifacts and to pay attention only to the overall image has changed these artifacts into the ultimate camouflage for secret messaging. Keeping this in mind, I developed *DCT* (2015).

How Not to Be Read¹² :: DCT

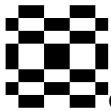
DCT is a font that can be used on any .TTF (TrueType Font) supporting device and uses methods of cryptography and steganography; secretly hidden, the message is transcoded and embedded on the surface of the image where it looks like a JPEG artifact (glitch).

The premise of *DCT* began with the realization that the legibility of an encrypted message does not just depend on the complexity of the encryption algorithm, but also on the placement of the message. This encrypted message, hidden on the surface of the image, is only legible by the ones in the know, anyone else will ignore it. Like dust on celluloid, *DCT* mimics JPEG errors. It appropriates the algorithmic aesthetics of JPEG macroblocks to stenographically mask a secret message, mimicking the error. The encrypted message, hidden on the surface of the image, is only recognizable to the ones who know where to look for it.

During the most important step of the JPEG algorithm, the compression technology employs a mathematical technique known as Discrete Cosine Transform (DCT), to compress the amount of image data needed to transport, store, and present the image. *DCT* consists of a set of 64 patterns, called macroblocks or basis functions. If an image is compressed correctly, these macroblocks are invisible. The incidental trace of the macroblocks is generally ignored as an *artifact*, an *impurity*, or *error*.

DCT is titled after Discrete Cosine Transform, the algorithm at the core of JPEG compression. The encryption uses the 64 macroblocks that form the ‘visual alphabet’ for all JPEG compressed images. These 64 macroblocks of the JPEG DCT are directly translated to a set of characters; a set of 64 *glyphs* starting from binary conversion number 010 0000 to 101 1111 or in decimal 32 to 95, arranged in a zigzag order (reminiscent of Entropy coding step in the JPEG compression). The emerging glyph set can then stenographically be used to articulate a message on top of the JPEG image. *DCT* thus uses the macroblocks to form their own alphabet, in the form of a simple font, existing on the edges of what the reader recognizes as noise (or error) and the computer as compressed data.

¹² Steyerl, Hito. How Not to Be Seen. Art Forum, 2013.
see: http://artforum.com/video/id=51651&mode=large&page_id=0

















revealing the surface and structure of the image¹¹



A side effect of the JPEG compression is that the limits of the images' resolution – which involve not just the images' number of pixels in length and width, but also the luma and chroma values, stored in the form of 8 x 8 pixel macroblocks – are visible as artifacts when zooming in beyond the resolution of the JPEG.

Because the RGB color values of JPEG images are transcoded into Y'CbCr macroblocks, accidental or random data replacements can result into dramatic discoloration or image displacement. Several types of artifacts can appear; for instance ringing, ghosting, blocking, and staircase artifacts. The relative size of these artifacts demonstrates the limitations of the JPEGs informed data: a highly compressed JPEG will show relatively larger, block-sized artifacts.

¹¹ Ted Davis: [ffd8](#), 2012.

Dct	Glyph	Binary
	T	101 0100
	H	100 1000
	E	100 0101
	W	101 0111
	O	100 1111
	M	100 1101
	A	100 0001
	N	100 1110
	B	100 0010
	E	100 0101
	H	100 1000
	I	100 1001
	N	100 1110
	D	100 0100

- Choose a lofi JPEG base image on which macroblocking artifacts are slightly apparent.
- If necessary, you can scale the image up via nearest neighbour interpolation, to preserve hard macroblock edges of the base image.
- Download and install the DCT font.
- Position your secret message on the surface of the JPEG.
- Make sure the font has the same size as the macroblock artifacts in the image.
- Flatten the layers (image and font) back to a JPEG. This will make the text no longer selectable and readable as copy-and-paste data.

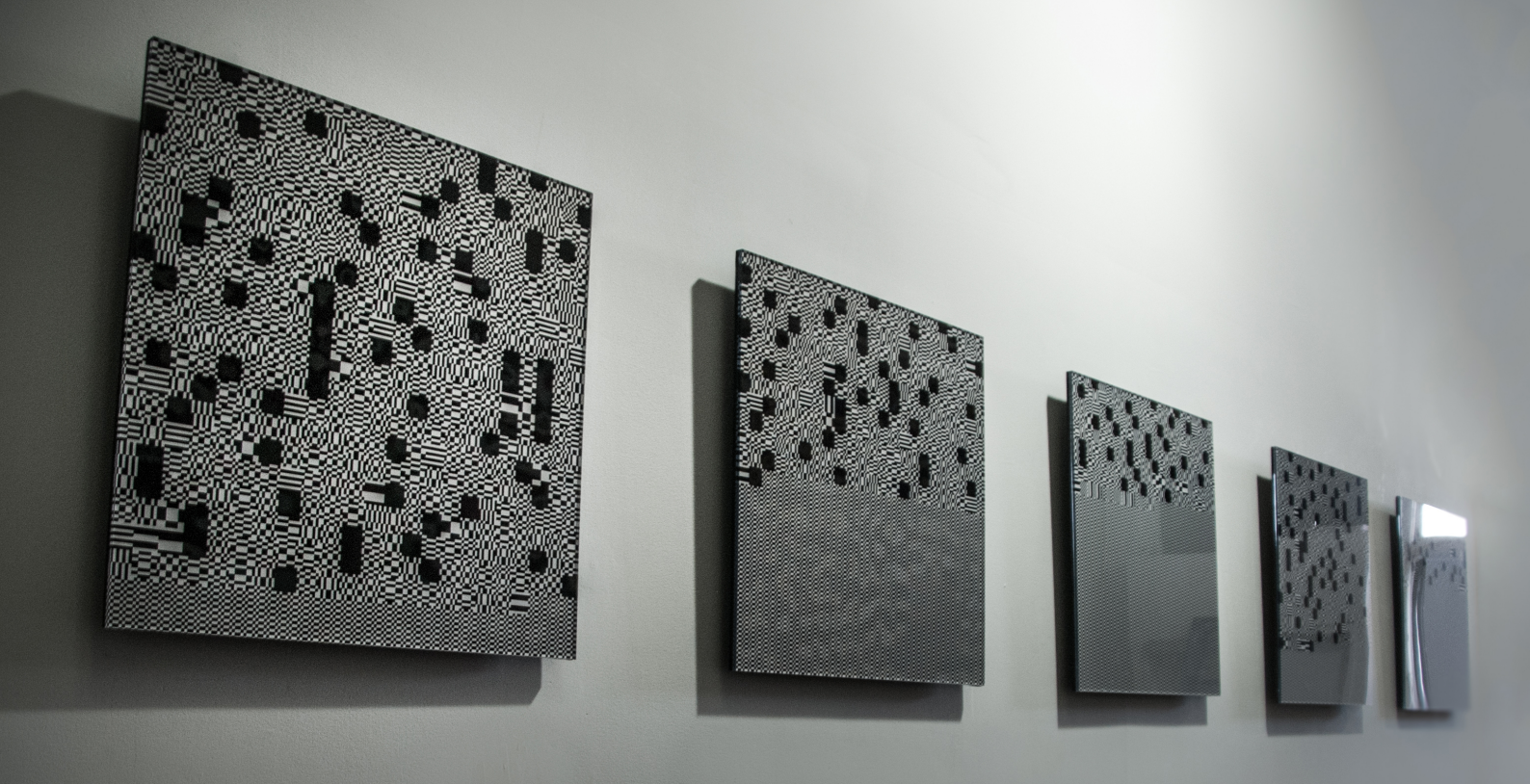


Recipe

“A recipe using DCT” was first released in the #Additivism cookbook.¹³

- To prepare the JPEG that you want to write your secret message on:
- Choose a lo-fi JPEG image that has slightly apparent macroblocking artifacts. If necessary, you can scale the image up via the nearest neighbor interpolation, to preserve hard macroblock edges of the base image.
- Download and install the DCT font.
- Position your secret message on the surface of the JPEG. Make sure the font has the same size as the macroblock artifacts in the image.
- Flatten the layers (image and font) back to a JPEG. This will make the text no longer selectable and readable as copy-and-paste data.

¹³ Allahyari, Morehshin and Daniel Rourke. *The 3D Additivist Cookbook*. 2015. see: www.additivism.org



Institutions of Resolution Disputes [i.R.D.]¹

What an institution is or is not today, is hard to define. Some describe institutions as “stable, valued, recurring patterns of behavior.”² Others conjure up the image of bricks and mortar; physically present buildings that harbor formally organized organs that facilitate certain events or produce certain materials. An institution can be an organization founded for religious, educational, professional, or social purposes. Think for instance about a church, a library or an art collection.

Institutionalization is the process by which organizations and procedures acquire value and stability. But it is important to understand institutions not as a single entity but as an interconnected object in a networked field. Institutions are not isolated — their task is to mediate between employees, assets and audience or users. This is why there are at least two sides to any institution: the infrastructural and “content” part. The outwards facing part that produces knowledge, exhibitions or facilitates a sense of cohesiveness within the (sub)cultures it caters to and the framework or backend that keeps the institution running.

¹ the i.R.D. on show at [Transfer Gallery](#), NYC, March 28-April 15, 2015. Produced and curated by Kelani Nichole.

² Huntington, Samuel P.. *Political Order in Changing Societies*. Yale University Press: 2006: p. 12.

The back end of the institution determines the conditions of the front end — it develops conditions for creation and leverages the ways in which the institution interacts with other institutions, audiences and solicitors. This is why institutions need, at least to some degree, to be able to facilitate institutional recalibration: the capacity to rethink and remould the output and the logistical forms of the field. But some institutions are so encumbered with their status, that they cannot change, reform or recalibrate (quickly). They have to answer to rules that provoke a particular content, action or behavior rather than serve the cause they were actually erected for in the first place.

Between March 28th and April 15th 2015 I opened the i.R.D., in the form of a solo show at Transfer Gallery New York. The i.R.D. were created during a time in my life when I felt especially let down by institutions. I felt taken advantage of, and realized that institutions often work to keep their institute alive rather than to serve the purpose they have been erected for in the first place, ie. to serve and help the people that need them. During this time in limbo I developed the i.R.D, that consist of five institutions, through which I voice my critique on institutions: institutions should not consist of a group of people hiding themselves behind the title of “institution.”

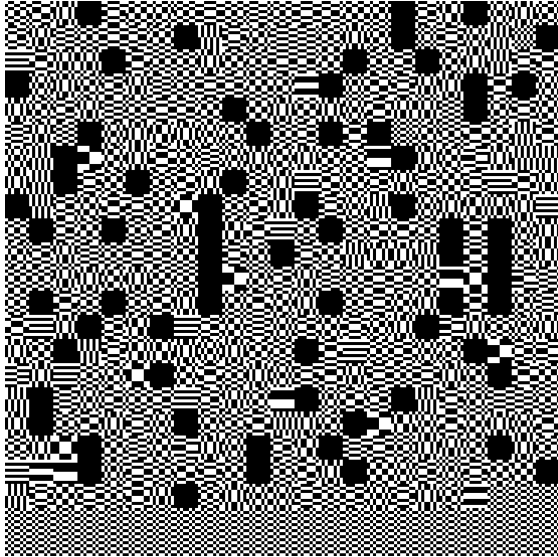
Though the i.R.D. mimic an institution, in reality they are not classic, institutional organs. Instead, the i.R.D. multiplex the term *institution* by revisiting its usage in the late 1970s. In this context, formulated by Joseph Goguen and Rod Burstall, institutions refer to a more compound framework that deals with growing complexities, connecting different logical systems (such as databases and programming languages) within the computer sciences.³ The main result of these non-logical institutions is that different logical systems can be glued together at a substrata level, forming illogical frameworks through which computation can *also* take place: this type of institutions work for functionality, not for bureaucracy.

Inspired by the idea of hyperfunctional, yet illogical frameworks, the i.R.D. are dedicated to researching the interests of anti-utopic, obfuscated, lost and unseen, or simply too good to be implemented resolutions. They ask: what do the hegemonic conventions of sight obscure? Is there any space for ‘fiat standards,’ standards that are not backed by a reasonable intrinsic value, or standards that are maybe illogical? In doing so, the i.R.D. intend to shed a light on the processes behind cultural production: the systems of affordances, the politics of integration and imposition of templates.

But while the i.R.D. call attention to resolutions, they do not just wish to aestheticize their formal qualities and put them on display: the i.R.D refuse to take the format of a *Wunderkammer*. This was already

³ Goguen, Joseph A., and Rod M. Burstall. ‘Institutions: Abstract model theory for specification and programming,’ in: Journal of the ACM (JACM) 39.1 (1992): p. 95-146.

done by YoHa in their *Evil Media Distribution Centre*.⁴ Institutions that intend to host disputes cannot get away with simply displaying objects of contention. Disputes involve discussions and debate. In other words: the objects need to be unmuted — or be given — a voice. A dilemma that informs some key questions: how can objects be displayed in an active way? How can the i.R.D. exhibit the (normally) invisible?



he institutions

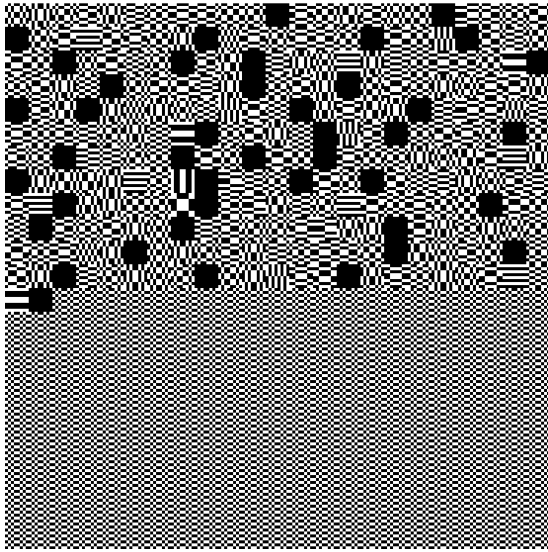
he institutions of Resolution Disputes (i.R.D.) call attention to media resolutions. While a 'resolution' generally simply refers to a standard (measurement) embedded in the technological domain, the iRD reflect on the fact that a resolution is indeed a settlement (solution), but at the same time a space of compromise between different actors (objects, materialities and protocols) who dispute their stakes (framerate, number of pixels etc.) within the growing digital territories.

Common settings can ossify as generally accepted requirements or de facto standards, while other standards are notated as norms by standardizing organizations such as the International Organization for

Standardization. We call this progress.

Moreover, resolutions are non-neutral standard settings that involve political, economical, technological and cultural values and ideologies; embedded in the genealogies and ecologies of our media. In an uncompromising fashion, quality (fidelity) speed (governed by efficiency) volume (generally encapsulated in tiny-ness for hardware and big when it comes to data) and profit (economic or ownership) have been responsible for plotting the vector of progress. This dogmatic configuration of belief x action has made upgrade culture one of the great legitimizers of scaled violence, putting 'insufficient' technological resolutions to rest. While a resolution can be understood as a manifold assemblage of common, but contestable standards, they should also be considered in terms of other options: those that are unknown and unseen, obsolete and unsupported.

⁴ Yoha. *Evil Media Distribution Centre* (2013)
see: <http://yoha.co.uk/evilmedia> (20.02.20)

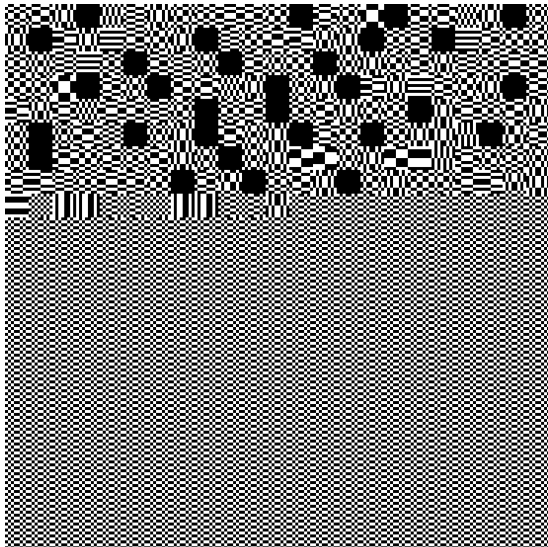


Resolutions inform both machine vision and human modes of perception. They ubiquitously shape the material of everyday life. They shape the material of everyday life ubiquitously. They do this not just as an “interface effect” but as hyperopic lens, obfuscating any other possible alternative resolution from the users media literacy.

As the media landscape becomes more and more compound: a heterogenous assemblage in which one technology never functions on its own; its complexities have moved beyond the fold of everyday settings. Technological standards have compiled into resolution clusters: media platforms that form resolutions like tablelands, flanked by steep cliffs and precipices, looking out over incremental abysses that harbour unsupported, obsolete norms. The platforms of resolution

now organize perspective; they are the legitimizers of inclusion and exclusion; of what cannot be seen and what should be done; while in the shadows, other possibilities become more and more obscure.

Yet, it is important to understand that resolution platforms are not inherently evil.⁵ They can be impartial. It is important that we unpack these resolutions and note how they are conditioning our perception. A culture that adheres to only one or few platforms of resolutions supports nepotism amongst standards. These clusters actively impose notions of simplicity, masking the issues at stake and in turn savouring stupidity, which is bound to escalate into a glutinous techno-fascism.



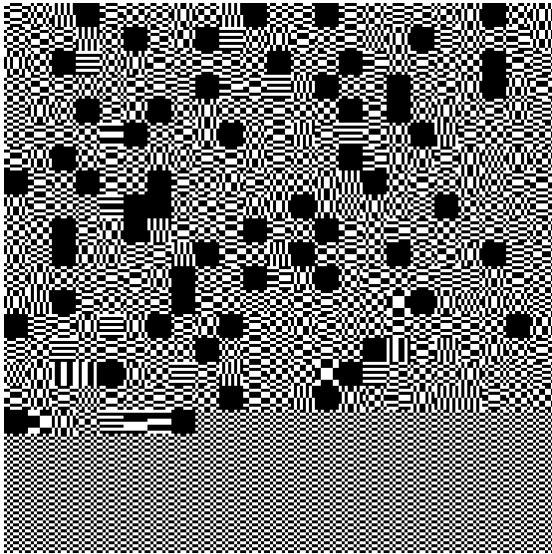
The question is, have we become unable to construct our own resolutions, or have we become oblivious to them? Either way we are in need for another re-“(Re-)Distribution of the Sensible”.

Resolutions work not just as interface effects but as a hyperopic lens, which obfuscates any other possible alternative resolutions from the users’ screens and media literacy. When we speak about video, we only ever refer to a four-cornered moving image. Why do we not consider video with more or fewer corners, timelines, or soundtracks. Fonts are monochrome: they do not come with their own textures, gradients, or chrominance and luminance mapping. Text editors still

⁵ Andrew Goffey and Matthew Fuller, *Evil Media* (2012)

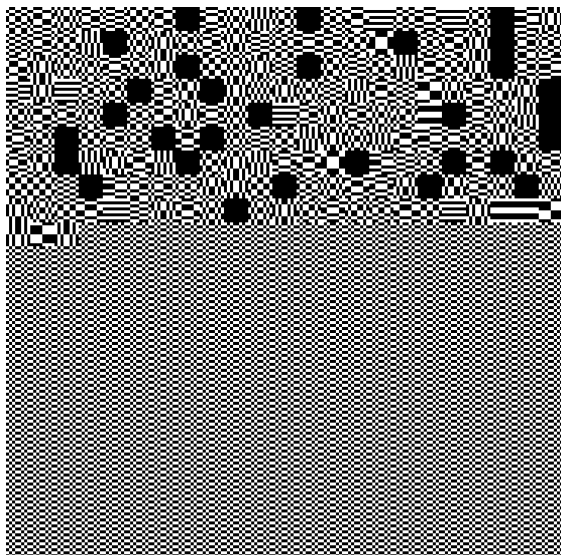
follow the layout of paper: there is hardly any modularity within written-word technologies. Even ghosts, the figments of our imagination, have been conditioned to communicate exclusively through analogue forms of noise (the uncanny by default), while aliens communicate through blocks and lines (the more intelligent forms of noise).

We comfortably navigate resolution platforms; unknowingly suffering from technological hyperopia, we have lost track of the compromises that are at stake inside our resolutions and stare at screens, which show us mirage after mirage.



iRD intend to impose methods of “creative problem creation” to bring authorship back to the layer of setting a 'resolution'. The radical digital materialist believes in an “informed materiality”; while every string of data is ambiguously fluid and has the potential to be manipulated into anything, every piece of information functions within /adhesive*/ encoding, contextualization and embedding (etc).

A resolution is the lens through which constituted materialities become signifiers in their own right. resolutions resonate the tonality zeitgeist and constantly transform our technologies into informed material vernaculars. Technology is evolving faster than we as a culture can come to terms with. This is why determinations such as standards are dangerous; they can preclude the alternative.



Through iRDs tactics beyond resolution, the otherwise grey mundane objects of everyday-life show their colors. iRD are not a wunderkabinet of dead media, but a foggy bootleg trails for vernacular resistance.

Progress has fathered many dead technologies. A *Wunderkammer*, or curiosity cabinet of media resolutions, would celebrate these dead objects by trapping them inside a glass bell, relieving them indefinitely of their action radius. While the i.R.D. adhere to the settlements of governing media resolutions, it also welcomes ventures along the bootleg trails of the tactical undead. These undead move beyond resolution, through the literacies of the governing techno-

cultures, into liminal spaces. They follow the wild and uncanny desire paths that cut through sensitive forms and off-limit areas into speculative materialities. They threaten the status quo of secure media forms and provide the ambiguity that is so necessary for inspiration, action and curiosity.

DDENDUM

We are in need of a re-(Re-)Distribution of the Sensible.⁶

The i.R.D. offers a liminal space for Resolution Studies. Resolution studies is not only about the effects of technological progress or about the consequences of scaling. Resolution Studies analyzes how resolution embeds the tonalities of culture in more than just its technological facets. Resolution Studies researches the standards that could have been in place, but are not. As a form of vernacular resistance based on the concept of providing ambiguous resolutions, the i.R.D. employ the liminal resolution of the screen as a looking-glass. Here, hyperopia is fractured and gives space to myopia and visa versa. This is how i.R.D. expose the colors hidden inside the grey mundane objects of everyday life.⁷

The i.R.D. believe that methods of creative problem creation can bring authorship back to the layer of resolution setting.⁸

Resolution theory moves against what sometimes seems like an unsolvable compulsion to flatten reality. The i.R.D. might seem like a one way trail into the sea of fog and toward the abyss of techno-norms. It could also be a modular framework that opens and expands standards through inspection and reflection. As any good theory of media, resolution theory is a theory of literacy. Literacy of the machines, the people, the people creating the machines and the people being created by the machines. Through challenging the platforms of resolution, it can help the wanderer to scale actively between these states of hyperopia and myopia. It can uncover crystal cities of fog as well as shine a light on soon-to-be-distributed futures.

Here we can mine for the *timonds*.⁹

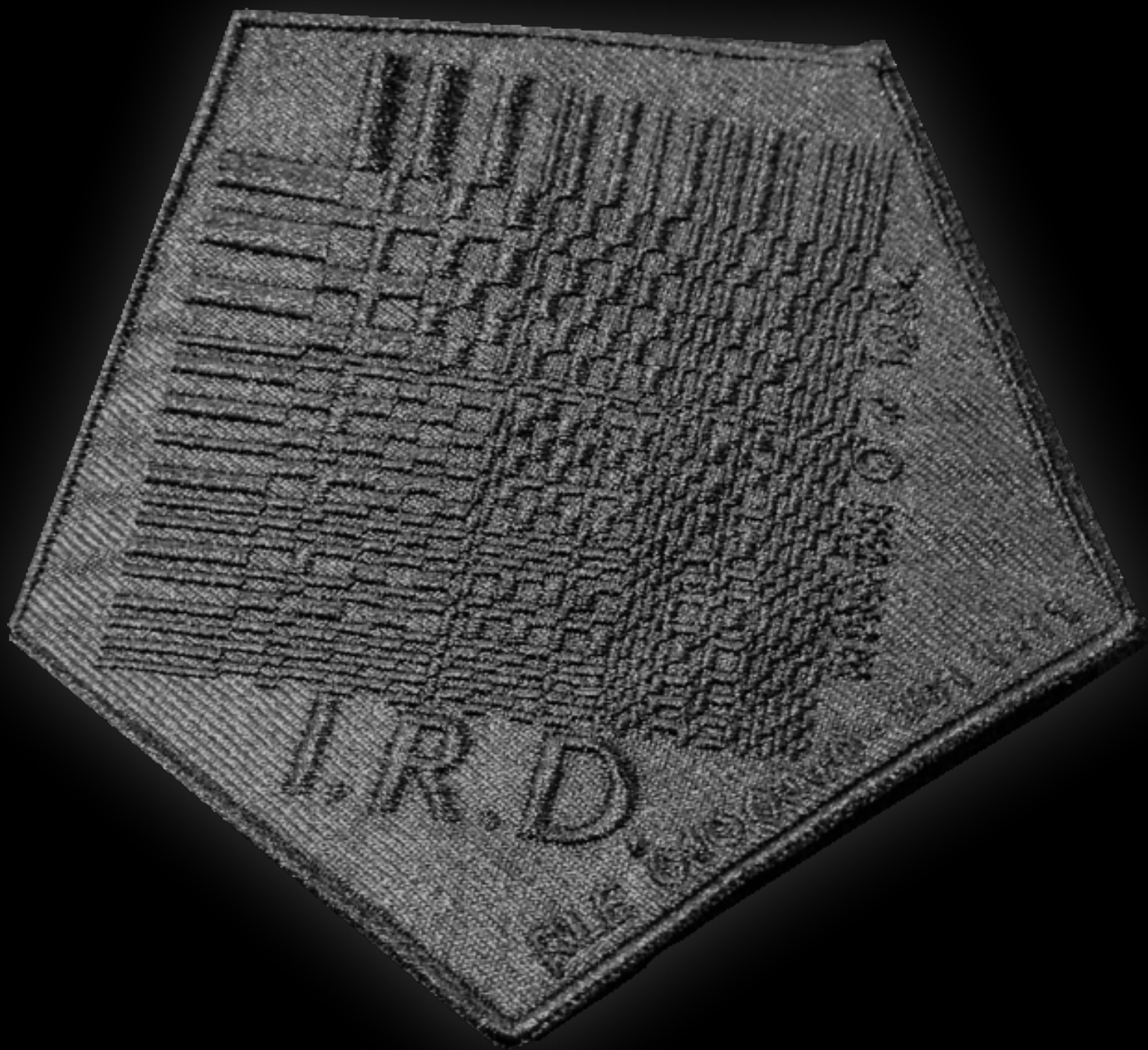
⁶ Ranciere, Jacques. *The Politics of Aesthetics*. London: Continuum International Publishing, 2004.

⁷ Certeau, Michel de. *The Practice of Everyday Life*. Berkley: University of California Press, 1984.

⁸ jon.satrom, *Creative Problem Creation*, 2013.

⁹ Menkman, Rosa. *Glitch Timond*, 2014.

see: <https://beyondresolution.info/Glitch-Timond>



I.R.D. Patch for the fight against institutions, containing the key to the i.R.D. (RLE 010 0000 - 101 1111)