

Generative Design **Variations 4**

# Photos

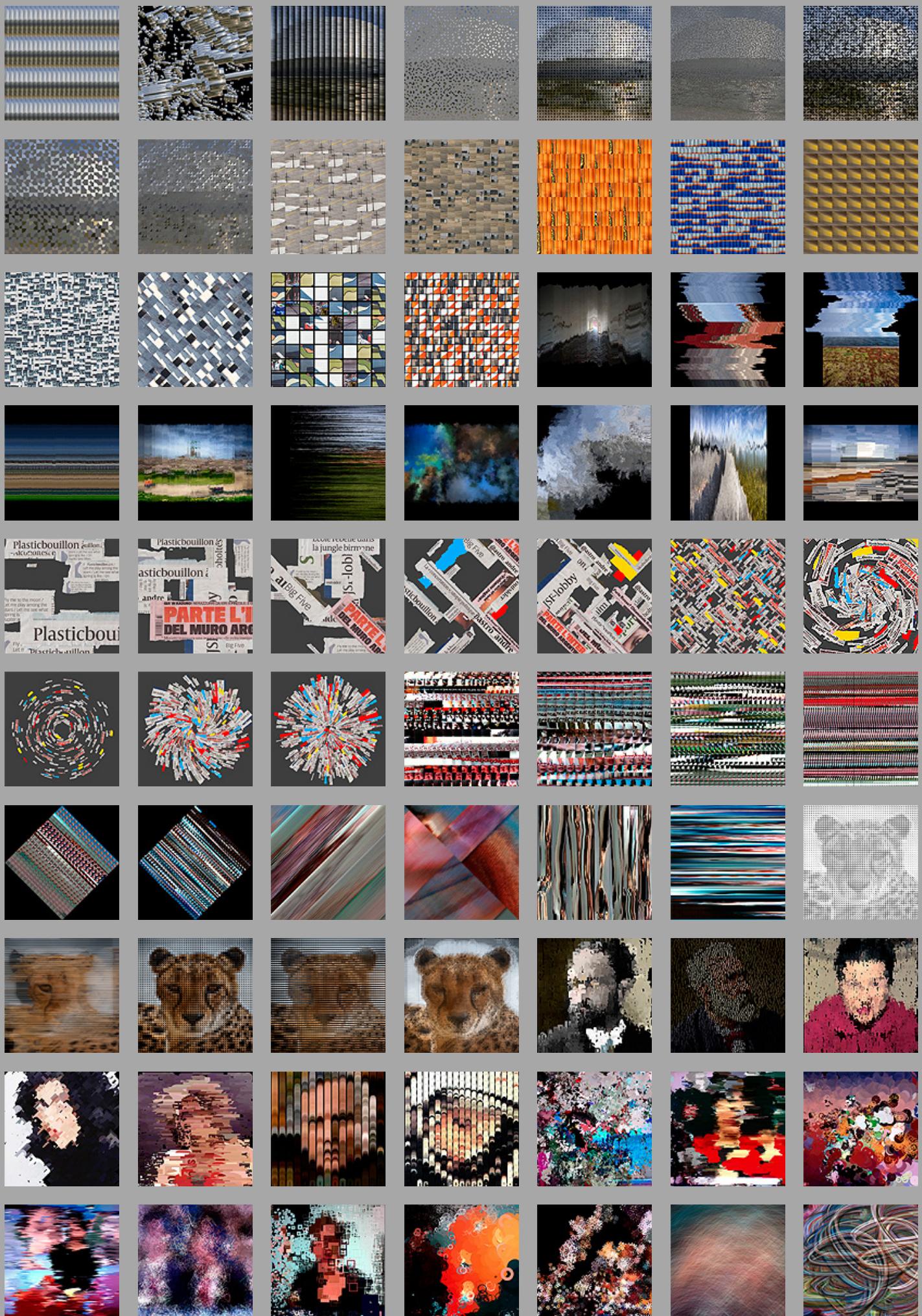


A digital image is much more flexible than an analog image. Anyone can take a picture with an iPhone and immediately send it to the social media. Or you can edit the photo and print an enlarged version of it, although I almost never print. All of my images are stored on my hard-drives and backup systems. Our lives (in the Western and Eastern world) are very much influenced by images. Whether you see them on the internet, TV shows, or in the digital newspaper. There are of course many advantages to the digital image. It is semi-environmentally friendly (but the coal plant should still kept on running). Another advantage is that they can virtually replace all representations of the analog image. You can create collages, generate patterns or manipulate film- or TV-images. And the amounts of variations that you can generate by a program are endless. The disadvantage is the storage medium. They change over time (tape, floppy disc, SyQuest discs, optical discs, etc) and you might lose your images. Paintings from the fifteenth century can still be seen in museums while digital files from ten years ago might be lost forever.

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'When words become unclear, I shall focus with photographs. When images become inadequate, I shall be content with silence.'

Ansel Easton Adams, 1902—1984,  
American photographer and  
environmentalist.



MyCodeHistory: 28 August 2014

When I was eight years old I remember that there lived a man in our street who owned a photo-camera, that was very special at that time. I have made photo's since I was twelve years old. Bought the cheapest camera I could find. It was a Russian Zenit-B camera with a curious Indistar-50-2 prime lens. I only made pictures when I needed them for my school's homework. But luckily time has changed. I have now a photo-archive which started to explode (size-wise) since 2009. In that year I started seriously to take pictures. Bought a Canon EOS 1D MARK III with several lenses and I joined two workshops. One with Stephen Johnson in Dead Valley, USA. And one organized by FocusOnNature in Iceland, with Ragnar Th Sigurdsson and John Paul Caponigro. It is purely coincidence that I began to work with Processing in that same year too. But back to the program. A digital image consists of picture elements (aka pixels). Access to these pixels give you an enormous amount of graphical possibilities. An image is loaded by the program in a grid. Horizontal mouse positions define the horizontal tile count. Vertical movements define the vertical amount of tiles. Each tile is filled with a scaled version of the loaded image.

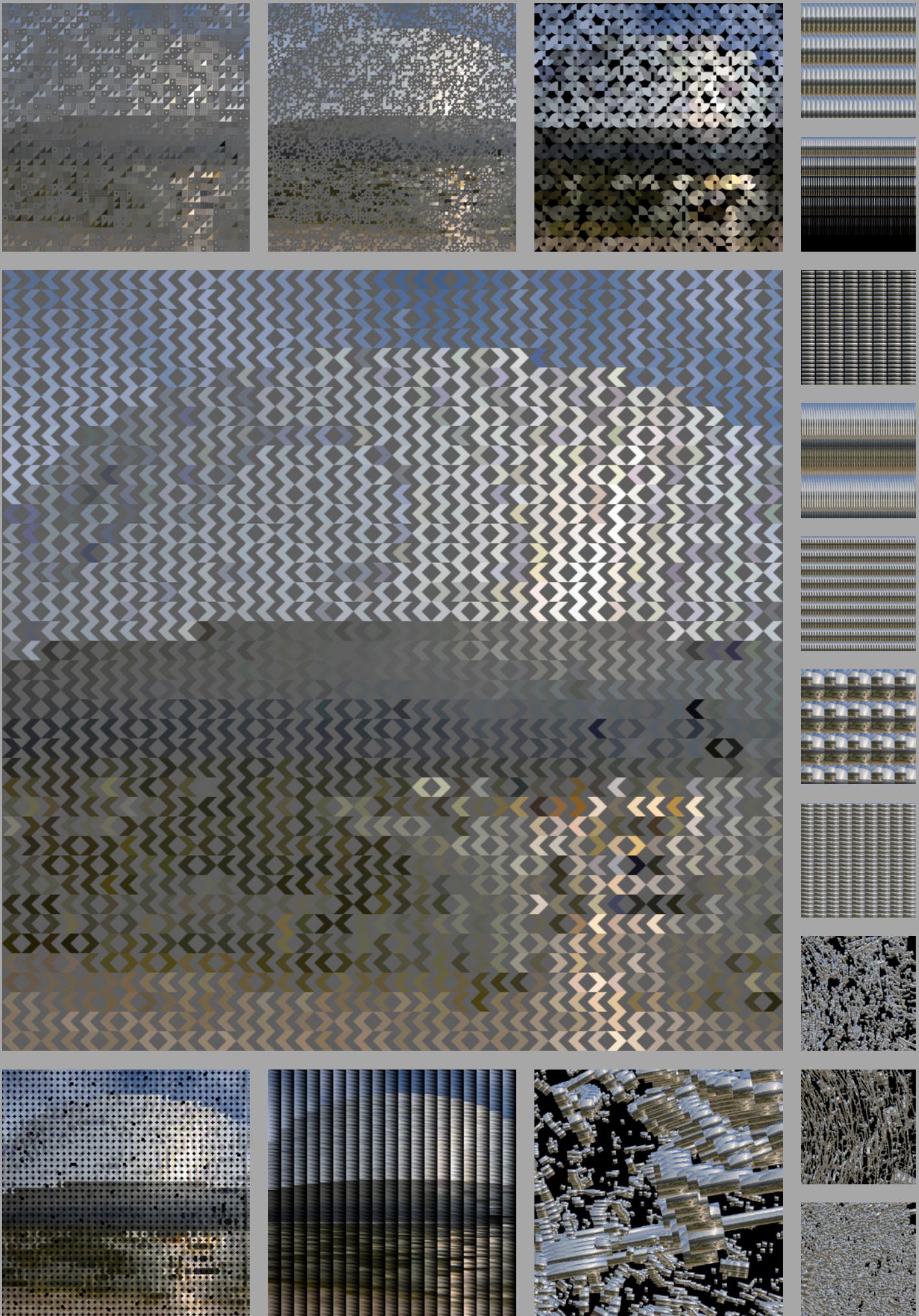
I have imported one of my own images which I took at Denmark's Copenhagen Aquarium 'The Blue Planet' in 2014. It seemed a good idea to me to use one picture for all the program variations. In that way you can compare the differences of the modifications better. The first thing that struck me was that the image positioned in a tile can get so small that it really doesn't matter what kind of image you use. It is always going to look good because of the repetition. I would like to decrease the scale ratio. Oh... does it crash? No, it seems to freeze. Well, that is almost the same result. If you go outside to the left or the top of the display window it freezes. Anyway... I divided tileCountX and tileCountY by 10. That gives me the smallest

version of the grid in which I can still recognize a small version of the original photo. But it still freezes when I go with my cursor outside the left or top of the display window. I have put ellipses on the corner-points of all photos. Used the get() function to load the color information at the mouse location to fill the ellipses. That did not work out well. So I removed the ellipses. Used a rotate and a translate. Just by coincidence it gave me very unexpected results. Commented out the large images. Even more interesting.

I need to change this program. I think all the variations I make are getting too close to the original program. I am going to merge this program with the same program I modified two years ago. The main difference is that this earlier program is not interactive. It's just animation. Lets see how that works out. That worked out fine. Except for the fact that when I go the left and top sides of the display window I get an ArrayIndexOutOfBoundsException: -100. So I have copied an if-statement when gridX is smaller than zero than gridX is zero. Now it keeps on working. But don't click the mouse. Knowing that this is good enough for me. The image isn't scaling anymore. But the objects on top of the image are. It's a bit different but I think this gives me more possibilities to make variations.

When you modify a program there is a chance that it sometimes freezes. What can you do to prevent that? You can't. Most of the time I try to solve it by working around the problem. If you know that the program freezes when you are pressing the mouse button. Don't press the mouse and continue working. Or if you want to find what caused the fault just eliminate by comment out some lines until it works again. But in this program I could not find the mistake I made.

This is a story which I used a lot of times when people said to me: 'Hey that is a great image! Which program do you use?' The story is about an encounter between the famous novelist Ernest Hemingway and the also very famous photographer Ansel Adams. In the story, Hemingway is purported to have praised Adams' photographs, saying, 'You take the most amazing pictures. What kind of camera do you use?' Adams frowned and then replied, 'You write the most amazing stories. What kind of typewriter do you use?'



MyCodeHistory: 9 September 2014

The difference with this program, if you compare it with the previous program, is that you select parts of an image and it displays them in tiles. These parts are copied into an array and displayed in a grid. There are two modes in the program. The first one copies exactly the same selection. The second shifts the selected part randomly. The program gives you enormous possibilities to choose from. However there is one thing which is unclear. It is not always sure whether you've selected something. You need to have that feedback otherwise the program cannot build an image from that selected area. In roughly fifty percent of the cases it does build an image. The other fifty percent it shows the composition for a second or less and then it flips back to the original photo. I have the idea it has something to do with my Wacom tablet and its mouse. I checked my system preferences. I got a 'Tablet Version Mismatch' error. Please reinstall the tablet software. I downloaded and installed the latest Wacom Intuos 3 driver. But do my Wacom tablet, pen and mouse work better now? No! With a pen it is still undo-able. But the mouse works fine. I was working with an outdated tablet driver.

Next thing to do is changing the global variable names and the size of the display window. Why is mouseMoved and keyReleased displayed in a bold typeface in the Processing Development Environment? No idea! Added new selection-sizes to the keys. Key 1 = 8 x 8 pixels, key 2 = 10 x 10, key 3 = 16 x 16, key 4 = 20 x 20 and key 5 = 25 x 25. And I am initializing TileCountX and TileCountY to 8. That makes my selection rectangle the same size as the size defined under key 1. For the photography I will use parts of photo's which I made in 2014 at Strijp S. Strijp S is a former industrial area of approximately 27 hectares in Eindhoven which belonged to the Philips company. The intention is to develop the area into a residential, design and entertainment center.

Looking at the program everything I changed until now has not much impact on the generated image. Everything I changed until now has not much impact on the generated image. I changed the constrain function. Does not make any difference. Lets start from the beginning of the cropTiles function. When I change an TileWidth = width x TileCountY it gives me a OutOfMemoryError: You may need to increase the memory setting in Preferences. Another change gives me a NullPointerException. A spinning beach ball and an ArrayIndexOutOfBoundsException:64. Maybe its better not messing too much with this code. But I can change the size of the tiles by dividing Tilewidth and TileHeight by a certain amount. It's not much of a change. And a part of the original background image is still visible. What about switching on strokeWeight? That works on my selection rectangle only.

I was looking for a way to paint something on top of the tiles. Tried to do that in the cropTiles function but that did not work. In keyReleased it did not work either. But what I can do is change the size of TileCountX and TileCountY in the keyReleased block. That gives better results. Made a few variations with that. Although the righthand bottom corner is not filled. Saved that because I have to make TileCountY the same size as TileCountX. Which makes the program behave the same as the original program. I defined key 6 for TileCountX and Y = 40. And key 7 for TileCountX and Y = 50.

It seems that you can use the images under an angle. If you add a translate, rotate and scale function in the beginning of the draw block it just keeps on working. No Error messages. The only thing I have to do is make the original PImage larger so I can get rid of the scaling. Scaling makes the image unsharp. I start with a 1600 x 1600 PImage displayed on an angle in a 800 x 800 display window. Will that make sense? Partly! It is difficult to select and it is difficult to get the screen filled.

Moved translate and rotate to the re-assemble image part of the program. That worked better.

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I could have gone deeper into the program but that would take too much time. Anyway, the results of the program were much better than I thought would possible when I started with it.

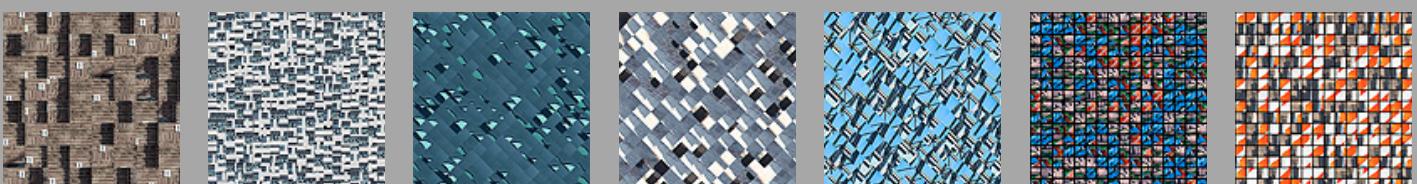
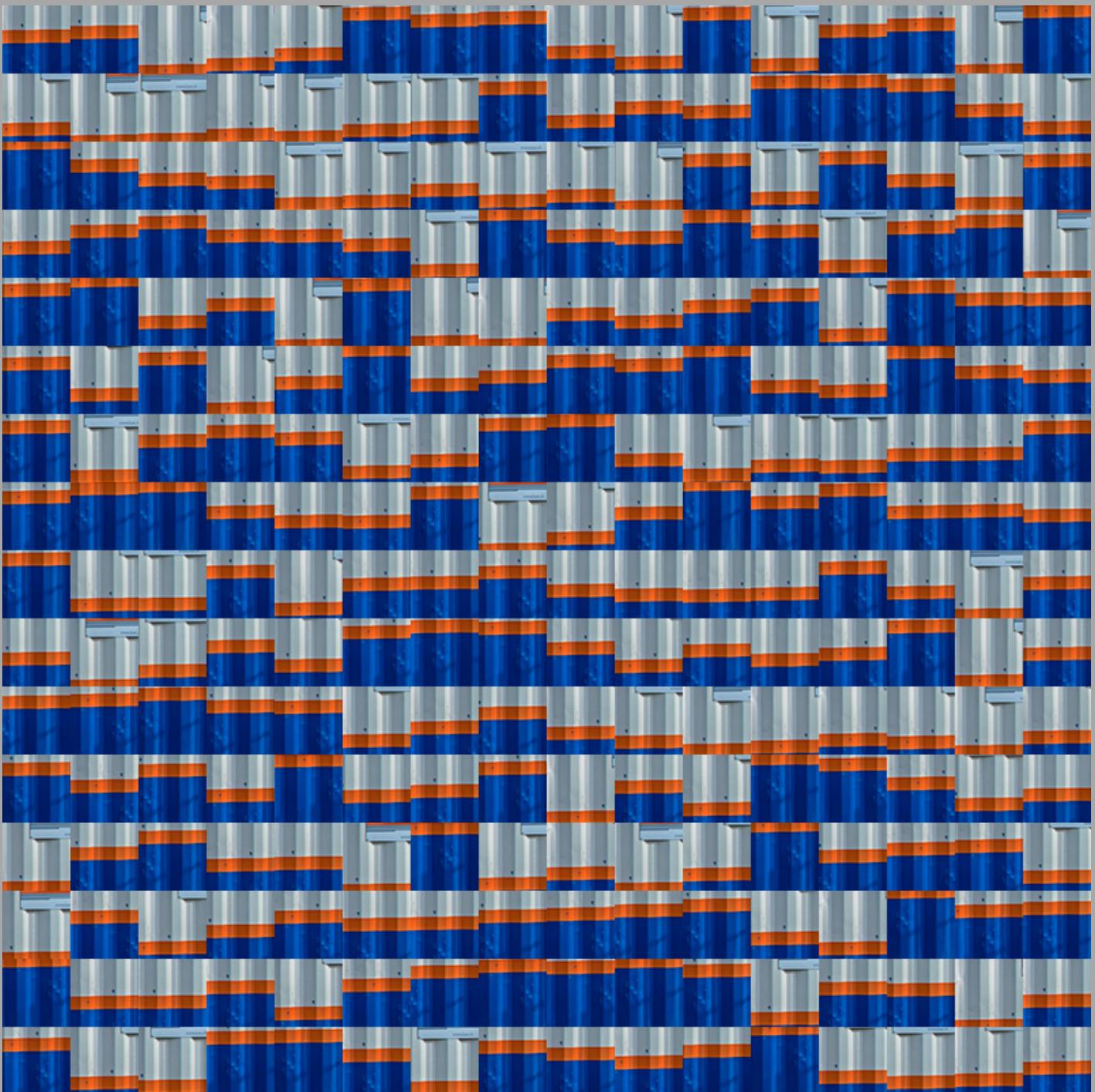
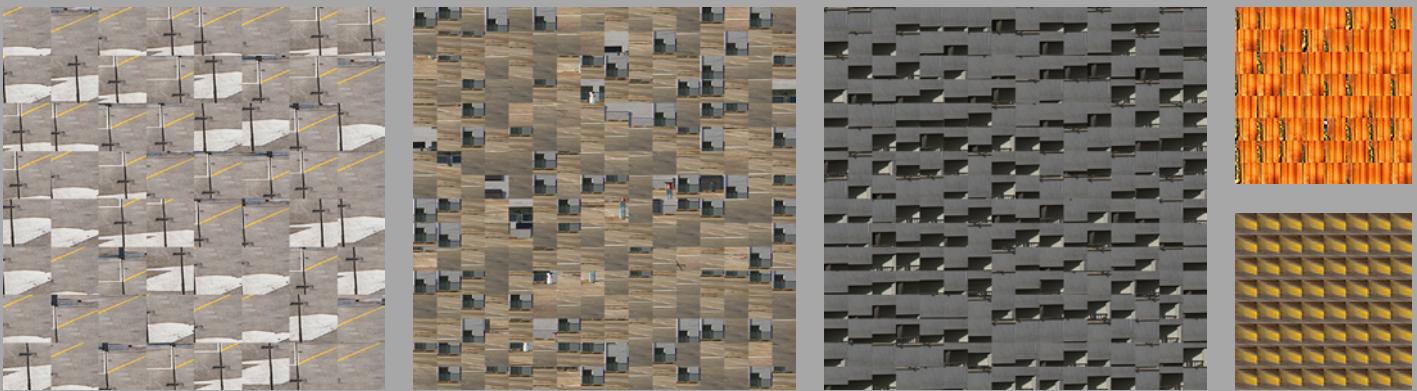
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Alice laughed: 'There's no use trying,' she said; 'one can't believe impossible things.' 'I daresay you haven't had much practice,' said the Queen. 'When I was younger, I always did it for half an hour a day. Why, sometimes I've believed as many as six impossible things before breakfast.'

Alice's Adventures in Wonderland, 1865, Charles Lutwidge Dodgson, English writer, mathematician, logician, Anglican deacon, and photographer, 1832–1898.

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Flickr: [Strijp-S](#)



MyCodeHistory: 21 September 2014

An image is loaded and displayed. And every 60 frames per second a vertical strip of the image is copied to a random selected position. This is repeated until a distorted image is composed. Because this is a very short program it did not take much time to adjust things. Just the usual stuff. Changed a few variable names to make things more understandable. And I asked myself 'What does round do?' Checking the Processing reference it calculates the integer closest to the n-th parameter. That is good to know. Again I used photo's which I made in 2014 during a vacation in Copenhagen, Denmark. Why is there a white top and bottom? I assume it's there because you can see the noise better. Its left behind by the manipulated and shifted pixel slices. I changed the background to black. Another question is: 'Does this feedback of image cutouts work also horizontal?' Swapped sliceWidth with sliceHeight. Some weird stuff is happening at the top of the display window. Changed a few other parameters and than it worked. But it would be better to use a photo which uses the full height but not the full width.

Can I put this kind of image processing on an angle? Added a translate and rotate in the program and I get an 'InternalError: transformed copyArea not implemented yet'. That means that you can copy an area but you cannot rotate it. But in a meanwhile I found out that you can place the original photo in the background. It shifts the slices but does not replace them with black. In that way the image stays partially unaffected. That might be interesting. It is a bit vague to me what the program exactly does when you mash up a few parameters. Maybe I did something illegal? I have put a larger random parameter in front of the smaller parameter. This gives an interesting effect though. Some repetition is going on. And the image moves slowly to the right border. Repeating itself around 50 pixels from the left. This takes time. And the result is a bit similar to the wind filter in Photoshop. Only this takes

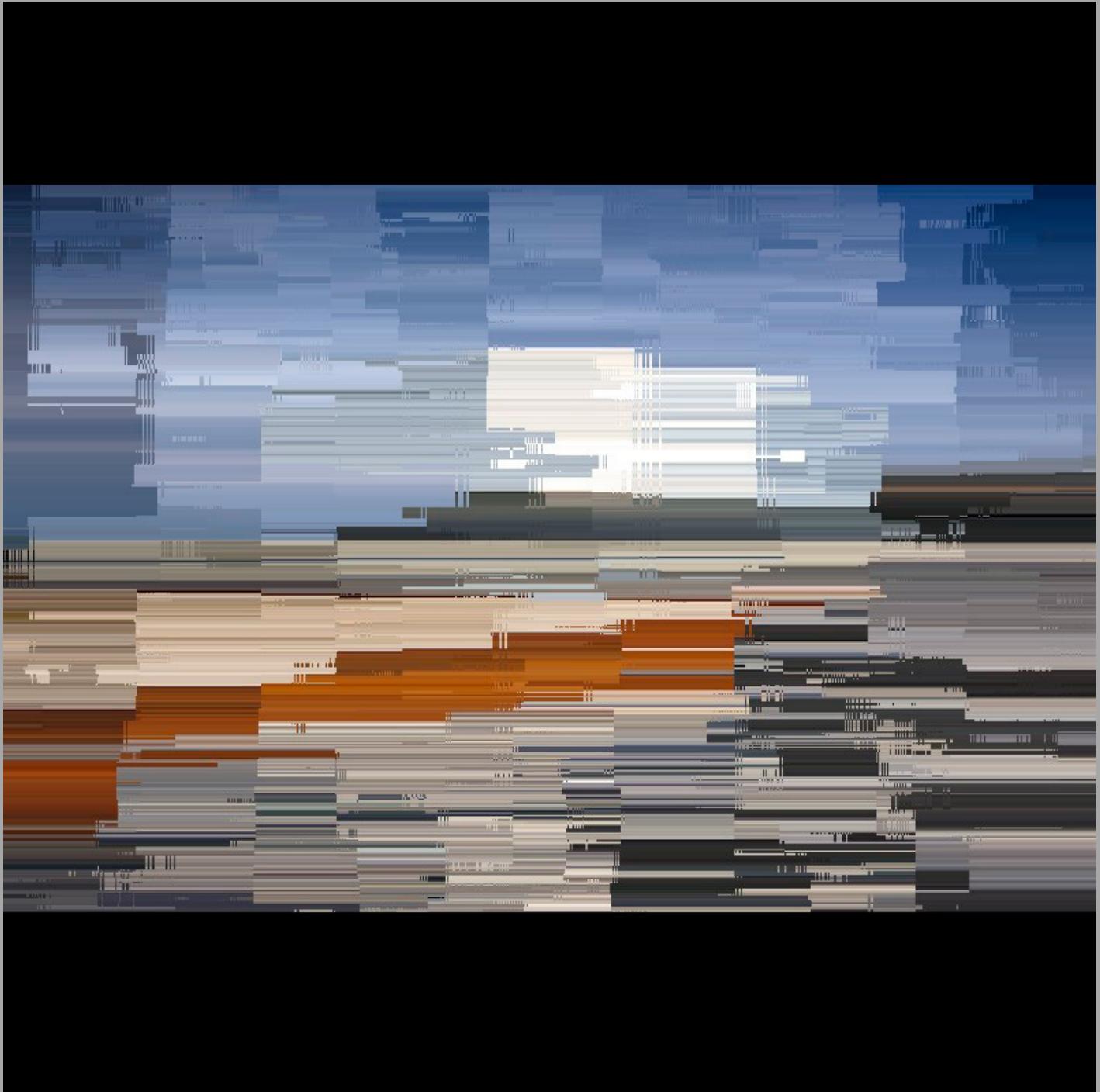
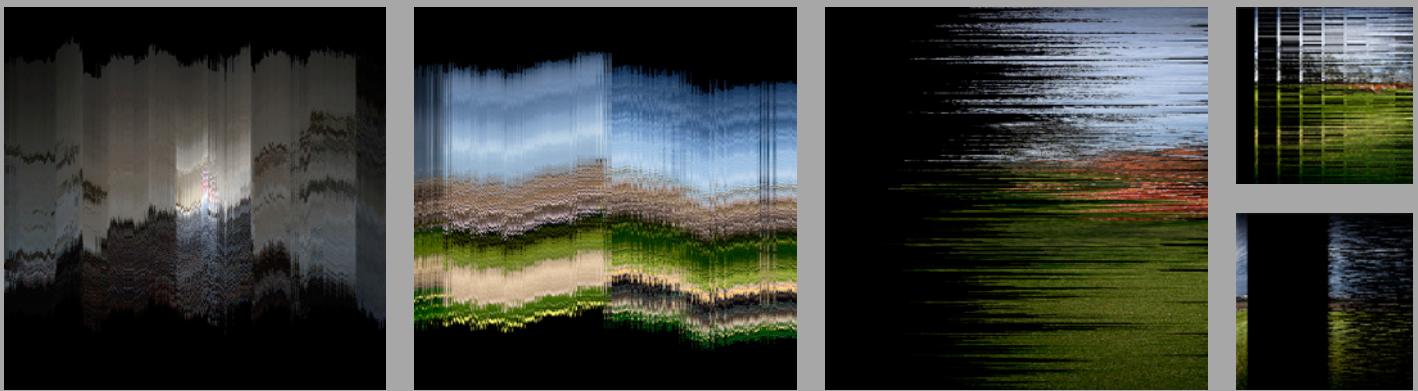
more than half an hour to make this image. That seems a waste of time. I tried another one and that was working for 210 minutes.

The other ten modifications of the program are made by an extra program which cannot be found in the Generative Design book. The program makes all horizontal and vertical positions random. I changed the size of the 'to-be-copied-image-selection' to 10 x 10 pixels. That is small. But what if I make it 1 x 1? Than it looks like nothing is happening. Oh, I see two pixels, no three pixels have been moved in the top black area. This is going to take a lot of time. Changing sliceHeight to height. That worked better. Let it run for 45 minutes. Undid (as in I undid that yesterday) all setting changes and added a sliceWidth randomized between -400 and 400. I have the impression that this image (with a lot of black in it) will not work as good as the images with more light and colors. I created another image with almost the same settings as the previous example. And this works better. But also slower. The final image took from 13:20 until 16:05. That was the time when the first pixel reached the right side of the Processing image display window. What about feeding the manipulated image again to the same program. I first distort an image. Save it as a jpg. And import that again for another round of image processing. I think it does not make much of a change. Distortion on distortion makes just different distortion but not better distortion. But I must say that these images have painterly qualities.

The creation of any good image takes time. But when programming is used to create images there are a lot of things uncertain. Programming is part a technical and abstract process. But there is also an aesthetic part which you have to learn apart from programming.

When very old, Titian finished one of his masterpieces, laid down his brush, and said, 'I think I am beginning to learn something about painting.'

Tiziano Vecellio, 1488–1576, Italian painter.



MyCodeHistory: 29 September 2014

This program assembles a collage from a selected image folder. Only parts of the images are used and combined. Every image is assigned to one of three layers. Modifications like rotation, position, and size are also possible. Just as it is possible with analog collages. For this program I used words from five International newspapers: 'De Volkskrant, De Morgen, Le Monde, The Times and La Gazzetta dello Sport.' Selected hundred words or full headers and teared them apart from the newspapers. I did not cut them because I like the ripped paper. It supports the idea of a collage better.

I think my first attempts were too chaotic. Although a collage should be a bit chaotic. Let's see what I can do to prevent that chaotic look. Made a copy of the footage folder. Changed the sketchPath link and removed all files until I had only three of them left. Does the program still work? It does. And the image looks less cluttered. In the beginning I thought that those three layers provided in the program would not make any sense. But if you work with them for a while then you know which layer has a good composition. So you keep that layer and change the other ones until they all three contain good compositions. I found out that the resolution of my images is 150 pixels per inch. I can reduce that to 72 pixels per inch and they will all get smaller. But it is also reducing the file size. The folder size shrinks almost with a quarter. Maybe it's a good idea to add some primary colors to the compositions. Added a red, blue and yellow piece of paper.

I have removed the randomized loading of images. I like a certain amount of images which are just enough to make a good composition. No more and no less. It's now on 20. But what about 100? That isn't any good because only the top layer will be visible. If you keep the scale between 0.2 and 0.4 it might be good. Tried to make it as small as possible. Between 0.1 and 0.2. Not too bad. But its lacking some contrast.

What about 200 items per layer? Great! 400 Maybe? Even better. Lets crank up the scale from 0.1 to 0.3. And than I did something silly: set the scale between 0.01 and 0.09. It gives me a pattern. And you cannot read the headlines anymore. I made a mistake. Instead of a 100 items I typed 11100. But even than it works.

I start with putting every variable to a basic setting. But when I hit the 1, 2, 3 keys it's getting chaotic again. Have to change that. But it looks promising. I fixed the 1, 2, 3, keys. They all have the same settings now. Because the circle looks fine I would like the images a little larger so you can read the headlines better. Made the circle also a bit bigger. So I have room enough to enlarge the headlines. I think these settings are better than the ones I had in the beginning. What happens if I increase the amount of headlines from 100 to 500 per layer? It fills the circle. It is also too large. The image is hitting the boundaries of the display window. 500 Images per layer is too much. I ended up with 300 images for layer 1, 200 for layer 2 and 100 for layer 3. Until now I did not visit 'den zufälligen Rotationswinkel' (random rotation angle). By using those variables you can easily make nice images which are slightly chaotic but not too much. And that was what I was looking for.

When I let the program run for the first time I did not know how Processing could find the image files. After commenting the programlines I came across the word 'sketchPath'. Checked the Processing reference but I got a 'Not found'. I did not see the function 'sketchPath' before. What does it do? Again the Processing forum was a very usefull source of information. Found a post from binarymillenium with an answer of JohnG: Re: Get directory of current sketch? Reply #1 – Dec 16th, 2008, 5:31pm sketchPath(""); will give you the path to the sketch, dataPath(""); will give you the path to the data directory. You can put things into the method to give a file, e.g. sketchPath ("foo.txt"); will give you the path to a file called "foo.txt" in the sketch directory. So sketchPath does the same thing as selectInput does! Choosing selectInput you have to locate the image files yourself.

Around the 1920s the aesthetically most gifted political collage artist was Hannah Höch. She had a great sense of composition and her montages always form a unity. However, she has never been well-known. The reason was her relationship with Austrian artist and writer Raoul Hausmann. Höch's work was in many ways more original than Hausmann's, yet she found herself 'naturally' falling into the role of supportive helpmate. After his dead Hannah recalled 'Poor Raoul. He needed constant encouragement to carry out his ideas and achieve anything at all lasting. If I hadn't devoted so much of my time to looking after him I might have achieved more myself.'

Hannah Höch, 1889–1978, German Dada artist.



MyCodeHistory: 10 October 2014

The program loads images from a movie file in regular time intervals and organizes them in a grid. The result is a mosaic made of movie stills. We have lots of video-tapes from our documentaries and animation films. But it is difficult to find interesting scenes on those tapes. Tapes are more difficult to search than a hard-drive. It's also more time consuming. I thought it would save me a lot of time when I create small movies right now, instead of searching for it. I could use a video camera for that but I used my iPhone 3Gs. I have never used the video function. So this might be a good opportunity. But what do I film? Let's start with the most colorful news broadcaster of the world. CNN. Filmed it from the TV-screen. It took me a few minutes to get some footage. Interestingly enough I filmed upside down.

I specially like the CNN footage which has typography in it. What file size is that movie? Its 7.6 Mb. The whites are a bit bleached out but its fast. And because the images don't have to be of HD quality this is good enough. What about changing the format. Let's double TileCountX and TileCountY in the program. Even better! Can I double that again? Sure! TileCountX is 48. TileCountY is 64. That is about 3072 frames. And the final image of all those 3072 frames together is getting better every time. It is also going to look more like a structure and less recognizable. And it takes more time. About 5 minutes to complete.

Used footage from a 1960s NASA film. Running that film on NASA's website and filming it with my iPhone 3Gs from my Apple Cinema HD screen. The Apollo 11 lift off. First in 18 x 24. And once in 36 x 48. But what if I double that again. Seems to work. Although there is not much to see anymore. The footage has just disappeared into a lot of tiny rectangles. It almost looks like it has 3D quality. And it takes almost 14 minutes to render. Apollo 10 above

the moon and filmed from the Lunar Module. Apollo 10 spacewalk. Apollo 11 landing in the sea. I made a mistake while defining the variable TileCountX. Instead of 36 I typed 368. A lot of strange things appear in the display window. So I stopped the process. But now I make TileCountX 400 and let it run. The image took 14 minutes to complete.

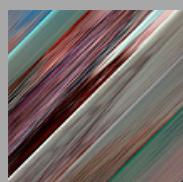
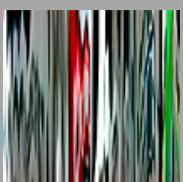
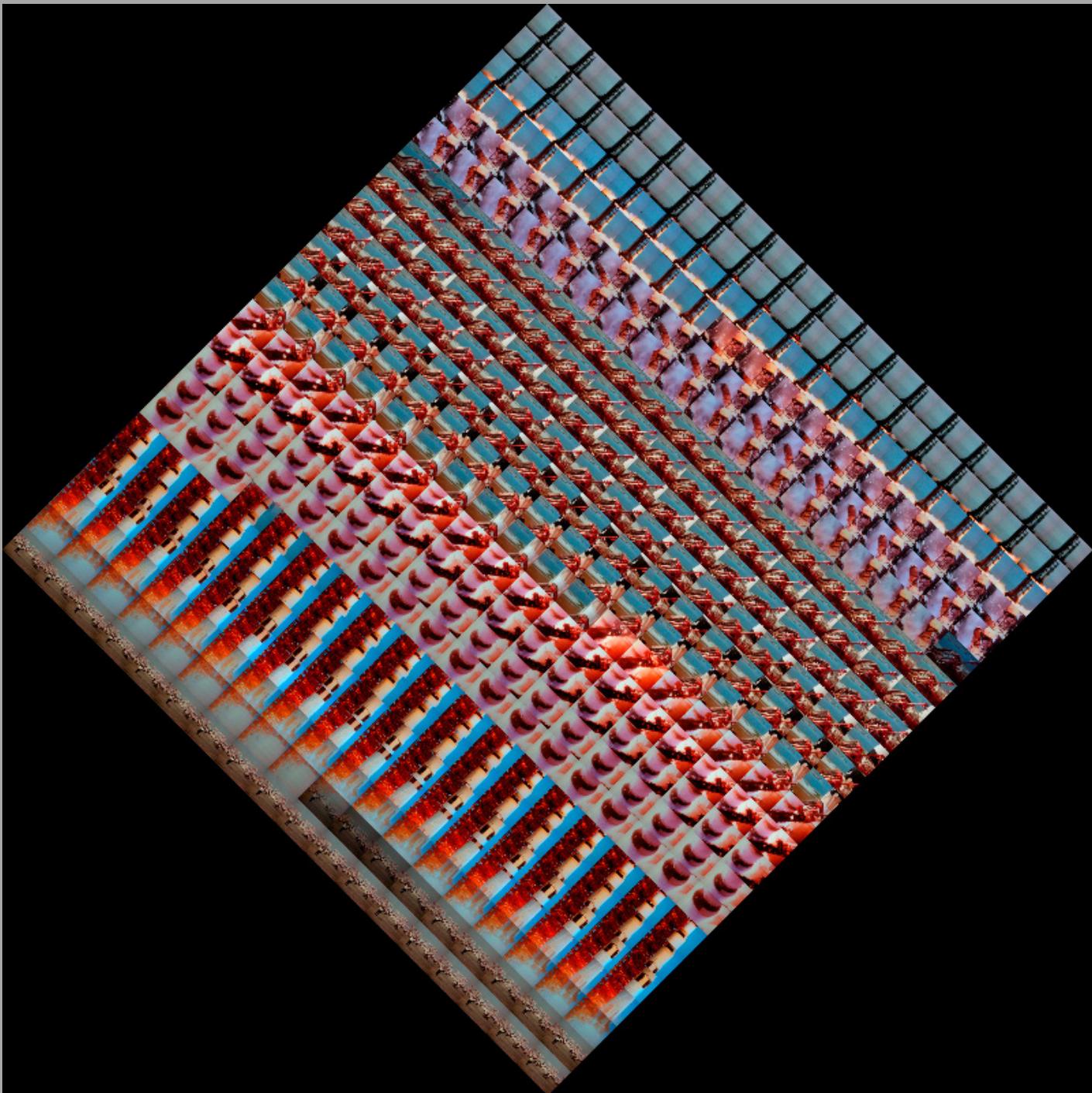
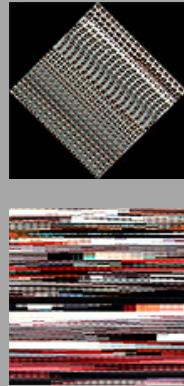
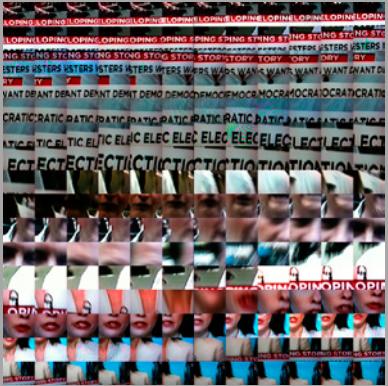
What happens when I make TileCountY just 1 pixel and TileCountX 800? Amazing! And now for a maximum stress test. TileCountX is width and TileCountY is height. Processing has to calculate 640.000 pixels. It started at 13:51. To complete 800 pixels in one row it takes about 2 minutes. After one hour I have cancelled it. It Hardly makes any progress and the image that is being rendered seems to get not quite interesting. Another attempt takes 56 minutes for Processing to render. Just put everything on an 45 degree angle. To fill an 800 x 800 display screen Processing needs to render an image of at-least 1150 x 1150. Otherwise it creates four black corners.

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'People choose the paths that grant them the greatest rewards for the least amount of effort.'

Gregory House MD, Fictional character, Former Head of the Department of Diagnostic Medicine

There is an extra program in the Generative Design folder. The time-lapse camera. After each intervalTime a picture is saved to the sketch folder. I connected a Sony PC110E DV camera. Processing says: 'NullPointerException' in the message area. And beside of that it gives me a lot of junk in the console: '2014-10-07 11:46:12.660 java[28975:10003] Error loading /Library/Audio/Plug-Ins/HAL/DVCPROHDAudio.plugin/Contents/MacOS/DVCPROHDAudio: dlopen(/Library/Audio/Plug-Ins/HAL/DVCPROHDAudio.plugin/Contents/MacOS/DVCPROHDAudio, 262): no suitable image found. Did find: /Library/Audio/Plug-Ins/HAL/DVCPROHDAudio.plugin/Contents/MacOS/DVCPROHDAudio: no matching architecture in universal wrapper 2014-10-07 11:46:12.661 java[28975:10003] Cannot find function pointer NewPlugIn for factory C5A4CE5B-0BB8-11D8-9D75-0003939615B6 in CFBundle/CFPlugIn 0x7fef1c115350 (bundle, not loaded) name=DCR-PC110E,size=720x576,fps=30 name=DCR-PC110E,size=720x576,fps=15 name=DCR-PC110E,size=720x576,fps=1 name=DCR-PC110E,size=360x288,fps=30 name=DCR-PC110E,size=360x288,fps=15 name=DCR-PC110E,size=360x288,fps=1 name=DCR-PC110E,size=180x144,fps=30 name=DCR-PC110E,size=180x144,fps=15 name=DCR-PC110E,size=180x144,fps=1 name=DCR-PC110E,size=90x72,fps=30 name=DCR-PC110E,size=90x72,fps=15 name=DCR-PC110E,size=90x72,fps=1... I think I'm running into a technical problem which might cost me a lot of time. Knowing that its better to stop this session.'



MyCodeHistory: 29 October 2014

Each pixel has a color value. These values can be used to influence rotation, width, height, and area. The pixel can also be replaced by a graphic element. In that way a portrait becomes abstract. To get acquainted with the program I always start changing the variable names to more meaningful names. For instance how do I know what `l3` is? I think this is an unlucky choice. Also because of the typeface. I explain this. How do I know that it is not `13` instead of `l3`? And if it is `l3` is it than uppercase `l` (`ai`) or lowercase `l` (`el`). Luckily the Generative Design people have placed a comment above this statement in the program:  
`// grayscale to line length. So I changed l3 into greyToLineLength.`  
 That is more typing but much more understandable for me.  
`GreyScaleToLineLength` would have been even better. Maybe I have to change that anyway. Another example. What is the variable `w4`? In the comment it seems to be `strokeWeight`. So I change that variable name to `greyScaleToStrokeWeight`. Which leads to names like: `greyScaleToLineLengthStrokeWeight`. Its long. But more understandable. But what about getting a picture of a portrait? I found a photo from 2008 which I made of a cheetah in the Tiergarten Schönbrunn of Vienna, Austria. To begin with I used the standard variations which you can find under the 1 to 9 keys.

I wondered what you could do to see more of the patterns. At this moment they all are very small. It seems that you have to decrease the image size. Decreased it from  $100 \times 100$  to  $50 \times 50$ . And that works better. I did some tests with changing the background to black but that did not work very well because than you have to invert the image. Which leaves you, obviously, with a negative image in the cases 1 to 5. So I left the background white for the time being.

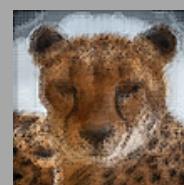
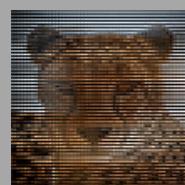
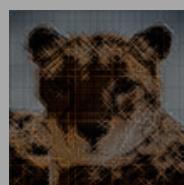
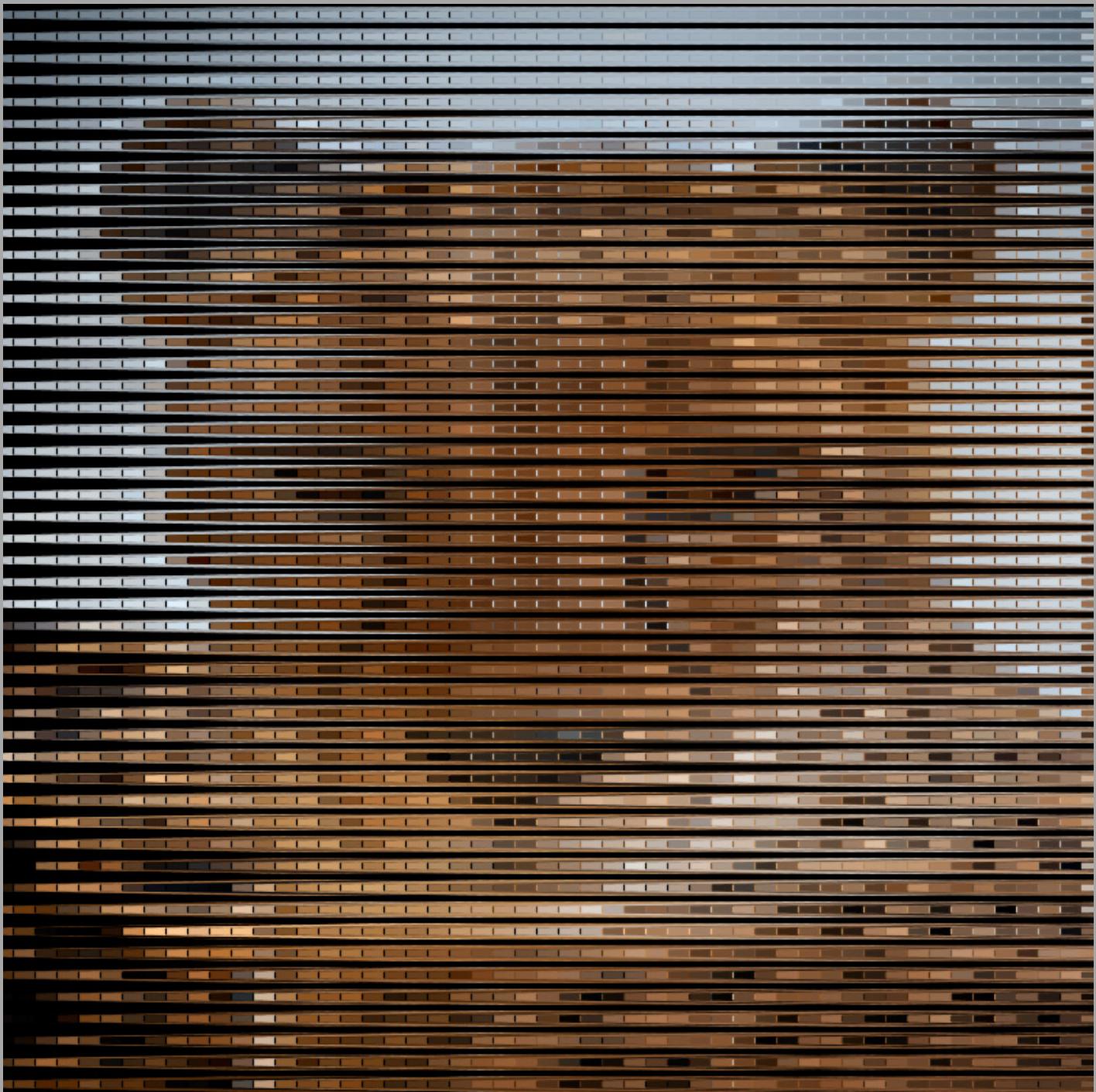
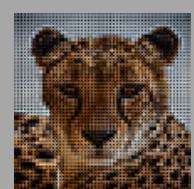
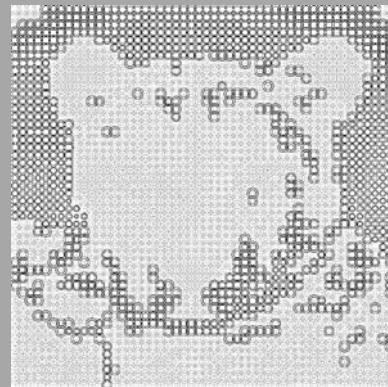
For the second version of the program I again renamed the global variables. Added comments to get it all a bit more understandable. Resized the display image. And used the `svg`-files which were added by the authors of the generative design book. Maybe it's a good idea to change the image into a colored image. Made 9 cases like the ones used in the earlier version. And I replaced the standard `svg`-files by my own much simpler `svg`-files. Also increased the resolution by increasing the original image. And OS Yosemite doesn't seem to support Adobe Illustrator anymore. I am on JAVA SE Runtime 7 and Illustrator needs Java SE Runtime 6. Downloaded that and installed it. Adobe Illustrator works again. By the way... you can install both JAVA SE Runtime 6 and 7. They want hurt each other. At this point I am working with two `svg`-files. Tried to keep it simple. It might get more complex into the end. Case 6, 7, 8 and 9 need some more attention. Just played with fills and strokes. And I have to remember: `pushMatrix()` cannot use push more than 32 times. I received that message because I forgot `popMatrix()`.

It is really impressive how many variations you can make with just changing a minor detail. Even enlarging `tileHeight` and or `tileWidth` can give very different results. This program is a real tool for people that like self-expression.

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Mies van der Rohe did not believe that an architect should indulge in self-expression. Once a student asked him for his opinion on this subject. He handed her a pencil and paper and told her to write her name: When she had done so, he said; 'That's for self-expression. Now we get to work.'

Ludwig Mies van der Rohe, 1886–1969, German architect



MyCodeHistory: 8 November 2014

Pixels from an image control the positioning of characters. The point-size depends on the gray values of the underlying image. The content of the text is typed into the program. The program displays the text from left to right. I have read and copied all remarks from the book version as a comment into the program. Changed the global variable names. For instance: inputText to TextInput, font\_sizeMax to MaxFontSize and font\_sizeMin to MinFontSize. Spacing to LineSpacing. Kerning to LetterSpacing. FontSizeStatic to OneFontSize. Most of the time I also change the code by adding some spaces when the text is very crowded. I think it makes the code more readable. Also changed the font into a font Jeanne and I designed in 2004 for an animation film about dazzle painting. That is a bold and condensed font which shows the underlying image better. It also introduced a problem. The font supports capitals only. So I added `TextInput = TextInput.toUpperCase()`; Another idea was to use pictures of several writers. The text of books they have written is creating their own image. A bit cheesy idea but I gave it a try anyway. I started with Emile Zola and used a paragraph of his book 'La Débâcle'. It takes a second or two to load.

The second writer is Jules Verne. I have no special reason for the choice of writers. Just picked them arbitrary. And I copied a paragraph of '20000 Lieues sous les mers'. To get a different effect in the image I increased the letter spacing to five. Increasing the global variable letter spacing works fine in the smaller font size. But I would like to keep that effect also when I am using larger font sizes. So I multiplied LetterSpacing ten times. That did not work. So instead of multiplying I divided it by ten. And than the image gets a totally different quality. Used a picture from Simone de Beauvoir and the first paragraph of her book 'The Second Sex'. Margaret Mead's text from 'Coming of age in Samoa'. 'On Photography' by Susan Sontag.

I made a modification of the program that puts every character on a totally nonfunctional angle which makes the text completely unreadable. It also animates with a frame-rate of one frame per second. The text is from Camille Paglia's 'Sexual Personae'. Germaine Greer's text from 'The female eunuch'. Robert Hughes's text from 'The shock of the new'. Richard Dawkins seemed to me the right writer to stop with the idea of quoted paragraphs from books. I only used one character for his portrait. That last image is Yuri Gagarin. The image is formed by the letters CCCP. I never knew what it really meant. This is the right time to look it up. It stands for 'Союз Советских Социалистических Республик', which when translated into English is 'The Union of Soviet Socialist Republics'.

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When content makes the image of someone who has written that content it might be a good idea. But it has been done so often that it makes the idea less good. There is a difference between a good and an excellent idea.

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#### The Testing Theatre.

Ned Rorem made his first visit to Alice B Toklas's home after Gertrude Stein's death. He noticed on the wall two remarkable Picassos with which he was not familiar. He expressed his admiration. Miss Toklas said thoughtfully. Yes, Gertrude always used to say: if the house were on fire and I could only take one picture, it would be those two.' (Mr. Rorem remarks that the wise Gertrude knew there is no such thing as first best.)

Gertrude Stein, 1874–1946,  
American writer of experimental prose.

Alice B Toklas, 1877–1967,  
American member of the Parisian  
avant-garde.

Ned Rorem, 1923–, American  
composer and diarist.



MyCodeHistory: 26 November 2014

This program translates color values of pixels into graphic elements. That might lead to the same results as the previous program but there is one major difference. This time a video camera is used to create the image and the pixels are constantly replaced by stupid agents. This results in live video painting. But when I let the program run for the first time it gave me an error: 'There are no capture devices connected to this computer.' And that was certainly true. So I connected a Sony DCR-PC110E to the MacPro. That did not work. I tried another Sony DCR-PC100 which did not work either. And I connected a Canon HDV XLH1 to the Mac Pro. In short they all gave me a 'NullPointerException' in Processing. I have no internal camera on my MacPro. So I let the same program run on my MacBook Pro and that worked fine with the internal iSight camera. I needed a moving image so I positioned the MacBookPro in front of a TV screen. Than I changed all variable names in the program to get a better understanding of how the program works. And I made the line length very short. Multiplied CurvePoint\_X with 1.2 which gave me horizontal lines only. Multiplied CurvePoint\_Y with 1.2 and that gave me vertical lines only. When you multiply CurvePoint\_Y with 1.2 before the endShape command you get a slightly bended horizontal line at the end. Brought all variables back to their original state and added an ellipse after every shape is being drawn. Replaced the ellipse by a rect. And I have commented out all lines of the beginShape code. Replaced the CurveVertex line with a rect. I get a more structured and less chaotic image. Would type work? It does! But it works only with one character. I think this has something to do with the fact that the counter is not updated. Continued with the use of small objects like asterisk's, arc's and squares. I am modifying pieces of the program on my MacPro. Share the file with my MacBookPro which is located in front of a TV. Check if the program works.

If it looks good I skip to another variation. In the second program I replaced noFill with noStroke. That fills every object with white. Replaced all stroke commands with fill commands. Added an alpha channel of 5 for each fill. What about introducing the stroke again. But a very thin one? Looks good. In addition I made the stroke color the same color as the fill but without the alpha channel. Let's make another variation by exaggerating one of the curve-points in each line. Maybe I have to make the minus-part the same number as the plus-part? That works! Increased it to 100. Put the alpha of the line on 10. That gives me (after a while (5 minutes)) a cloud like image which is quiet nice. I made a few examples where every line gets a rect, ellipse and a curve. Switched off the strokes and used fills. Finally I ended up with using three different objects. All operating at separate places of the display screen. Sometimes they mix sometimes they don't. I started to create simple objects in Processing. But on a certain moment I made a swoosh-like object which was too large if you compare it with the earlier examples. For the color I used a 10 percent alpha. Suddenly I got a kind of strange structure on my screen. I had to wait for it for at least 10 minutes. The next variation I will use a wavy object. In fact it's just one line. It's not correctly positioned. But that doesn't matter. I like it this way. It also got a kind of silk-like or rough paper quality in it. And it takes also about 10 minutes to render. I have gone totally abstract now. Not with bright colors but with very soft layers of alpha.

While working with this program it gave me strange remarks in the console. For instance: DVFreeThread – CFMachPortCreateWithPort hack = 0x1876e330, fPowerNotifyPort= 0x1876fce0. DVFreeThread – CFMachPortCreateWithPort hack = 0x17817030, fPowerNotifyPort= 0x17816f00. DVFreeThread – CFMachPortCreateWithPort hack = 0x18774ca0, fPowerNotifyPort= 0x1876ddb0. No Idea what this means but three times the word 'hack' worries me a bit. Anyway this finishes the first part of the Generative Design book. It took me one year to make all the examples. I didn't always know why the program created something but if it looked good it was fine by me.

Joseph Pennel once accused George Wesley Bellows of non-authenticity for having painted the execution of nurse Edith Cavell by the Germans in 1915 without having been an eyewitness of the event. Bellows retorted that although he had not been present at the execution, 'neither had Leonardo de Vinci been present at the Last Supper.'

George Wesley Bellows, 1882–1925, American painter and lithographer.

