

Between the pen and the line. Digital drawing and the feeling of alienation and distance

Tiril Schrøder

HARDWARE

In recent years, my research has begun to investigate digital drawing. I started by testing various digital screen-based drawing tablets or pen displays, such as the iPad, multiple Samsung devices and the Wacom Studio Pro. Additionally, I tested various digital pen displays that connect to an external computer, such as the Wacom Cintiq.

Digital pen tablets and displays use many different types of technology that are generally designed to be proprietary, meaning they are incompatible with each other. You cannot use the Apple Pencil, which is designed for the iPad, on a Wacom tablet, for example.

Each device has different strengths and weaknesses such as production costs, precision, the ability to differentiate the tip of the pen from the palm when touching the screen, and even the quality of the drawn line. These differences affect both the experience of using a tablet or pen display to draw and the resulting drawing.

To illustrate this, the lines in figure 1 are drawn directly on the screen of a Dell Latitude PC, with a pen function that uses Active Electro Static technology. The AES technology on this PC produces what looks like a diagonal, slowly drawn, line: notice particularly the “shaking” or waves. To greatly simplify what is happening, these wavy lines are produced by issues in the interaction between the registration points of the digitiser below the screen, which is the hardware that reads the position of the pen tip, and the software that interprets this and displays it on the screen.

DRAWING AS A GESTURE

At this moment, it may be useful to step back from the purely technical and digital and think about drawing in general.

Drawing is an action traditionally performed with a drawing tool such as a pencil held in one hand

to make a line on a surface. There is of course also an expanded field, for example, three-dimensional drawing or drawing in landscape, but for the sake of clarity, I will not discuss that here.

In essence, the physical action or gesture is identical whether I draw using analogue or digital technology: I hold the pen in the same way, I move my hand and arm in the same way, and my eyes follow the tip of the pen and the line it draws in the same way. It feels, in the movement of my hand, in how my eyes both follow the line and see where it is going, and in how I bend my neck over the drawing surface, like the same action, see figure 2.

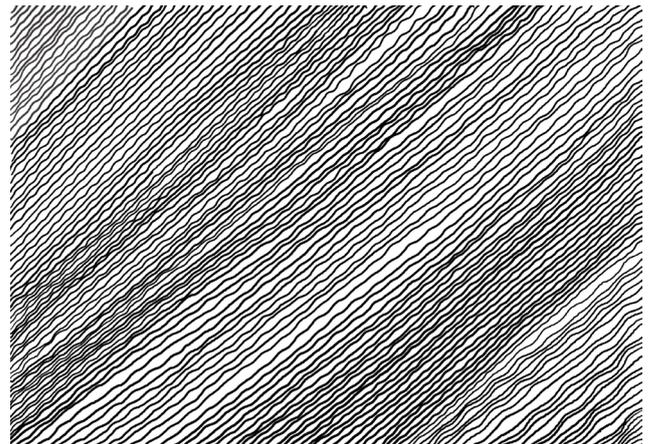


Figure 1

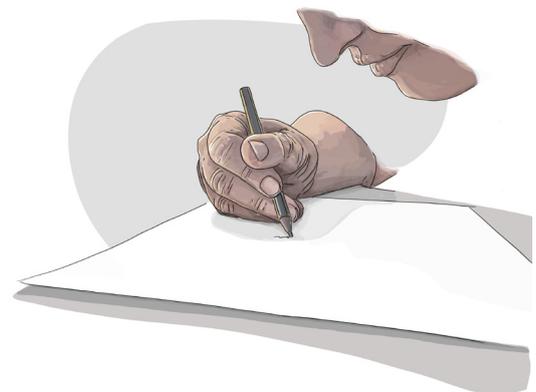


Figure 2

Figure Titles and Information

Figure 1: Dell Striper Figure 2: Drawing Gesture

The size of the drawing surface, whether it is analogue or digital, will always affect the physical act of drawing and cause these gestures to adapt. Traditional analogue drawing, which works on a 1:1 scale, often requires much more movement of the whole body and arm. In contrast, when working with digital media, a user can zoom in and out on a drawing, allowing them to work simultaneously on multiple scales.

When working on a digital drawing board, a user sits at a relatively static physical distance while they draw, regardless of whether they are viewing the entire drawing or are zoomed in on a small portion of it. Using this technology, the physicality of drawing in large format is significantly changed, as the hand and arm movement is the same regardless of the final printed size, dictated by the size of the drawing tablet and not the resulting drawing.

THE LINE ITSELF

What exists physically between the action of the hand and the resulting line is different in analogue and digital drawing, and therefore the drawn line itself is different.

The line I see on the digital display of a drawing tablet /pen display is not physical in the same sense as one that is made by a felt-tip pen on a piece of paper. The digital line is a visualisation of the interaction between hardware and software – how a programme interprets the movement of a pen, or more specifically a pen tip, across a screen, based on certain settings and algorithms.

The line created by such a programme consists of pixels, or small squares, which are arranged to create the digital image of a line as seen in figure 3. These programmes are designed to interpret signals between the digital pen and the digitising surface under the glass screen of a drawing tablet. These signals indicate where the pen is moving, how much pressure is applied to the pen or at what angle it is being held. However, as this process contains elements that interpret and translate the user's actions, misunderstandings and misinterpretations can arise.

Using digital drawing technology can provide an experience of extra control over the drawing process, as the software has many built-in options to control the line, such as using layers to separate the different lines from each other. Additionally, in analogue drawing processes, a line remains exactly as it was drawn, while in digital processes a line can be “undone” and disappear as if it was never there. An analogue line can never completely be erased; the trace of an error always remains. For me, these differences mean that an intensified presence is required when working with analogue drawing technology, which is different from the presence needed in the use of digital tools.

Digital drawing programmes also allow users to choose different virtual drawing tools, which often mimic the effects of analogue drawing technologies, such as felt-tip pens, pencils or charcoal.



Figure 3

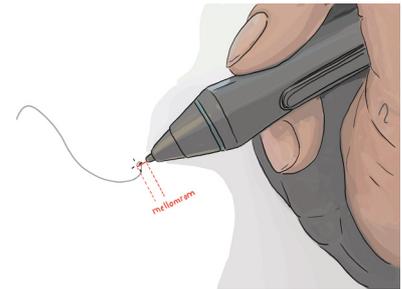


Figure 4



Figure 5

Figure 3: Pixels from pen
Figure 4: Gap between pen and line
Figure 5: HP Zbook pc

The physical qualities of the digital pen I hold in my hand do not change when I select the different drawing tools available in the drawing programme I am using. However, the line displayed on the screen will differ depending on which pen setting I have selected. The line looks as if it could have been made with ink or graphite, but it does not have the same physical materiality as the various analogue drawing tools it mimics. The software arranges pixels to create an image of what the line would look like if it were made, for example, with a 4B pencil or with a felt-tip pen.



Figure 6

Regardless of whether it looks like a line made with liquid ink or a line made with a soft pencil or a wash of watercolour, the materiality of the digital line is always the same: small pixels that in combination mimic the appearance of lines made by physical, traditional drawing tools.

In my experience, this imitation is an essential aspect of digital drawing. It is an imitation that, in addition to trying to look as true to its source as possible, is an act of translation or interpretation of the idea of analogue drawing methods.

Digital lines are translations, not pure copies. Something extra is added in both form and content as a result of this act of translation from one material to another. At the same time, other elements are lost in this process. Each translation has its unique expression and contains properties that are not identical to that of the original.

DISTANCE IN TIME AND SPACE

In addition to the distance created in the act of translation described above, in digital drawing processes, there are also distances in both time and space.

There is a distance between the drawing tool in my hand and the line I see but do not touch directly with either the pen or the hand. This distance in space is both physical and real. There is a thin glass sheet between where the pen in my hand touches the surface of the screen and where the line appears on the digital display below the screen as seen in figure 4. I can never touch the line directly, not even with the tool in my hand, unlike when I draw with an analogue pen on a sheet of paper. The line made by an analogue pen is a direct physical deposit left on the drawing surface by the pen. There is a little less of the pen or pencil for every microgram of ink or graphite it leaves on the paper. In this sense, analogue drawing is a physical transfer of material from pen to paper.

There is also a separation in time implicit in digital drawing. The drawing action that places the line physically on the paper is not done in real time by my hand, but rather at a later time by a machine, a printer.

When printing a drawing from a finished file, the printer copies the result of an earlier action recorded on a drawing tablet, not the actual movements and time it took to make the drawing. My

Figure 6: Cofactors make extra lines

physical drawing action happens in a different place, with different movements and at a different time, separated from the moment the line is drawn on the paper by the printer.

Essentially, this means the action of digital drawing takes place in two parts. Part 1 is my drawing action, the moment when my hand uses the pen to draw a virtual line on the screen, which is visible on the digital display located under the surface of the glass. Part 2, the printer's drawing action, is the moment when the printer makes the line tangible with, for example, ink on a physical surface, such as paper.

The distances described above between me as the artist, the action of drawing, and the result in the form of a physical drawing mean that the completed drawing and I are not in the same place, either in time or in space, until the drawing is actualised by the printer and I can remove it from the paper tray.

CO-ACTORS

In addition to the changes in process, method and product already discussed, namely the act of translation that digital drawing software performs, and the various distances between the drawer and the line drawn, particular co-actors participate in the act of making a drawing digitally.

The tools used in digital drawing have properties that both affect and become visible in the process and result; they become willful collaborators, co-actors and co-artists, not fully controllable by the user.

For example, some combinations of software and hardware may cause the built-in properties of various digital drawing tools to make large, unintentional contributions to the drawing, for example in the combination of the free software Medibang Paint on my HP ZBook PC, as seen in figure 5.

Regardless of whether I work on paper or a digital drawing board, I rest my hand on the surface of the medium while I draw. The hand follows the pen and the line, sliding along the screen I draw on. Hardware and software must therefore be able to distinguish between strokes made with the digital pen and the touch of my palm. This process is known as "palm rejection."

The Medibang programme on my HP ZBook mentioned earlier cannot completely differentiate between the touch of my hand and the touch of the pen. The programme interprets the touch of my hand where it rests on the screen while I draw as a touch of the digital pen, consistently creating a series of straight lines and zigzag patterns between the tip of the pen and my palm, which are out of my control.

This does not happen if I use, for example, the programme Photoshop on the same PC, or if I use Medibang on a more compatible drawing board.

The more precisely I try to draw and the more detail I add, the more heavily I rest my hand on the glass screen. The more heavily I rest my hand on the screen, the more unintentional lines are produced by the misinterpretation that occurs between software and hardware. When I colour or shade a drawing, my hand is lighter on the screen, the movements are bigger, and there are fewer unintentional strokes. The attempt to be accurate and picky produces the opposite effect: the more precise I try to be, the more software and hardware contribute their own lines.

In this way, digital drawing tools, with their built-in properties and resulting glitches, become co-creators in the drawing process, contributing elements and lines outside my control and ability to manage.

The resulting drawing thus becomes a joint production of the software, hardware and myself, whereby I draw some of the lines, and they, together, draw others.

In my practice, I have made use of the interaction between digital drawing tools and myself to create a series of "self-portraits" featuring pens, drawing hardware and software, in which I use the tools I depict to draw with. They draw themselves, and I draw my hand in the act of performing the drawing gesture. Together we make a joint self-portrait, examples of which can be seen in figure 6.

THE CONTRIBUTION OF THE DIGITAL TOOL

The interplay between digital drawing hardware and software brings its own content into a drawing, both in process and result. I have come to experience digital drawing both as a type of drawing, amongst many others, and simultaneously something completely different, a process that adds a certain something "other" to a work, a certain something that analogue drawing tools do not.

The digital drawing tool's influence on both process and result means that although a digital drawing may look like a traditional drawing, it is always something else. The act of translation between different materials, the distance in time from drawing to printing, and the tool's inherent properties make digital drawing something different, not simply a copy of an analogue drawing.

DISTANCE AND TOUCH

As previously stated, the digital pen never touches the line in a pre-printed drawing. It does not directly touch the line displayed on the drawing board screen, even in the act of drawing. There is always a space between the physical act of drawing and its result.

The line in a digital drawing is not a locked, physical line before it is printed, and the physical line on the paper is made by the printer, not

by me. The results of this process often feel a little alien, as the agent that draws the drawing is not me, but rather a machine.

For me, digital drawing is a kind of reference to, or an idea of, the line and the gesture of drawing, more than being a drawing in and of itself. I conceptualise digital drawing as living in a kind of imaginary, virtual space that exists before a finished, physical drawing is produced. The drawing process takes place in a visible but not yet physical world of ideas that lies between my head and the interior of the computer. This slightly blurry, undefined space gives me space to move, space to think and space to work with drawing.

Tests and concepts I use are developed on various reviews of drawing boards and programmes published on YouTube. I have based my tests on the YouTube channels of:

Brad Colbow: <https://www.youtube.com/c/thebradcolbow>

Teoh Yi Chie: <https://www.youtube.com/c/TeohYiChie/featured/>

<https://www.youtube.com/channel/Uck-UHW1Q5EBJIHB4jHkVTbA>

Lisa Gade / Mobiletechreview: <https://www.youtube.com/c/mobiletechreview>

Shogmaster: <https://www.youtube.com/user/Shogmaster>

Aaron Rutten: <https://www.youtube.com/c/aaronrutten>

Mr. Nghi Channel: <https://www.youtube.com/c/MrNghiChannel>

AUTHOR

Tiril Schrøder

Printmaking department/Art and Craft,
Oslo National Academy of the Arts , Norway
Email: Tirischr@khio.no
www.tirilschroeder.com
www.khio.no

Tiril Schrøder (b. 1969), professor of drawing in Oslo National Academy of the Arts, is a Norwegian artist based in Oslo. She is educated from the art academies in Oslo, Hamburg and Copenhagen.

Schrøder works with digital drawing and prints and in traditional mediums. She currently focuses on the “retelling” of sketches and aquarelles from the 18th and 19th century, through today’s digital tools.

Both art history and the contemporary virtual world inspire and inform her works. In her subjects and in her rendering of them, versatility is shown through compositions of smaller digital drawings and prints as well as large mural works, where the image defies its boundaries and incorporates the surrounding space.

IMAGE GALLERY

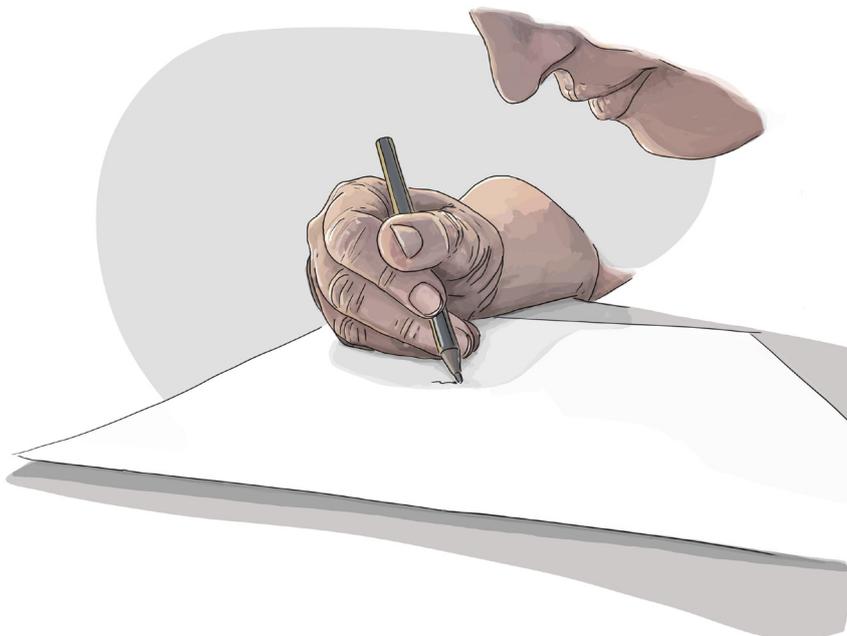
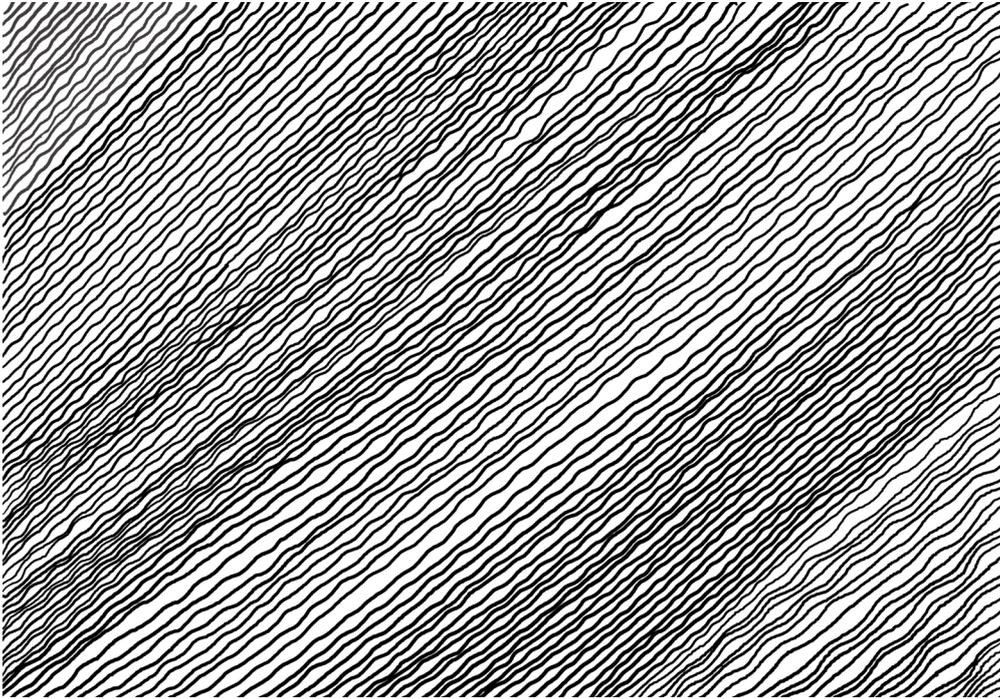


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Figure 2: Drawing Gesture

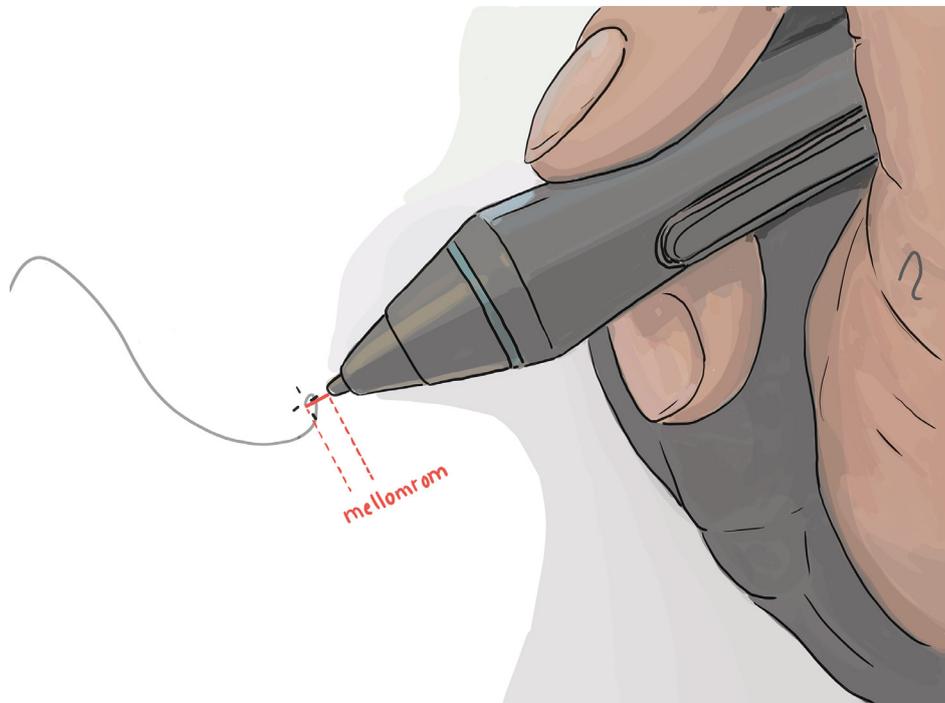


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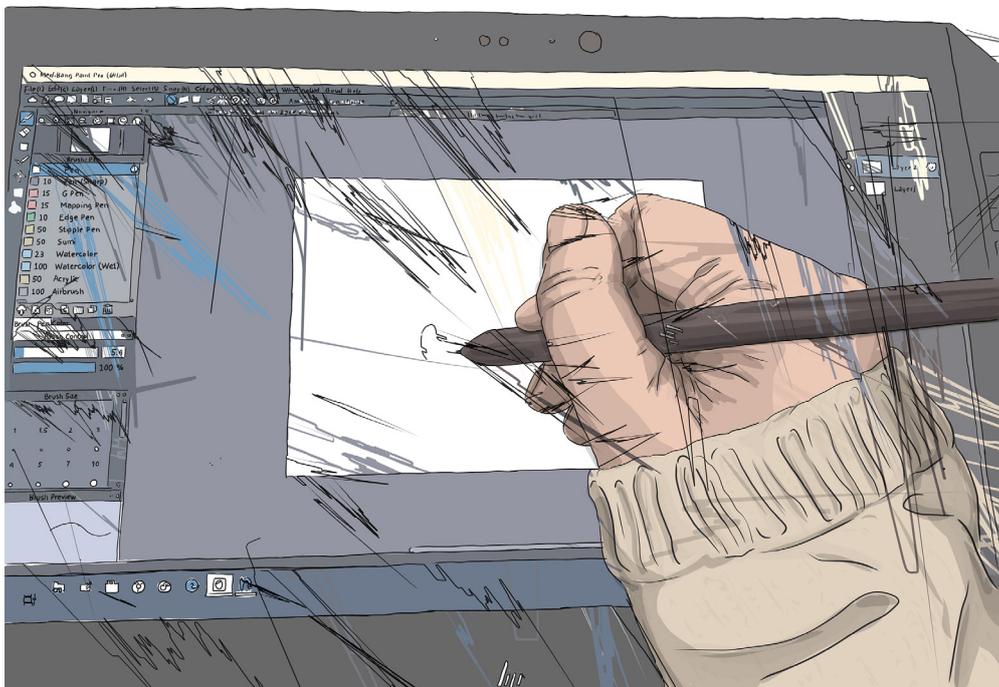


Figure 5: HP Zbook pc
Figure 6: Cofactors make extra lines