

# Cannons, Dynamite Erasers, and Screaming Into The Void

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Investigating the relation between art toys and  
artistic development

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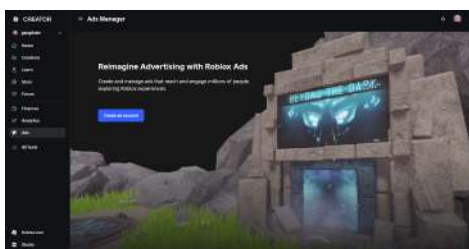
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# Contents

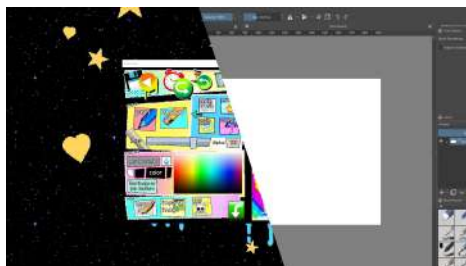
|          |                                                            |           |
|----------|------------------------------------------------------------|-----------|
| <b>1</b> | <b>Introduction</b>                                        | <b>3</b>  |
| <b>2</b> | <b>Tools and Artistic Development</b>                      | <b>5</b>  |
| 2.1      | The Conditions of Artistic Development . . . . .           | 6         |
| 2.2      | Tools and Artistic Development . . . . .                   | 8         |
| 2.3      | Tools and Guidance . . . . .                               | 10        |
| 2.4      | A Reflection on Digital Tools . . . . .                    | 13        |
| <b>3</b> | <b>Lessons From Punks, Freaks, and Other Transgressors</b> | <b>18</b> |
| 3.1      | A History of Tool Ownership . . . . .                      | 19        |
| 3.2      | Tools of Glitch . . . . .                                  | 21        |
| 3.3      | Tools of Noise . . . . .                                   | 24        |
| 3.4      | Tools of Net . . . . .                                     | 27        |
| <b>4</b> | <b>Art Toys of the World, Unite!</b>                       | <b>30</b> |
| 4.1      | Proto-Art Toys . . . . .                                   | 31        |
| 4.2      | Critical Art Toys . . . . .                                | 33        |
| 4.3      | VisunovOS . . . . .                                        | 37        |
| <b>5</b> | <b>Conclusion</b>                                          | <b>41</b> |
|          | <b>References</b>                                          | <b>43</b> |
| <b>A</b> | <b>Nathalie Lawhead Interview</b>                          | <b>46</b> |

# 1 Introduction

Creative software has heavily professionalised over the past decades. Many of their quirky and playfully pointless features have been heavily filed down, while more out-there programs failed to stand the test of time. Even in child-friendly game-making tools like Roblox, profit incentives seep into the creative processes of children. Budding digital artists are spurred to create not for personal expression, but for engagement metrics and robux<sup>1</sup>.



(a) Roblox's creator environment.



(b) *EZM* (left) and *Krita* (right).

Figure 1

Meanwhile, in the indie<sup>2</sup> software sphere, there has been a surge in ‘art toys’. I define these as **digital art-making tools that feature playful and exploratory modes of interaction, that prioritise the process of making rather than the creation of a final product.**

An example of this is *Electric Zine Maker (EZM)* by net-artist Nathalie Lawhead, a program for making small experimental zines that features numerous unpredictable and weird tools towards this purpose. My fascination with art toys started with *EZM*, and how it lies in sharp contrast to professional digital art tools, both visually and ideologically.

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<sup>1</sup>Robux is the in-game currency featured in Roblox. At the time of writing its conversion rate is 0.000898 USD/RBX.

<sup>2</sup>Indie is a pretty contested term, but in this thesis it will refer to software funded without the involvement of a publisher.

Parallel to this thesis is the development of my own art toy called *VisunovOS*, a web-based toolbox OS for developing browser-based sequential artworks. Its development was deeply informed by the research of this thesis, and aims to embody this sharp contrast between professional and toy.



Figure 2: *VisunovOS* ‘desktop’, featuring various art toys.

In this thesis we will prove this discrepancy between digital artists and digital tools. We will look in the direction of art pedagogy to find out what it means to develop artistically, and what this looked like before digital art-making. We will study the methods of digital and new media artists, who fabricate and reclaim the tools of their practice. This will take us into the realms of glitch, Noise, and net-art.

We will analyse art toys, observing if and how they grant digital art beginners and veterans alike the means to learn, explore, and experiment.

Ultimately, we seek to answer: *“How can art toys support artistic development?”*

## 2 Tools and Artistic Development

For what was probably the entirety of my childhood my dad has attempted to get me into programming. The bits and pieces I remember from this time consist of me getting bored of Scratch<sup>3</sup> and my dad quietly cursing trying to figure out Construct<sup>4</sup> (or Flash<sup>5</sup>, I am unsure). In hindsight I believe a major reason as to why these did not grab me at the time is because their pursuit was not borne out of my own interest, I was sat behind a computer to do Scratch homework where there was little room for my own creative input. Eventually I did want to make a Sonic<sup>6</sup> fan-game, like *Sonic RPG*<sup>7</sup> or *Final Fantasy Sonic X*<sup>8</sup>, but this was too complex for me or my dad. It was, regrettably, quietly abandoned.

Instead I grew to love world-building and collaborative, interactive storytelling, specifically through TTRPGs<sup>9</sup>. This fascination took root after a high school friend introduced me to *Dungeons & Dragons*, and before long I was writing pages upon pages of quests, characters, game mechanics, noble families, flora, fauna, and horribly unbalanced magical artifacts, including a staff that turns sticks into snakes and snakes into sticks.

I still ended up pursuing game-making and programming, but on my own terms and with my own motivations.

This chapter is an investigation into the relationship between tools and creative practice; how tools can both serve and get in the way of artistic development, and the unique opportunities and challenges digital tools present. First we will define the process of artistic development from a pedagogical perspective, after which we can move on to art tools and determine what makes an art tool developmentally valuable or detrimental. Finally, we will arrive at digital tools, their evolution, and what effects they have had on creative practices.

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<sup>3</sup>An educational coding platform which uses literal code blocks and game-making to explain fundamental programming concepts.

<sup>4</sup>A low-complexity game engine with a visual scripting system.

<sup>5</sup>A now-defunct multimedia software platform for making websites, animations, and games.

<sup>6</sup>Sonic (the Hedgehog) – A video game character.

<sup>7</sup>A 10-part *Sonic the Hedgehog* fan series by MidNightMaren.

<sup>8</sup>A *Sonic the Hedgehog* fan series by BlackDevilX.

<sup>9</sup>Tabletop Role-Playing Games – A game genre in which players perform characters, and the story develops as it is being played out.

## 2.1 The Conditions of Artistic Development

Before we can discern the qualities of a tool, we will need to define the conditions under which artistic development takes place. In *Creative and Mental Growth* (Lowenfeld, 1965) it is argued that children go through six discreet stages of artistic development. None are skipped or accelerated, and although there is some variability in pace, they generally remain on par with one another. This growth is guided by schooling, which provides students with the necessary tools, time, and environment to practice their creative skills (p.396-402).

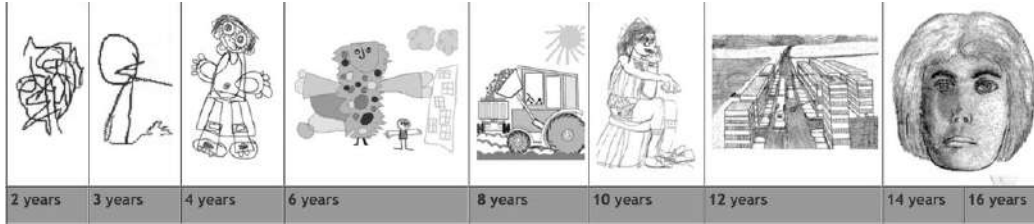


Figure 3: Examples of each stage of artistic development (Lowenfeld, 1965).

In terms of tools these stages differ greatly. At the youngest ages (2-4 years) safety and technical difficulties are a concern, so sharp pencils, watercolours, and cutting tools are discouraged in favour of soft crayons, felt pens, and chalks (p.104). As they grow up, more tools enter the repertoire of the child, granting them time to grow accustomed with new tools and express through their use.

Generally, throughout these stages it is also advised to avoid tools and materials that are gimmicky or provide instantaneous results, such as drip-painting, colouring sheets, and pre-cut stencils. These are argued to do little for a developing child, or even be detrimental (p.130). This point of recommendation proves timeless with the emergence of generative AI<sup>10</sup>, the impact of which on development and learning has been the subject of informed guesswork (Nikolopoulou, 2025; Kanders et al., 2024), careful consideration (Shen and Tamkin, 2026), and heavy scepticism (Guest, 2025).

<sup>10</sup>Artificial intelligence models that generate output based on its training data and a written prompt.

What does artistic development look like for adolescents and adults, however? Compared to younger children, besides practising their technical prowess, this development is a lot more ‘heady’. Art educator and researcher Joseph S. Amorino identified this in *The Artistic Impetus Model* (Amorino, 2009), where he describes how the concerns of an adolescent become a lot more difficult to identify during their growth into adulthood. Here, art-making can provide them with an understanding of their ‘inner reality’, making their selves comprehensible, accessible, and explorable given that they are provided with the necessary tools and structure.

*“The adolescent’s “inner reality” refers to the abstract, philosophical, and reflective concerns which permeate their world and influence their artmaking, in contrast to the more literal “reality” of outward activities generally depicted in children’s artwork.”*

(Amorino, 2009, p.226)

To conclude, artistic development comes from an intermingling of tool curation and provision, close guidance, and a freedom to create. A critical eye is cast on everything that enters this process, especially the tools.

As such we will focus on tools in the next chapter, to further define what makes a tool valuable in terms of artistic development.

## 2.2 Tools and Artistic Development

Jumping off from this more-defined artistic development, what tool characteristics are valuable towards it? I already spoke of how gimmicky, instantaneous tools are deemed of little developmental value by Lowenfeld, so for our purposes it may be fruitful to observe the traits of tools that *are* effective. These may further enlighten us as to what our tools, or the tools of the future, should provide, or at least further contextualise a tool's shortcomings.

In *Steering the Craft*, speculative fiction author Ursula K. Le Guin opens with her view on vocabulary and grammar as a writer's tools, how they are only half-understood or wholly unfamiliar to many, and how fundamental they are to the practice of writing (Le Guin, 2024). How else can you review a sentence and see what is right or wrong?

She invokes a more-intuitive example of a carpenter not knowing the difference from a hammer to a screwdriver, to illustrate the importance of tool understanding, and thus relying less on practising your art 'by feel'. Tools have shapes and histories, they are formed across ages to hone in on what makes them purposeful to their respective medium, so understanding them often provides valuable insight.

What I also want to illustrate is that an effective tool doesn't restrain, and lets artists become fluent in its use while welcoming reformation. The beauty of writing is that anyone can (and should) do it, but to be a skilled writer Le Guin argues that taking the time to learn your fundamentals is imperative. It is about developing a fluency in your craft, so you can place commas, brushstrokes, and lines of code with intention, rather than habit or guesswork.

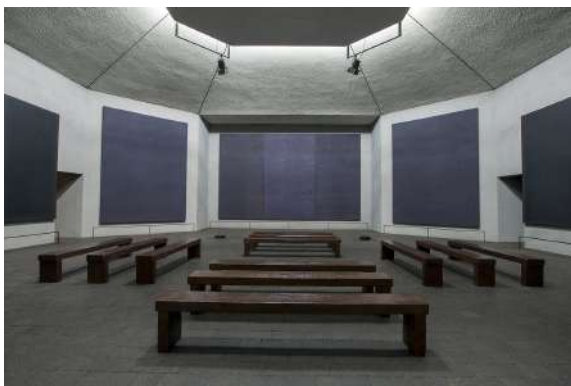


Figure 4: *The Rothko Chapel* (1971) by Mark Rothko, located in Houston, Texas.

This tool-fluency can be linked to an artist's development. For example, Mark Rothko's tools are key to his late period. Only his careful pigment-formulations were able to achieve the sense of scale and depth necessary, in his pursuit of mythology and optical intrigue (Breslin, 1993).

This is especially felt in the Rothko Chapel, where his monolithic rectangles are placed in an explicitly spiritual context, inviting visitors to sit and sink

into their depths. This work would not exist had he assumed store-bought paints to be the limit of his practice.

Here Rothko embodies tool authorship. An artist can reach a level of understanding where they start to break their tools down, melting away their imposed and implied rules to reveal their modular cores.

However, although technically possible due to their physicality, it can be incredibly challenging to make or modify some art-making tools. They might be technically complex or require specific expertise, such as with printers, film cameras, tape recorders, and musical instruments. In these cases you can see a barrier to entry take shape, where art-making tools become exclusive. What happens when a tool's materiality becomes difficult to comprehend or acquire? More on this in section 2.4.

To summarise, developmentally valuable art tools have plenty of valid reasons for being as they are; they consist of rules, shapes, and materials that stood the test of time for reasons that can be learned and understood. However, even at the peak of tool understanding and 'fluency', there is another mountain. This one instead asks how tools can serve the artist and their practice, irregardless of their rules and notions. At this point, the tool invites the artist to be an active participant in its very consistency.

Putting these observations into our back pocket it's time to clarify some more, now in the direction of guidance. What are the roles of mentors and structures in relation to artistic development and tool-learning?

## 2.3 Tools and Guidance

In this exploration of tools' relation to artistic development, it is easy to forget the importance of guidance. *The Artistic Impetus Model*, as an article by the previously mentioned Joseph S. Amorino, notes the importance of an educator's role and contemporary education's struggles with teaching artistic expression. This often results in an overly linear and formulaic form of teaching, unbefitting of what art education should or could be (Amorino, 2009, p.125).

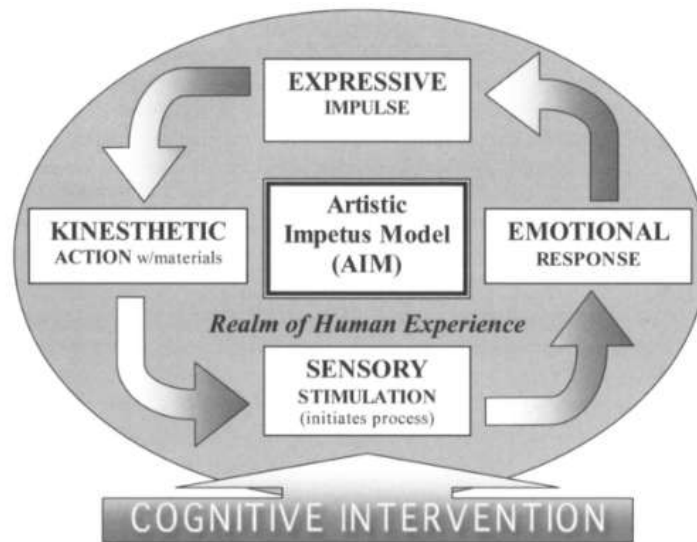


Figure 5: The Artistic Impetus Model (Amorino, 2009, p.219)

The Artistic Impetus Model (AIM) as a model, formulates a method which helps educators serve their developing artists.

In contrast to traditional art schooling, Amorino instead identifies artistic expression as a cyclical, ebb-and-flow of 'doing' and 'undergoing', all too familiar to those who tune into their environment for inspiration. The AIM posits sensory stimulation as a starting point, letting students explore objects and memories with their senses, to trigger an emotional response. This sensory stimulation, and the resulting emotional response, help jump-start the vicious cycle of art-making (p.216-218).

This can be seen reflected in the works and methods of many. One such example being the impressionists of the 19th century, painting subjects rich in whirling movement and vivid colour, to capture a moment as they experience it (Bomford et al., 1991). Alternatively one can look at how pervasively artists use their lived experiences as sources of inspiration. Whether it be their childhood memories<sup>11</sup>, past loves<sup>12</sup>, or communities<sup>13</sup>; life experiences, and reflection upon them, shape what artists make and how they make it.



Figure 6: *Sensory Affective Work: A Portrait of a Remembered Person* (Amorino, 2009, p.226)

Reflection is a complicated process, and where a budding artist can greatly benefit from guidance. Any artistic process necessarily feels exposing, shameful, or simply cumbersome; how many students are forced, by a failing grade's loaded gun, to draw a self portrait? No less in a period of their lives where the self is such a volatile and nascent thing?

I remember having to draw myself in middle-, high-, and art school. For each I felt too insecure in both my abilities and personhood to sufficiently reflect on myself, or to even know what to capture.

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<sup>11</sup>Game developer Shigeru Miyamoto drew his inspiration for *The Legend of Zelda* from his childhood adventures (Sheff, 1999).

<sup>12</sup>*The George Miles cycle* is a series of five novels authored by cult writer Dennis Cooper. Its namesake comes from the author's childhood friend, and the cycle was conceived to express, explore, and comprehend his obsessions around sex, violence, and Miles (Lucas, 2001).

<sup>13</sup>Actor and director Spike Lee's critically acclaimed film *Do The Right Thing* was borne from a racist attack and the time's strained racial relations as a whole, as he saw it growing up in Brooklyn, New York (Glicksman, 1989).

Here is where a mentor can enter the art-making cycle with their guidance. Not by saying how things should be done, but by encouraging their students, setting sensible goals, mediating their self-reflection, and being empathetic to the challenges of their childhood, adolescence, or adulthood (Amorino, 2009, p.228-229).

If we want people to make art they need to be given the safety and confidence to make their art speak, and a mentor needs to listen to what it says.

Now having identified the importance of tools and guidance in relation to artistic development, we can broach the topic of digital tools: art tools that reside in a computational context. First we look at their development, after which we will estimate their developmental value. Are they thoughtfully made? Can they evolve alongside one's practice? Do they provide guidance, or make room for guidance to take place?

## 2.4 A Reflection on Digital Tools

At the time of writing *Creative and Mental Growth*, computers and their programs were not yet a factor in art education. Whether digital tools even have a place in the classroom has been an ongoing subject for researchers (Buckingham, 2003, Aboalgasm and Ward, 2017).

To quote an article on *King's Field* in issue 61 of Electronic Gaming Monthly Magazine, written by Chris Johnston, “*The PlayStation can produce mind-boggling effects*” (1994, p.56). However, do the tools involved in the production of these these mind-boggling effects support artistic development?

In *Mindstorms: Children, Computers, and Powerful Ideas*, computer scientist and educator Seymour Papert argues for an educational relationship between children and computers where, instead of the computer programming the child, the child adopts a more active and self-directed approach with the computer. In this manner they would learn how it works by learning to ‘speak computer’, so they might grow capable of writing their own programs and get full use out of their devices (Papert, 1980, p.19-21).

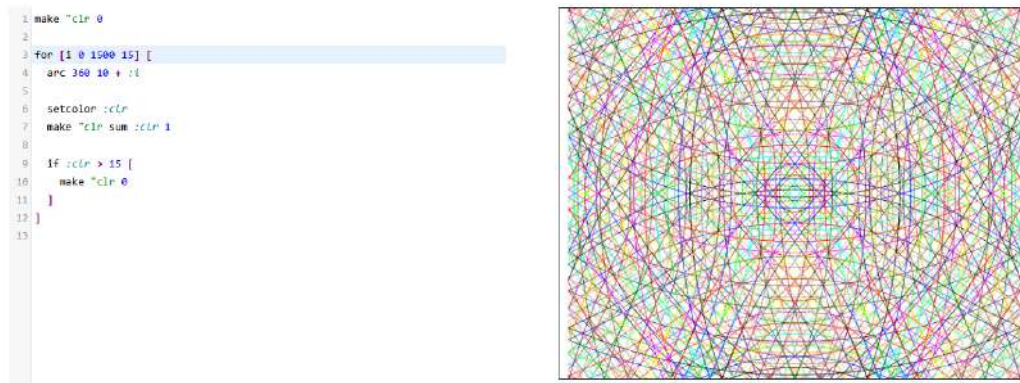


Figure 7: Example of a *Logo* script, draws 1500 circles in alternating colours.

At the core of his thesis lies his co-authored educational programming language *Logo*<sup>14</sup>. With this tool and proper guidance learners can, by way of digital drawing, grow accustomed to the fundamentals of programming.

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<sup>14</sup>A programming language for beginners. Instructions lead into immediate feedback by drawing lines or returning a result, with errors that are written in plain English.

It is notable how *Logo*'s turtle graphics<sup>15</sup> casts programming in a visual, arguably artistic light. Much like how painting and drawing trains our fine motor functions (Lowenfeld, 1965, p.65-66), the process of writing, testing, and rewriting code trains us in handling a computer. We develop ourselves both in a bodily sense as a cognitive sense; We do not just learn how to use a mouse and keyboard (preferably) with our hands and fingers, we learn how to 'speak computer'.

Digital tools go far beyond the capabilities of *Logo*, however. DAWs<sup>16</sup>, IDEs<sup>17</sup>, game engines<sup>18</sup>, raster<sup>19</sup> and vector graphic editors<sup>20</sup>; each category of software contains a multitude of programs that are free, SaaS<sup>21</sup>, SaaS<sup>22</sup>, FOSS<sup>23</sup>, OSS<sup>24</sup>, closed source<sup>25</sup>, or some secret, other license.

Still, analogue materials do enter these practices, for example in the beginning stages of a project. Considering my own background in game design and development, pen & paper prototypes are and have been considered a fundamental prototyping method (Adams, 2013; Schell, 2008; Saffer, 2009): from testing UI<sup>26</sup> layouts and UX<sup>27</sup>, to game mechanics or 2D/3D environments, they let designers fantasise before putting anything to code.

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<sup>15</sup>A feature of Logo for drawing lines. The programmer writes instructions like 'forward' and 'repeat' to move an imagined turtle across the screen that leaves a line along its route.

<sup>16</sup>Digital Audio Workstations – programs for digital music production.

<sup>17</sup>Integrated Development Environments – code-writing programs that support one or multiple programming languages.

<sup>18</sup>Programs that provide a framework for game and application development.

<sup>19</sup>Raster graphics are digital images made up of pixels.

<sup>20</sup>Vector graphics are digital images made up of paths, rather than pixels, which makes them infinitely scaleable without loss of detail.

<sup>21</sup>Software as a Product – refers to software sold for a one-time payment to keep indefinitely.

<sup>22</sup>Software as a Service – refers to software sold for a continuous subscription fee, with the promise of continued updates and support.

<sup>23</sup>Free and Open Source Software – Software that is free with publicly available source code.

<sup>24</sup>Open Source Software – Software with publicly available source code, that isn't necessarily free.

<sup>25</sup>Software with source code that is kept private.

<sup>26</sup>User Interface – In video games, the menus and screen elements that convey information outside of the game world.

<sup>27</sup>User Experience – In video games, the behaviour of a player in a UI environment.



Figure 8: Developers of the game *Metal Gear Solid* test a level using a camera and LEGO bricks.

It feels quite natural to let analogue feed into digital like this, to refine to perfection in an environment with an undo button. Whether it be a portrait scrubbed to an unblemished polish, or a drawing's crooked perspective pushed and pulled to be just right, digital tools seem purpose-built to provide an unprecedented level of control.

The makers of these tools are varied as well. Where some are artists themselves, with a simple need or passion for making tools, others have won themselves such a staggering level of widespread adoption that they grew to be massive shareholder-serving corporations.

Where analogue artists suffer less from corporate interest in their tools, digital tools do so massively. The advent of Digital Rights Management (DRM<sup>28</sup>) has opened the doors to various, highly profitable tool-renting schemes, designed with enterprises in mind rather than the artists who ultimately use these tools. What this means is that these DRM-protected tools can not be owned, shared, or modified.

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<sup>28</sup>Digital Rights Management – Measures put in place to prevent the piracy of software, for example by requiring a unique, one-time activation code or by limiting access to the software outside of a strictly controlled digital environment.

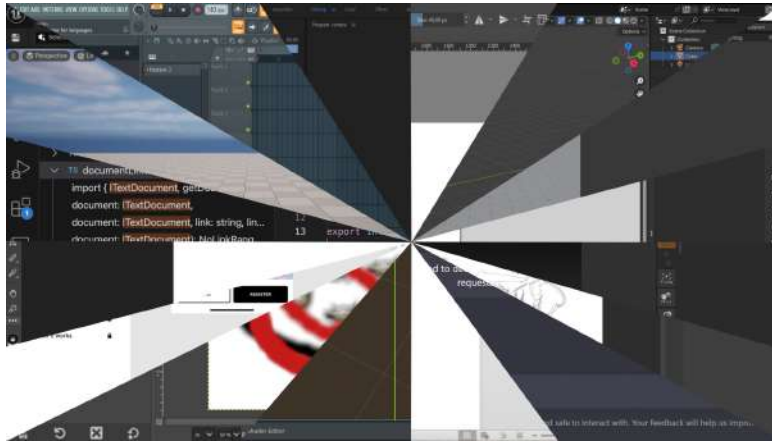


Figure 9: The world of creative software is a rainbow of white and slate-gray.

So what do artists do to take back control over their digital artistic practice?

**They mod tools.** Adobe’s Exchange, Godot’s<sup>29</sup> Library, and Blender’s<sup>30</sup> Extensions are examples of built-in modding support, with varying levels of restriction. DAWs are arguably built to house plugins, which can offer new and intriguing ways to produce or interface with audio signals.

Whether software allows for modification of its ‘foundations’ is much more variable. FOSS allows it implicitly, whereas something closed source prefers its software-bones untouched. Even browsers, our primary way of interfacing with the internet, offer plug-ins in the form of extensions and bookmarklets<sup>31</sup>.

**They pirate tools.** Piracy can be resurrective for so-called ‘abandonware’: software which is no longer supported or sold by their original developers. These remain accessible through piracy, with an opportunity to grow beyond their original, limited conceptions.

Pyrite64 is an example of this practice, as a modern game engine for developing Nintendo 64-compatible games.

<sup>29</sup>A free and open source game engine.

<sup>30</sup>A free and open source 3D modelling program.

<sup>31</sup>Tiny JavaScript programs that can be saved as a bookmark to provide additional browser utilities, like getting a word count on highlighted text or converting hovered text into flower emojis.

**They make their own tools.** This software often reflects their values, both as a software designer and beliefs-having person. GNU<sup>32</sup>, stated to be a “*technical means to a social end*”, reflects the views of its creators directly (Stallman, 1986). It is free, open to look inside of and modify, and spawned a long lineage of free software based on its code and philosophy.

In this chapter we have established in what ways art tools are valuable to artistic development, for example by being fitting of one’s skill level, non-instantaneous, and capable of growth along its artist.

From here the role of guidance/mentorship was exemplified as another key element of artistic development.

Moving onto digital tools we see how early efforts were made to introduce code and digital as a means for expression, but it never quite managed to grow beyond its reputation as a means to produce finalised products.

Following this, DRM further limited control and ownership over digital tools, and what is left is a dominance of hyper-productive, closed creative software, made for corporations rather than artists.

In the following chapter we will continue to examine how digital artists reclaim the means of their practice. Specifically, we will observe the tool-traditions of various artistic practices that commonly engage in digital tool creation, modification, and appropriation.

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<sup>32</sup>GNU’s Not Unix – A free and open source operating system.

### 3 Lessons From Punks, Freaks, and Other Transgressors

The relationship between me and my professional-grade tools became tenuous, and my desire for tool-ownership became incompatible with my tool-belt. Most if not all of my tools were closed source, so it was time to find alternatives.

This was around the time when I attended a *Dooie Mus* gig in my home town. The venue was situated inside of a skatepark, in a quiet, half-gentrified industrial zone. I was mostly looking through a small window, watching cute skaters whizz past as the flat-capped singer gurgled and spit incomprehensible lyrics over gloomy chords. It struck me how freeing it must be to do away with the conventions of your medium, and to become artistically unintelligible.

This chapter dives into various means of digital art-making. To set the stage we will look how artists' control over their practice and output evolved over time, after which we will explore three digital artistic practices that I believe to be of interest in terms of their tools.

First of these will be glitch, which questions digital's pursuit of control and perfection by breaking it open and exposing its blocky innards.

Next will be Noise, a loosely defined, experimental music genre which rejects any and all musical authority, in favour of the music contained in objects, signals, and the very cables themselves.

Finally we will discuss net-art, which appropriates and recontextualises the web's standardised languages in unintended, novel, and artistic ways.

### 3.1 A History of Tool Ownership

Historically, and across artistic mediums, the means of art-making have entered, exited, re-entered, and re-exited the direct possession of artists. Patronage, meaning the financial backing of the arts and artists by wealthy patrons, has played a major role in artists' ability to make art (Kent, 1987; Brown, 1993). This now includes both the direct commissioning of artwork as mass-audiences and mass-consumption, through the more public-oriented systems of museums, cinemas, venues, and (online) publishing.

Before this massive accessibility of the arts, non-commissioned art was a rarity (Starr, 2017). Reasons for engaging in this sponsorship varied greatly; some works might be made to endorse political ambitions, to (re)write history, or for simple prestige. Making art for an audience outside of the wealthy royal, imperial, or aristocratic classes only re-entered commonality together with industrialisation, and the rising power and influence of a bourgeois class (Bürger, 1974, p.47-54).

What this meant for the pre-industrial arts and artists was a necessity to paint, sculpt, and compose to the tastes of their patrons. In addition to this subject-related subservience, a patron could also direct materials, dimensions, or composition (Nelson and Zeckhauser, 2008, p.20). Even if their artistic voice was limited, artists did have their tools. These were largely made by themselves and their apprentices; pigments were ground and paints were formulated in the atelier, chalks were made from different stones and clays, and brushes were both bought and made by the artist (Harley, 1972, p. 123–126).



Figure 10: *His Majesty King Charles III* (2024) by Jonathan Yeo, commissioned by The Drapers' Company.

If anything, the idea of “art for art’s sake” is a relatively recent one, borne from a decreased reliance on patronage. Cultural theorist Peter Bürger defined this predominant category as ‘bourgeois art’; artistic developments not motivated by the sacral or the courtly, but by social and economical changes (Bürger, 1974, p. 47). Art started to reflect the artist, and self-expression became definitional to artistry. The means of art-making returned to the artist.

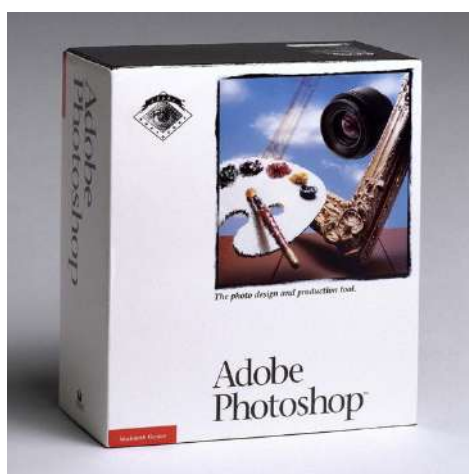


Figure 11: *Adobe Photoshop 1.0 Retail Package* (February 19, 1990). Package contains: the program disk; the tutorial disk, containing two sample images; a program disk containing software designed by third-party software developers; the calibration disk; Adobe Photoshop User Guide; Adobe Photoshop Tutorial; The Adobe Photoshop Quick Reference Card; Registration card and envelope.

However, this means-ownership becomes questionable once more with the introduction of digital tools. At first it was not so different from buying art supplies; you could buy a copy of Adobe Photoshop and own it, albeit largely unmodifiable. With time, the previously mentioned DRM measures started to appear, and digital art tools moved to opaque, cloud-based renting models.

Even art education, a place that *could* offer the expertise necessary to make your own tools, considers digital tool development far outside the course’s scope. Instead, a focus is placed on teaching industry standard software, so the student can seamlessly fit into pipelines and workflows. This seems to run contrary to the majority of art education, where a student is encouraged to closely regard and question themselves and their environment. Why should their tools be exempt from scrutiny?

In the following sections we will be investigating the artists and movements that do question their digital tools, the foundations of their practices, and the role of art in an age of digital and mechanical reproduction.

## 3.2 Tools of Glitch

*“So, go ahead—tear it all open. Let’s be beatific in our leaky and limitless contagion. Usurp the body. Become your avatar. Be the glitch. Let the whole goddamn thing short-circuit.”*

– Legacy Russell (Russell, 2020)

When thinking of glitch art the first image that springs to mind is a picture covered in fractalised blocks, which in parts has turned fluorescent and visually ‘noisy’. This first instinct highlights the aesthetic aspect of glitch, how its unique visual qualities have bored themselves into the collective consciousness. Glitching is how digital objects break, according to a logic gleaned only by the machine.

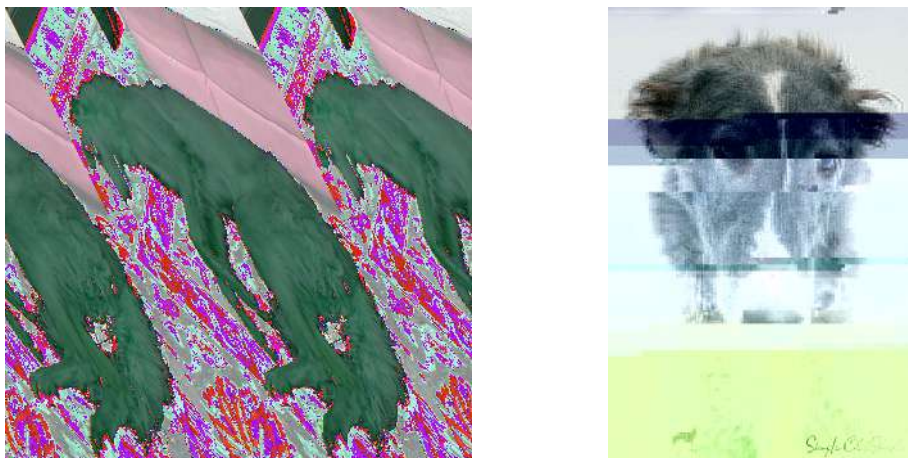


Figure 12: Images glitched with byte-editing.

In a way glitch has become the marker of digital authenticity and fourth wall-breaking. *Doki Doki Literature Club!* and *OneShot* are games that exploit the aesthetics of bugs<sup>33</sup> and glitches to foster the impression of unstable, autonomous, or ‘cursed’ software. It can ground the work as a product of code, either with or without intention.

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<sup>33</sup>A term for unintended behaviour in software, usually borne from a mistake in the software’s programming.

Glitch is also pervasive as a theme in digital-first media like creepypastas<sup>34</sup>, where works like *Sonic.exe*, *BEN Drowned*, and *Tails Doll Curse* use glitching to trigger a relatable sense of dread around misbehaving software.

Many of these cases are not real glitches, however, but merely aestheticisations; the software is not really breaking, but rather giving the impression that it is. What is truly transgressive about glitching is that it pursues, rather than minimises, error, noise, and a deeper understanding of data, in a digital world where noiselessness and frictionless-ness are normally prioritized.



Figure 13: *Doki Doki Literature Club!* (2017) by Team Salvato.

Art curator and theorist Rosa Menkman’s *Glitch Studies Manifesto* describes this “search for a noiseless channel” as “regrettable, ill-fated dogma” (Menkman, 2010b). Much of modern technology aims to apply a layer of conversational, drag-and-drop language over what fundamentally is computational, nurturing a growing distance between us and the device’s binary bones. Technology has become indistinguishable from magic for many, and something like glitch *could* serve as an antidote to that perception (Emerson, 2014).

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<sup>34</sup>Horror stories that are shared over the internet, comparable to how legends and folklore are propagated.

Most glitch methodologies peel back this human-parsable layer to directly interface with a file's byte-materiality. Alternatively, as described in *A Vernacular of File Formats* (Menkman, 2010a), compression, conversion, encoding, decoding, and import settings can also serve to distort data, albeit in a slightly more controlled, reproducible manner. An example of this is Audacity, an audio editor that can import and export certain image file types. However, you do not need more than a hex editor<sup>35</sup> to get started.



Figure 14: Digital drawing imported into Audacity, with bass and treble, delay, and low-pass filter effects applied.

**Even if glitch's reputation as a transgressive practice is blurred by its visually novel, aestheticised form, it still shows us how digital artistic practice can exist beyond the stated purposes of software, whether they be file types or graphics editors; it validates destruction as an artistic practice.**

This is why I want to talk about Noise (the musical genre, capitalised) next, as it manages to largely avoid commercially motivated flanderisation.

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<sup>35</sup>A digital tool for editing files at byte-level, providing a grid overview of these bytes in a hexadecimal format.

### 3.3 Tools of Noise

*“It’s like looking through a tiny pinhole at this infinitely big world, and then you move the pinhole a fraction of an inch and it’s a totally different one!”*

– Jessica Rylan (Rodgers, 2008, p.148)

The foundations of Noise were established by the advent of hearing. For many of us noise is a universal experience, and it follows us anywhere we might go. Noise takes this noise and places it in a musical context, an early instance of this being Tchaikovsky’s usage of cannons in *1812 Overture*. Later on, futurist artist Luigi Russolo writes on noise as music in *The Art of Noises*, valorising an onslaught of timbre as something to pursue rather than the sounds of traditional music composition and instrumentation (Russolo, 1913).

Noise is defined by musical anti-authoritarianism. It rejects musical conventions, theory, and traditions in favour of uninhibited experimentation and a dogged pursuit of new noise. To Noise artists, mannerism is the enemy of experimentation, so you see Noise projects evolve, die, and reform at a rapid rate (Mattin, 2005). Some even argue that Noise only really is Noise when it is performed live, as something meant to go unrecorded, evaporating in the air of a venue (Toth, 2009, p.27-28).

What this highlights is how delicate the mangling of a signal is. Knobs are turned, wires are moved around, and instruments are modified to make unreproducible sounds unlike any other. Noise musician and engineer Jessica Rylan describes this process as a break from the top-down techniques of classical ’60s synthesis, where input and output are clearly defined, parameters are labelled, and everything is both documentable and reproducible (Rodgers, 2008, p.147-148).



Figure 15: Musician Wendy Carlos explains synthesis using her Moog synthesiser (BBC, 1970).

Now, especially in practices like circuitbending, pre-existing sonic circuits are broken down and patched in unusual ways with unusual results. The set of parameters essentially grows to an occult scale where a sound's distinct “gkgkkhhh” may come from imperfect soldering, a stronger resistor, a semi-broken chip, or atmospheric humidity. It is a primitive, trial-and-error form of music-making with ephemeral qualities, like glitch, that implicitly oppose commerciality, standardisation, and mass production.



Figure 16: *Experimental Harsh Noise Instrument* (Karnov, 2025)

Because of Noise's experimentalism, an emphasis is implicitly placed on building tools rather than purchasing them, and finding the Noise in the objects that already surround us. This feeds into the usage of found sound. Thanks to tools like contact microphones and field recorders anyone can pull haunting, amped sound from everyday objects and locations.

Noise artists find ways to appropriate traditional music equipment as well. Instruments and vocals are involved in performances of The Skaters, Senyawa, and Jessica Rylan, mixing into the noise or acting as a signal input to be digitally mangled and reformed.

On the digital side there are VSTs: virtual instruments and effects that generate and alter digital sound signals. Cult classics like *Delay Lama* and *MeowSynth*, and oddball VST designers like Unplugged showcase their unique possibilities in terms of sound and interface.



Figure 17: Jessica Ryan performing vocally, patching her microphone through effects.



Figure 18: Various plugins displayed in FL Studio.

Noise shows us how stimulating it is when everything is a potential tool. It is about as all-consuming as the pop-cultural commerciality it has largely managed to evade, instead finding sound in the cheap, the makeshift, and the ramshackle. Its hostility towards musical, art-making authorities highlights its priorities in experimentation and expression, like a frustrated pianist slamming down on her keys, making Noise for noise's sake.

Contrasting Noise's anti-authoritarian chaos, there is the hyper-standardised internet, and those who use and abuse said standardisation in their artistic practices.

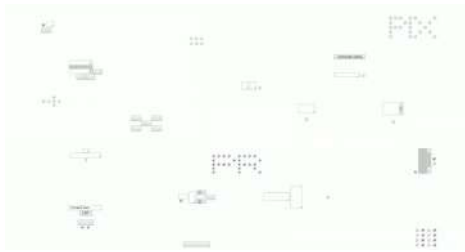
### 3.4 Tools of Net

*“The internet is for the cats!”*

– Nekoweb’s slogan

Net art as a term encompasses work made in internet and browser contexts. Here the interactive interfaces offered by phones and computers are exploited for the artist’s purposes. So, rather than using the internet as a platform to disseminate art, like publishing music files or a webcomic, net art turns the functions of the net into an active component of the art piece (Ippolito, 2002).

*Form Art* and *Form Art Competition* by Alexei Shulgin made this click for me. He recontextualises ever-present HTML input elements, like check- and text boxes, by creating kinetic and interactive collages out of them (Rhizome, 2017).



(a) *Form Art Competition* (1997) by Alexei Shulgin.



(b) Angela Washko discussing abortion rights with Chastity

Figure 19

Although what is academically defined as ‘net art’ spans the late 90s-early 2000s, it is not like artists stopped using the web as an artistic medium. Feminist media artist Angela Washko comes forward as a contemporary example of net-artistry by taking a decidedly ethnographic approach to the people that inhabit online spaces (Valentine, 2015). She breaks the expectations set by MMO<sup>36</sup> spaces in her *Gaming Interventions*, by interviewing players on their thoughts about feminism; both revealing and interrogating the pervasive bigotries of these spaces.

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<sup>36</sup>Massively Multiplayer Online – Video games in which a large amount of players interact with the environment and one another in the same online game world.

Net art-practice can also be interpreted as a reclamation of the online spaces we inhabit. Exemplary of this is the loosely defined web revival movement. Born from a stew of nostalgia and frustrations with the walled gardens<sup>37</sup> of today's internet, it encourages netizens to carve out a little corner of the internet of their own (Murray, 2023). Free web hosts like Nekoweb and knowledge hubs like 32bit.cafe have made it easier than ever to engage in community-oriented web-craft.



Figure 20: The explore tab on nekoweb.org, showcasing the numerous personal websites it hosts.

This collaborative character of the net extends to its very infrastructure, the materiality of which can not be understated. Servers are built, maintained, and scaled to host petabytes of material, and internet provision relies on vast networks of cables and base stations. The existence of the internet is reliant on scarce hardware, and what is both beautiful and terrifying about it is that you can not reasonably do all of it yourself; your net-use always depends on someone else's work.

<sup>37</sup>A software system which closes itself off from non-approved content or applications, for example how Kindle eReaders do not support the largely standardised EPUB file format for e-books.

I felt this directly for the first time when working on my personal website. I wanted to move my portfolio away from a website builder and discovered what ‘hosting something on the web’ really meant. I would have to deal with domain registrars, VPS<sup>38</sup> providers, and the realisation that I know very little. Engaging in active netizenry is a humbling, knowledge-heavy process; all the more reason to seek out help and further interconnection. This sense of togetherness is reflected by the tools of net-scaping: the combination of markdown, style sheets, and scripting languages shape a website, needing one another as much as I needed someone to explain VPS security best-practices to me.



Figure 21: My personal website lexie.land, its domain acquired from Porkbun, hosted on a Racknerd VPS in Rancho Cucamonga, CA, which runs on a Linux operating system.

Net art shows us the value of tool-standardisation, namely how it supports knowledge-sharing and network-forming. This way more can climb over the garden wall and take an active part in net-remaking, by offering their own unique, experimental, and surprising additions to its greater whole. To exist outside of social media cubicles, in the ever-shifting, collectively constructed network of digital spaces the internet really is.

In the following chapter we will take our findings on glitch, Noise, and net art and see how they apply to art toys and this thesis’ companion project, *VisunovOS*.

<sup>38</sup>Virtual Private Server – A partition of a server with its own contained operating system. Rented out as a smaller, cheaper alternative to a full, dedicated server.

## 4 Art Toys of the World, Unite!

Commonly, art toys contain features that are unpredictable, unusual, destructive, ugly, unnecessary, useless, or just plain weird; anything which, in corporate terms, would be labelled as ‘unproductive’.

An art toy’s playfulness comes from this collection of features, the oddities and novel effects of which invite experimentation. By being so unlike what we expect art-making software to be, it helps artists leave their pre-conceived notions at the door and engage in free play. An art toy’s exploratory quality comes from this free play, where engaging with a feature becomes an exciting process of discovery, rather than mannerism.

Without expectations, or with expectations that are proven wrong, the way is paved for surprise and intrigue to take place. Questions get to arise around a function, how it works, and how it might interact with other functions or art toys.

In this chapter we will take the previously defined, developmentally valuable tool-characteristics and transgressive, digital art-making practices as a reference point. We will observe how art toys take artistic development into account, and how they may further inform the development of *VisunovOS*.

First will be ‘proto’ art toys. These are art-making programs from the 90s-00s, designed for children and the computer-illiterate. I believe these will reveal a handful of core principles of art toy design that implicitly or explicitly serve artistic development.

Secondly I would like to focus on ‘critical’ art toys that are borne, in part, from dissatisfaction with contemporary creative software. I believe these will present a different approach to art toy-making, evolving directly out of proto-art toys.

To conclude this chapter I will be reflecting on *VisunovOS*, and how it has been influenced by the findings of this thesis.

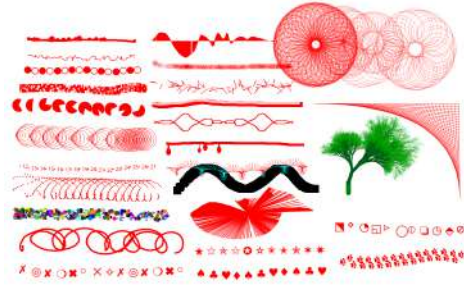


Figure 22: A showcase of various brushes available in *KidPix 1*.

## 4.1 Proto-Art Toys

It might help to start with an example, and the first and foremost example of art toy-ism is *Kid Pix*. Its original creator, photographer and software designer Craig Hickman, wanted to make a computer drawing program for his then 3-year-old son Ben. In this pursuit he formulated fifteen guiding principles to make sure *Kid Pix* would be easy to use, interesting, and fun (Hickman, 2013).

In these principles some now-familiar ideas present themselves; ensuring a surprising and satisfying making-process (#2), open-endedness and modifiability (#4), focusing on the unique possibilities of digital tool-construction rather than reproducing traditional tools (#7), and the prime directive: extreme ease of use (#1).

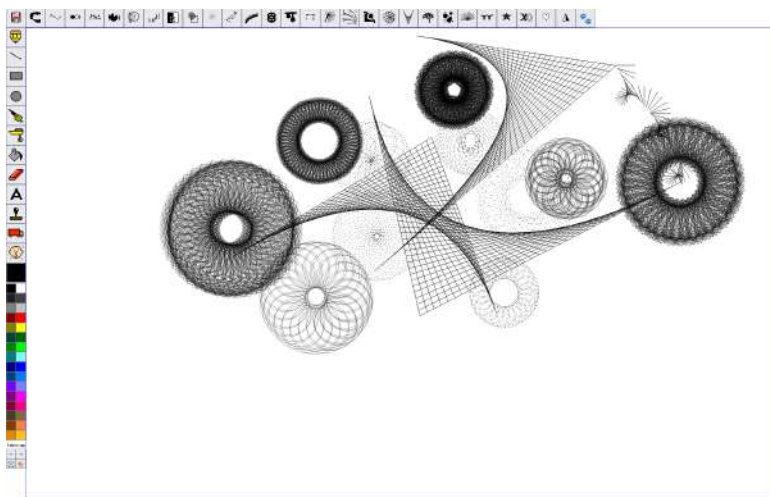


Figure 23: *Kid Pix 1*, now available online on [kidpix.app](http://kidpix.app)

These are strikingly similar to the developmentally beneficial tool characteristics we’ve identified in the first chapter. It also draws attention to how open-ended programming and digital tools are, to an extent where it can even be detrimental. Where do you start when everything is new, big, and disorienting? This was the problem Ben faced when using *MacPaint*, and what Hickman set out to address with *Kid Pix* (Scudder, 2020).

What we can glean from this is how, even in this very earliest stage of art toy-ism, the developmental value of the tool is actively being considered. Even if the level of complexity of the software itself does not really allow for its direct modification, it does serve as a valid gateway for digital art-making and proactive computer-use.

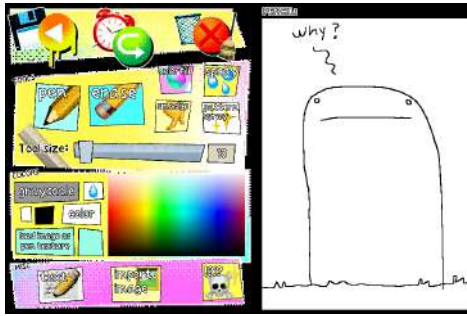


Figure 24: *Aesthetic Computer* by Jeffrey Alan Scudder, available online at [aesthetic.computer](http://aesthetic.computer)

These early steps proved vital, and are still mentioned as direct sources of inspiration by contemporary toolmakers (Lawhead, 2024b; Earnest, 2023; Scudder, 2020). These current-day artists have experienced digital art-making differently, however. Corporations like Adobe and Autodesk were nowhere near their current level of tool-dominance, and the then-dominant experimentation and variety of creative software has since been driven firmly into the indie sphere. We are living in an age that values hyper-productivity, and what do current-day art toys have to say about that?

## 4.2 Critical Art Toys

(*EZM*), as mentioned in this text’s introduction, is a noisy, flamboyant, and slightly confusing zine-making program developed by Nathalie Lawhead. It features numerous playful tools inspired by various Flash code memes, rather than the creative software clichés of Photoshop (Lawhead, 2024a). I thankfully had the opportunity to send them some questions about *EZM* and its development (appendix A), excerpts from which will sporadically feature in this section.



(a) *EZM*’s main editor window.



(b) A zine about *Recurse3*, made with *EZM*.

Figure 25

*“I wanted an art tools [sic] that would discourage you from taking what you are doing too seriously. It helps with writers [sic] block to have something that you can just goof around with until you fixate on an idea.”*

Using *EZM* is a process of unfurling, where new tools and workspaces reveal themselves as you delve into the program. This encourages doodle-y play and hands-on exploration, and in my own use of the program I quickly let go of any plans for the zine I was making. I let myself get drawn into its various workspaces to play, rather than produce.

*“You can’t underestimate the power of letting people make something in a fantasy space. It’s beautiful. It’s so “play pretend” like when you where a kid. At heart, software is weird and alien. It’s amazing when you fully lean into that!”*

Much like the previously discussed proto-art toys, *EZM* takes you into a fantastical space. This workshop for making zines contains the likes of a ‘color factory’, a ‘toaster’, and an ‘authenticity tool’. Lawhead also mentioned this spatiality in relation to their interactive zine, made before *EZM*, *Everything is going to be OK*. This features stories, toys, OSes, and creative outlets, like a positivity award maker.



(a) The Smoosh Zone, in *EZM*.



(b) My positivity award, made with *Everything is going to be OK*.

Figure 26

Lawhead describes how people spent a surprising amount of time with these tiny art toys, taking on a meditative, grounding role in the larger zine. It makes sense to see *EZM* spring forth from this hunger for a creative outlet, that lets you play without shame or expectation.

Comparing these critical art toys to the aforementioned digital artistic practices of glitch, Noise, and net, we can establish some similarities.

Like glitch art, some art toys are destructive and non-deterministic. Numerous art toys feature or entirely revolve around glitching. *BECOME A GREAT ARTIST IN 10 SECONDS* distorts images through its opaque-yet-straight-forward interface, and *Electric Zine Maker*'s 'scream into the void' tool turns entire pages into a jumbled, fractal mess.

Like Noise, some art toys pursue new methods of digital art-making by breaking from the authority of productivity-oriented art tools. This leads to novel, deeply digital methods of art-making, like composing music with vertices in *F15H 74NK*.

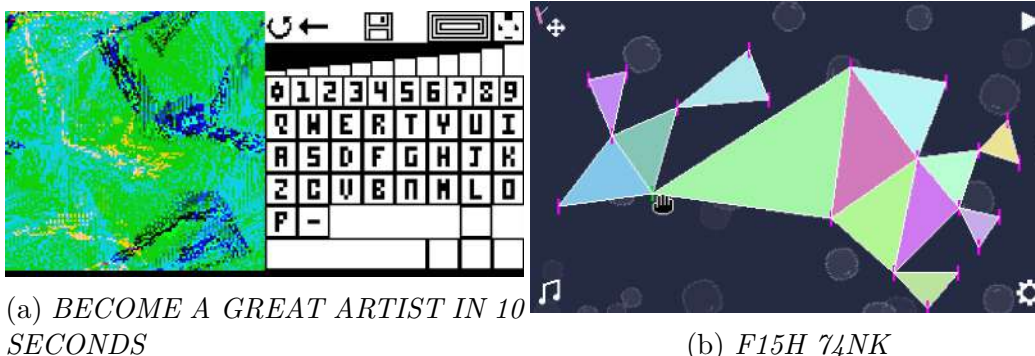


Figure 27

Like net art, some art toys reimagine purely functional software features as art-making tools. For example, writing poems by highlighting text in-browser in *Catch a Poem*, and using ASCII characters to draw in *Playscii*.



Figure 28

This brings us to my own art toy-making pursuits with *VisunovOS*. In the following chapter I will be sharing my aims for the software and showing some of its features, noting their inspirations, and in what ways they aim to embody previously identified art toy-isms.

### 4.3 VisunovOS

Quite early into my thesis research I knew I wanted *VisunovOS* to be a tool-belt: a container for tools that can and should be expanded by its owner. This came from my growing and now-cemented belief that toolmaking should be explicitly supported as a necessary step to any artistic practice. I want to welcome this tool-authorship by making tools editable, with detailed documentation on tool development.

At this point *VisunovOS* parodied Windows 95, which began to feel dissonant. Why make it reflect a closed-source OS that embodies corporate interest and standardisation, rather than an openness to experimentation?

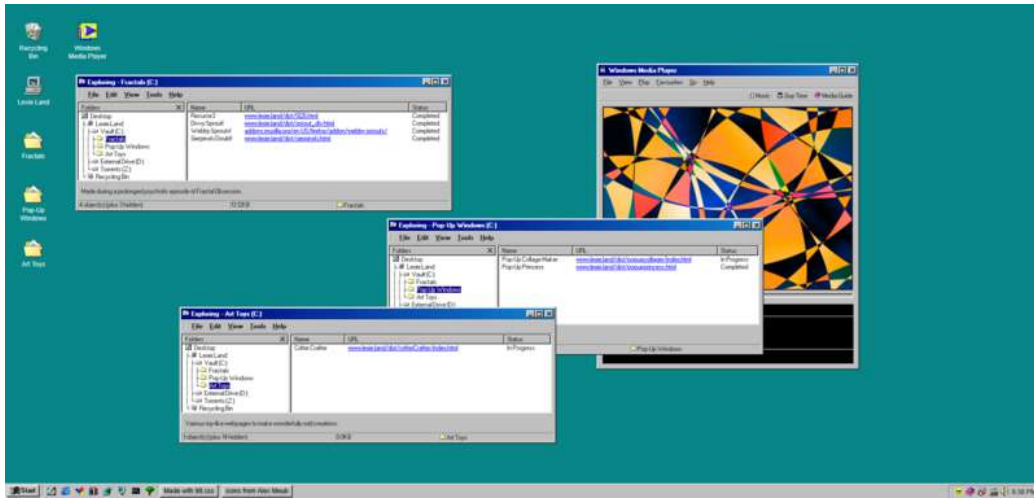


Figure 29: What *VisunovOS* looked like roughly a month into its development.

With this loss of a visual identity came the need for a new one, what exactly is *VisunovOS*? It reminded me of *EZM*'s spatiality, which brought me in the direction of ergodic literature<sup>39</sup>, ARGs, and collaborative fiction projects like the *SCP Foundation* and *Blaseball*. These disparate works share a sense of explorability with art toys, and the method of engagement is tailored to fit the work itself rather than any expectations the reader or player might have.

<sup>39</sup>A text which's traversal requires more than ordinary eye movement and turning pages (Aarseth, 1997).



Figure 30: The *SCP Foundation* project appropriates the functionality and aesthetics of a ‘wiki’ to collaboratively write speculative fiction.

Believing this to be the way to go for *VisunovOS* I set aims to craft a fictionalised origin story: an odd, archaic operating system, made by one of the dotcom bubble’s many losers, brought into the modern day through the browser and fan efforts.



Figure 31: Current iteration of the *VisunovOS* logo, inspired by the serif fonts of 90s software.

Echoes of **glitch** live on in *VisunovOS* as well, as I was specifically enamoured by its non-deterministic, destructive qualities. This has made me a lot more open to the idea of unpredictable tools, and generally apprehensive to the idea of undo buttons.

*Flippabook* for example, largely avoids precision. It instead forces its user to repeatedly shuffle, skew, and in- or deflate the assets, introducing trial-and-error to the making process; providing a bit of friction, making time for ideas to sprout and fester.

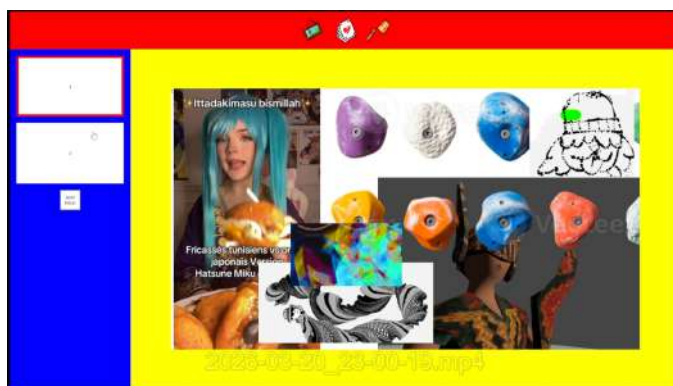


Figure 32: *Flippabook*

*Typist* on the other hand pursues fragility. Applying styles to text can be repeated to the point of total textual destruction and incomprehensibility, the program misbehaves under certain conditions, from which surprising new insights and ideas can sprout.

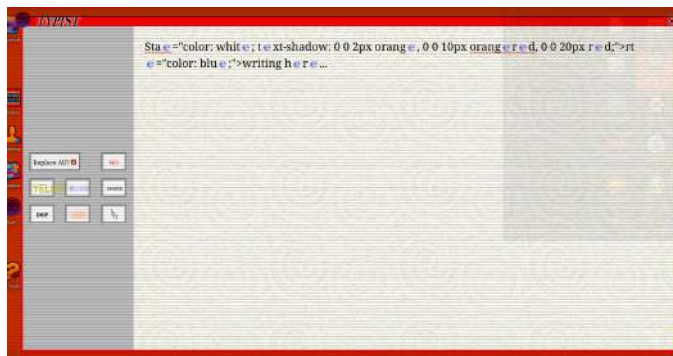


Figure 33: *Typist*

Drawing from **Noise**, in *VisunovOS* noise has become ever-present. In an effort to sharply contrast the noise-abstinence of contemporary software design, everything has to have a sound. Noises loop and layer on top of one another to nurture a cacophony of honks, clicks, music, and voices. *VisunovOS* chooses to make Noise for noise's sake.

Inspired by **net art**, I chose for *VisunovOS* to be web-based because of a fascination with the re-contextualisation of web elements. One of my first tool-making projects was *Recurse3*, a fractal tree generator that constructs binary trees using div elements and CSS rules. Since then many, if not all of the 'toywares' contained in *VisunovOS* try to reimagine or shine a light on alternative uses of HTML, CSS, and JavaScript, like using divs as paint in *DivBrush*.

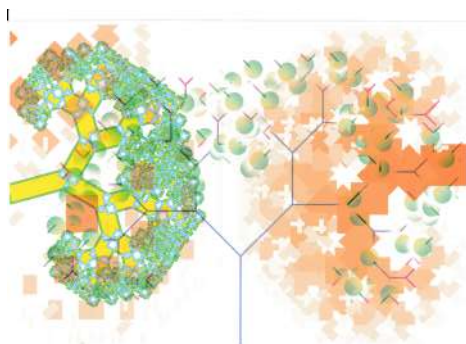


Figure 34: *Fractal Collage #9*



Figure 35: *DivBrush*

As we can see, this thesis wound up affecting my work in a number of ways, but most of all it made me acutely aware about my intentions for *VisunovOS*; surprising and fun like *Kid Pix*, critically fantastical like *EZM*, and malleable like paint and grammar.

## 5 Conclusion

In the introduction the question was “*How can art toys support artistic development?*”, for which we have collected a few answers.

Art education has shown us under what conditions artistic development is supported. When highlighting tools we found that developmentally valuable tools consist of valid rules and notions in which an artist can grow fluent, while being malleable enough for the developing needs of an artist.

We also took time to consider the role of guidance in artistic development and how sensory and reflective structures invite deeply personal, artistic explorations.

When taking this understanding of developmentally valuable tools and guidance to reflect on digital tools, shortcomings and challenges were found in both the technical complexity of digital tools as well as the legal complexity of digital tool ownership. Potential was noted in modding, pirating, and toolmaking practices of digital artists.

Following this insight we looked at specific digital practices that take radical approaches to digital art tools: glitch, Noise, and net art.

These showed us how digital artistic practice can exist beyond the stated purpose of software, outside of authority, and within standardisation; contexts in which digital art-making meets the conditions for artistic development.

On the subject of art toys we found overlap, in terms of practice as well as ideology. These not only directly echo glitch, Noise, and net art methodologies, but remixes them to further co-mingle. Following this we defined two categories of art toys to further understand their evolving relationship to artistic development:

**Proto-art toys**, toys of the past that experimented wildly and made careful, conscious considerations in relation to their accessibility and educational qualities.

**Critical art toys**, toys of the now that argue for a more colourful and more varied future for digital tools and digital tool authors.

We closed this section off with a reflection on my own project, *VisunovOS*, and in which ways this text has steered its development; how it shed its nostalgic veneer for an identity of its own, became loud, became online, became unpredictable, and became a tool-belt for remixing, making, and housing tools.

I believe *VisunovOS* can best support artistic development by being made to be reshaped, to an extent where it is no longer recognisable as its past self:

a colourful web-OS by Alexandria van Eekelen, her fingerprints all over it, filled with her ideas about what computers should be.

Instead it will be theirs, their fingerprints all over it, filled with their ideas about what computers should be.

Art toys can support artistic development by being open to obliteration.

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## A Nathalie Lawhead Interview

*Some URLs were shortened for formatting reasons.*

*Q – While using Electric Zine Maker I was struck by how it unfolded itself over time. What I first thought was a quirky, relatively simple drawing program showed its breadth the more I played (not worked) with it, the egg brush soon becoming a personal favourite. I noticed that this helped me let go of my zine-plans and embrace the surprises it offered, loving the process and kind of forgetting about a final artefact much like when I paint or linocut. Is this playful exploration an explicit goal you set for EZM, and (in what ways) is the development process similar to playing with it?*

NL – The initial goal of EZM was to make something playful, where creating is more centered around doodling. The first tools were just black and white drawing tools, but then it just kind of... evolved into being weirder and sillier with each update. Tools were added incrementally with each update.

I wanted an art tools that would discourage you from taking what you are doing too seriously. It helps with writers block to have something that you can just goof around with until you fixate on an idea. I figured if you want your idea to move on to something more normal (...evolve professionally, grow up?) you could just import your art into a traditional art tool, after you played around in EZM. So there's no arbitrary file formats. Just PNG's. It's as simple as possible.

Early internet had these code movements where people shared cool "code toys" that they made. Most of these were made in Flash. They'd often feature some visually rich interaction where you play around in this weird colorful thing someone made. It's similar to the visual javascript toys you have today.

I always thought these were compelling, and I miss how we kind of lost these "code memes". EZM is a collection of many of these old toys that were spread around... Like growing "hair" on your images, or silly glitchy paint splats. Splashing around in water was a big one too! So you have the goldfish tool. I hoped in compiling these things that throw back to that era, it would keep that dream alive, but also encourage people to view creating in this different light.

Similarly, you may enjoy the work of Galaxy Kate (Kate Compton) on Casual Creators.

*Q – In “From monopolies to tiny tools by solo devs” you mention that EZM features throwbacks to old Flash experiments/code-memes. This made me insanely hungry for some further context to this, as Flash was just a few years ahead of my own digital arting neural activation. So what did these Flash experiments and code-memes look like (and are there some still-accessible examples)? In what ways were these used/shared (à la web revival guides/workshops?), and could people take these experiments from others and develop/apply them further in their own work?*

NL – Things like drawing with spiderwebs (like screenshotted here <https://tinyurl.com/2d9ybdd9> ). Sound visualizers. These silly “face detection” apps where they change your face to something else where originally Flash experiments... I can’t really point to any without digging through my old drive to show what I saved, but this stuff was not preserved at all. If you look at the book *New Masters of Flash* (the entire series) you can find records of such experiments. The authors of that first book are interesting to look into if you want to do some internet archeology from that time.

*Q – Your post “The wonderful world of tools made by small teams, solo-devs, and shareware” wound up being foundational to my general understanding of art toys and the values they embody. Here you also mention there are major similarities between developing a game and developing an art toy, which really resonated with me and my approach to making games has since turned much more playful. If they have, in what ways have art toys entered your game-making practice? Do your games/projects wind up informing your art toys in turn?*

NL – Originally I put in a lot of “art toys” into “Everything is going to be OK”... Which is like this interactive zine where you explore all these rabbit holes, easter eggs... and each page offers a bunch of silly ways to interact. Some of the pages had creative outlets in them where you could make something. Like making a “song” and it actually records what you made, and saves it to your drive. You have a hidden selfie station where you record glitchy animated gifs of yourself (stylized to look lo-fi). You can draw, or even create “powerpoints” which was silly .pdf’s... All this was in context of the game. When you saved this, you could keep a piece of the game. This kind of also blurred where the game starts or stops. The interesting thing here is how much time people spent on these creative tangents. The tools weren’t even all that good (in my opinion)! Just extremely weird. So it

fascinated me how people would get stuck on that interaction... sometimes it was part of a longer series of interactions, but they'd stay specifically for the art toy. They'd make something there. They liked what they made. It was meaningful to them.

The process of creating something was also kind of grounding. There was something meditative about it, where the game could become more real because you could create in it.

I think allowing people to be creative in these really weird, alien, experimental, fictional contexts is an underrecognized art (see the fantasy console movement). It's so profound when you let people do that.

...So the Electric Zine Maker kind of evolved out of that. It was the thing I made next after "Everything is going to be OK".

You can't underestimate the power of letting people make something in a fantasy space. It's beautiful. It's so "play pretend" like when you were a kid. At heart, software is weird and alien. It's amazing when you fully lean into that!

*Q – 'Art toy' is a very neat descriptor for this genre of software, especially given how a 'good' toy in the context of pedagogy is typically defined as something open-ended, inspiring active play, and/or explorable. This is also why I find it difficult to recommend software like Photoshop or Krita to beginning digital artists, as these tools (and the cultural conceptions around them) seem to foster a productivity-mindvirus rather than artistic development. Were you, budding digital artists a group you considered when developing EZM, and if so how did this group influence EZM's iterations?*

NL – When I was growing up, or just discovering creating on a computer, I think I came from that very rare era where software was still "new". You had Kai's Power Goo (look up the history in that UI work), Kid Pix, Microsoft Kids... My biggest favorite was Mario Paint. A lot of edutainment was creativity focused too.

All these were silly, goofy, almost absurdist spaces that let you create something equally as weird... with weird tools. In Mario Paint everything makes noise. In software today that would be a big usability crime because it's "annoying"... but drawing went "bloobloobloo" and the paintbucket went "takatatata"... You know. Silly!

Even software like Dabblor, which was supposedly more 'professional', stands out as incredibly weird by today's standards. That had sound effects for everything too.

It's an interesting era. What really stuck with me was the experimentation. There were no rules in what a program needs to be. No standards. Just this giant possibility space of figuring out what would or wouldn't work.

Even with the Flash website movement <https://tinyurl.com/r495jmde> you had this giant undiscovered realm of what a UI even is. UI made noise, it blinked, it transitioned, it was over the top and had to be an "experience"... even if confusing, and you didn't know what you were clicking on, everything was unique. It had to be different.

All this kind of died under the pressure to conform to standards. To make something that appeals to everyone, with numbers, retention, statistics, user experience, brand... We lost all that bravery to just invent something.

I think Steve Jobs's comments on the "fart app" kind of highlight that shift. "We have over 250,000 apps in the App Store. We don't need any more Fart apps."

You should look that up.

It's this shift to pursuing an ideal. Standards enforced by someone else's vision, rather than just including everyone's vision of what software can be. So we lost this entire concept of "prank software" or goofy art tools in this shift to conforming to these ideals.

I just think it's interesting because the people that set these standards have kind of killed that creative spirit in the urgency to control "quality"... where quality is often very subjective to begin with.

That was a rant. Thank you :)