

# Protocol as Poetry: Case Study on Pak's Protocol Arts

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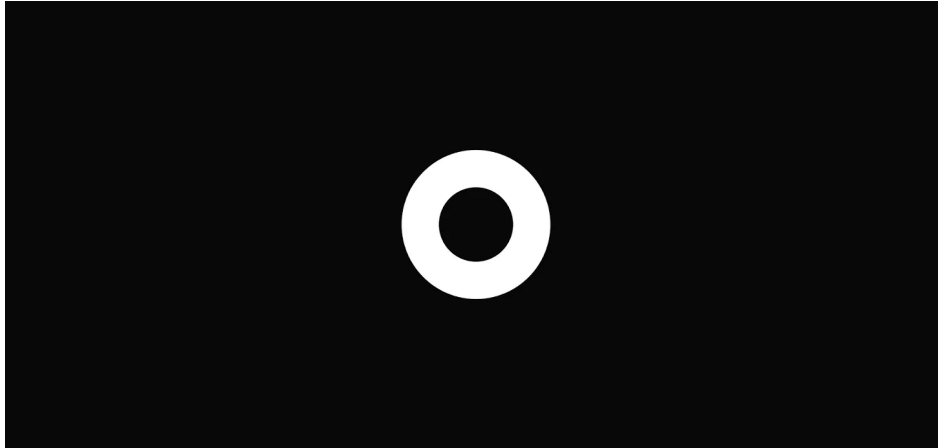


Figure 1: The Logo of Pak. Pak's symbol on Twitter is a circle known as "The Nothing".

## ABSTRACT

Protocol art emerges at the confluence of blockchain-based smart contracts and a century-long lineage of conceptual art, participatory art, and algorithmic generative art practices. Yet existing definitions—most notably Primavera De Filippi's "protocolism"—struggle to demarcate this nascent genre from other art forms in practice. Addressing this definition-to-practice gap, this paper offers a focused case study of pioneering protocol artworks by Pak, an early and influential pseudonymous protocol artist who treats smart contracts as medium and protocol participation as message. Tracing the evolution from early open-edition releases of *The Fungible* and the dynamic mechanics of *Merge* to the soul-bound messaging of *Censored* and the reflective absence of *Not Found*, we examine how Pak choreographs distributed agency across collectors and autonomous contracts, showing how programmable protocols become a social fabric in artistic meaning-making. Through thematic analysis of Pak's works, we identify seven core characteristics that distinguish protocol art: (1) system-centric rather than object-centric composition, (2) autonomous governance for open-ended control, (3) distributed agency and communal authorship, (4) temporal dynamism and lifecycle aesthetics, (5) economic-driven engagement, (6) poetic message embedding in interaction rituals, and (7) interoperability enabling composability for emergence. We then discuss how these features set protocol art apart from adjacent artistic movements. By developing a theoretical framework grounded in Pak's practice, we

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contribute to the emerging literature on protocolism while offering design implications for artists shaping this evolving art form.

## CCS CONCEPTS

• **Human-centered computing** → **Collaborative and social computing theory, concepts and paradigms; Interaction design theory, concepts and paradigms.**

## KEYWORDS

Protocol Art, Smart Contract, Blockchain, Decentralized Control, System Art, Generative Art, Participatory Art, Open-endedness, Protocolism

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## 1 INTRODUCTION

Over the last decade, the advent of blockchain networks, smart contracts, and non-fungible tokens (NFTs) has transformed digital culture by relocating trust from central institutions to cryptographic code: "Code is Law" [14]. Beyond reshaping finance through DeFi, these technologies have begun to reconfigure artistic practice. An emerging cohort of artists now treats smart contracts as their medium, designing works whose meaning emerges through on-chain participation. Pioneering projects—*terra0* (2016), which frames a forest as a self-owned entity<sup>1</sup>; Sarah Friend's socially-driven on-chain *Lifeforms* (2021),<sup>2</sup>; and the on-chain robo-botanical *Plantoid* (2017) series<sup>3</sup>—demonstrate how smart-contract logic can

<sup>1</sup><https://terra0.org/>

<sup>2</sup><https://lifeforms.supply/>

<sup>3</sup><https://plantoid.org/>

serve as a medium to distribute creative agency through participation, while "the aura of the artist is on maintaining the process" [12]. Recent exhibitions like the *World Computer Sculpture Garden (2024)*<sup>4</sup> foreground this shift, showcasing smart contracts as sculptural pieces that exist immutably on Ethereum. Together, these works signal the emergence of what is increasingly termed *protocol art*.

Yet the concept of protocol art remains theoretically unsettled. In her recent article "Protocolism," De Filippi defines protocolism as an art form that "uses protocols to guide diverse human and non-human executors in producing unique artworks," where protocol means "a set of rules or instructions that guide behaviour toward a specific outcome" [12]. While evocative, this definition is too broad in practice. It's difficult to distinguish protocol art from other long-standing rule-based art forms: conceptual art, like Sol LeWitt's *Procedural Art (1976)*, Yoko Ono's "Cut Piece" (1964), and Marina Abramović's "The Artist is Present" (2010); generative software art, such as Operator's "Generative Choreography" (2023); and contemporary AI-assisted image models—all of which rely on rule-based logic. Even generative NFT platforms like Art Blocks invite collectors to mint algorithmic outputs but rarely cede autonomy to the code once deployed. *not all runtime art, blockchain-native art, or on-chain art is protocol art*, as maltefr claimed in her introductory essay to *World Computer Sculpture Garden* [15]. A gap persists between broad definitions of protocol art and the specific protocol art practices we observe in the emerging use of smart contracts as medium.

Our research question is: *What distinct characteristics of protocol art emerge from studying real-world protocol art practices?*

To address this research question, we focus our investigation on the pseudonymous artist **Pak**, whose practice epitomizes protocol art's aspirations by turning smart contracts into both medium and message. Active since 2020, Pak pioneered open-edition drops (e.g., *The Fungible (2021)*), dynamic NFTs that self-combine (e.g., *Merge (2021)*), and soul-bound tokens [16] that impose protest (e.g., *Censored (2022)*), extending most recently to the tokenized absence of *#404 (2023)*. Each work demonstrates how participation through smart contracts can deliver poetic meaning: collectors are not merely owners but co-authors who experience the artwork through its evolving mechanics—whether fusion, auto-merging mass, or hidden blacklists. This participatory design transforms algorithmic logic into social reflection and has generated outsized cultural and economic impact; notably, *Merge* realized \$91.8 million in primary sales, then heralded as "the largest art sale by a living creator" [9]. By embedding metaphors directly in code while enlisting thousands of participants, Pak offers a uniquely fertile corpus for examining the intertwined dynamics of protocol mechanics, collective engagement, and conceptual intent within emerging protocol art.

Using a qualitative grounded-theory approach, this study dissects Pak's protocol artworks to theorise the behaviours they spark and delivers two key contributions. First, it presents a comparative matrix that evaluates Pak's signature pieces through seven analytic lenses—concept, system-mechanism dynamics, participatory interaction, artist control, emergent behaviour, poetic meaning, and key

statistics. Second, by rooting its analysis in the concrete mechanics of Pak's oeuvre, the paper distils the emergent characteristics of protocol art, advances a clearer genre definition, maps its potential as an independent artistic movement, and outlines design implications for future creators.

## 2 BACKGROUND

### 2.1 Emerging Protocol Arts

Web3 technologies—blockchains, smart contracts, and non-fungible tokens (NFTs)—reconfigure the terms of authorship by shifting enforcement from institutions to code. Smart contracts are self-verifying, self-executing and tamper-resistant programs that guarantee rule compliance without a central server [23], while NFTs assign cryptographic provenance to digital artefacts. Together they allow artists to publish works that run autonomously and invite permissionless participation. As collectors interact on-chain—minting, trading, or triggering contract functions—the artwork's state evolves in real time, making the protocol, rather than any single output, the true locus of creativity [24]. Smart-contract infrastructure enables such participation at global scale. Web3 has revived—and radically extended—the tradition of *participatory art*: works in which the public co-produces the piece through prescribed actions.

Projects like *terra0 (2016)* imagine a forest that manages itself through a Decentralized autonomous organization (DAO), selling lumber rights to fund its own growth. Primavera De Filippi's *Planitoid (2017)* embeds a robo-flower in Ethereum so that donors collectively "pollinate" the sculpture, triggering new commissions. The 2024 exhibition *World Computer Sculpture Garden* showcased artists—among them 0xhaiku, Absent, Loucas Braconnier, Sarah Friend, Material Protocol Arts, Rhea Myers et al., Paul Seidler—whose works exist solely as smart contracts, reinforcing the idea that the *protocol* itself can be material [15]. Most visibly, the pseudonymous artist **Pak** has released a string of high-profile blockchain works that invite thousands of collectors to fuse tokens, redact texts, or accumulate "mass," demonstrating that participatory creativity can be both conceptual and commercially significant. Collectively, these examples point to an emerging genre—*protocol art*—in which rules encoded on-chain constitute the work, and audience transactions constitute its performance.

### 2.2 Defining Protocolism

Multiple disciplines offer definitions of a *protocol*. In computer networking, a protocol is "a set of rules for formatting and processing data," and network protocols function as "a common language for computers" [20]. De Filippi broadens this definition to "a set of rules or instructions that guide behaviour toward a specific outcome" [12]. From the research initiative Summer of Protocols, dedicated to studying protocols as first-class concepts, Rao et al. describe it as "a stratum of codified behaviour from which complex coordination can emerge" [22]. The *material* that implements a protocol may range from a written contract to cryptographically enforced software; what varies is the "hardness of trust"—how difficult it is to deviate from the rules [18]. The term *protocolism* has been advanced by De Filippi to capture practices that "use protocols

<sup>4</sup><https://worldcomputersculpture.garden/>

Project (Year)	Participatory Interaction	System mechanism	Artist control	Participants	Collective emergent behaviour
X (2020)	24-h open-edition mint on Nifty Gateway; collectors could mint unlimited copies within the window	Time-scarcity → supply fixed by duration, not count	None (rules immutable once deployed)	Hundreds of editions; dozens of unique wallets	FOMO-driven rush as deadline approached
The Title (2021)	Fixed-price sale of visually identical NFTs, each bearing a different title/price	Value experiment: image constant, metadata (title price) varies	Only pre-set prices/titles; tokens static	One owner per piece (6 sold); headline <i>Unsold</i> (US\$1 M) remained unsold	Community debate on where NFT value resides (image vs. narrative)
The Fungible (2021)	Hybrid: open-edition "Cube" mint + puzzle/leaderboard rewards during Sotheby's event	Fungible cubes aggregate into higher-denomination NFTs; gameified rewards	Rules and reward tiers fixed; artist validated puzzles + bonuses	23 598 cubes bought by 3 080 wallets → 6 156 NFTs total	Competitive accumulation, cooperative puzzle-solving, viral social tasks
burn.art (2021)	Anyone can <i>burn</i> any NFT → receives ASH ERC-20 via bonding curve	"Creation via destruction"; burn rate halves every 5 M ASH	Contract rules fixed, but artist sets future drops payable only in ASH	Thousands of burns; thousands of ASH holders	Emergent burn economy; strategising which NFTs to sacrifice
Lost Poets (2021)	65 536 "Page" NFTs sold; holders choose to burn for \$ASH or transform into AI-generated "Poet" NFT; on-chain renaming	Multi-act game; burns-mint branching; airdropped "Origin" Poets	Pak triggers each Act and airdrops but cannot reverse user choices	8 k unique holders; 28 k Poets + remaining/burned Pages	Strategy debates (keep, burn, name), puzzle-hunting, thematic naming guilds
Invisible Mechanism (2021)	30 critics airdropped non-transferable "Hate" NFTs	Admin-only move() function; tokens "soulbound" to artist	Absolute; artist can seize/move tokens at will	30 forced recipients	Wide discussion on ownership & power asymmetry in NFT contracts
Merge (2021)	48-h sale of "mass" units; every wallet holds a single NFT whose *mass* auto-adds when more bought or acquired	Self-merging deflationary tokens; leaderboard tiers (Alpha, Beta ...)	Rules fixed; artist only designed incentives/ARG post-sale	28 983 buyers; 312 686 mass units → 28 984 NFTs	Competitive hoarding, post-sale mergers reducing token count ("extinction game")
Censored (2022)	(a) 1/1 Clock auction (b) open-edition "Message" mint: any text, any price	(a) Dynamic day-counter (b) Messages stay redacted; auto-reveal when/if Assange freed	Clock autonomous; reveal switch bound to external event; artist cannot alter messages	Clock owned by 10 000-member AssangeDAO; 30 000+ Message NFTs	Grass-roots DAO fundraising; global participation, shared anticipation of reveal
Not Found (2023)	Single 1/1 charity auction; token has no image/metadata (just ID 404\)	"Deliberate absence"; NFT records only text "In memory of the absent"	Immutable nothingness set at mint	1 owner (WhaleShark)	Community reflection on owning "nothing"; memorial tribute discourse

Table 1: Pak's Protocol Arts

to choreograph diverse human and non-human executors in the production of unique artworks" [12].

Yet all these protocol umbrella definition remains too broad when it faces art practice. Is Instruction-based conceptual works—Sol LeWitt's Procedural Art (1976) an protocol art? Some of Sol LeWitt most famous pieces were not even executed by him in person. He did not sell paintings on canvases, instead he sold "recipes" or "procedures" (a.k.a "protocols") with specific instructions that would then be implemented by a draftsman, who was required to faithfully execute the instructions, but whose own hand and judgement led to the final formal outcome of the work. For another example, Is the classic Participatory Art Marina Abramović - "The

Artist is Present" (2010) is a protocol art? Abramović invited viewers to sit across from her in a gallery while she maintained eye contact with them for extended periods, exploring themes of presence and connection. Modern example, do generative NFT platforms such as Art Blocks <sup>5</sup>, where collectors mint outputs from pre-written algorithms. What, then, distinguishes *protocol art*?

Following the essay "Computation in the Expanded Field," [15], maltefr argues that protocol art foregrounds the *foundational structure* that pre-configures a computational environment: the blockchain is not a mere distribution channel for images; it is the sculptural

<sup>5</sup><https://www.artblocks.io/>

substrate itself. Protocol art is rooted in a century-long lineage of conceptual art, process art, participatory art, and algorithmic generative art practices. Yet it transcends these predecessors through its unique relationship with blockchain technology, smart contracts, permissionless participation, trustless infrastructure, and immutable landscape of affordances.

### 2.3 Pak and His Protocol Arts

Pak—known as Murat Pak—is a pseudonymous crypto artist best known for harnessing blockchain smart-contracts as an artistic medium. After creating the AI-curation bot Archillect in 2014, Pak shifted to NFTs in 2020 and quickly became one of the field’s most commercially successful and conceptually adventurous figures: more than 180,000 of Pak’s tokens changed hands between 2020 and 2022, generating nearly US \$395 million in primary and secondary sales. The artist’s anonymity (some speculate “Pak” may be a collective) and code-driven practice challenge traditional ideas of authorship and ownership, while record-breaking projects such as Merge (US \$91.8 million) have placed Pak among the highest-grossing living creators in any medium.

For this case studies, we picked nine milestone protocol artworks from Pak: X (2020) introduced time-based scarcity by letting anyone mint unlimited editions for just 24 hours, shifting value from object to moment. The Title (2021) sold the same image under differently priced names, proving that metadata—rather than pixels—can dictate market value. The Fungible (2021) used a Sotheby’s open-edition drop to turn fungibility itself into spectacle, releasing thousands of interchangeable tokens that questioned uniqueness. burn.art / \$ASH (2021) created a perpetual “creation-through-destruction” loop in which collectors burn any NFT to mint the social currency ASH, gamifying scarcity. Lost Poets (2021) unfolded as a multi-stage strategy game of 65,536 AI-generated “Pages” that could evolve, merge, or be burned, turning collectors into co-writers of an ever-shifting narrative. Invisible Mechanism (2021) premiered the “move” contract, giving the artist the unilateral power to relocate tokens—an audacious commentary on creator sovereignty hidden beneath a drop nicknamed Hate. Merge (2021) sold 312,686 “mass units” that algorithmically fused into larger single tokens after every transfer, making ownership a live sculptural process. Censored (2022), made with Julian Assange, paired a DAO-funded one-of-one “Clock” counting Assange’s days in prison with open-edition “Censored” tokens, weaponising provenance for political protest. Not Found #404 (2023) assigned token ID 404 to an NFT deliberately devoid of metadata, transforming the web’s “page not found” error into a meditation on digital absence.

## 3 METHOD

We employed a qualitative, grounded-theory strategy to map the complete corpus of Pak’s protocol artworks and theorise the behaviours they generate. Data collection proceeded four complementary strata: (1) On-chain evidence: smart-contract source code and transaction logs for every work, extracted via Dune Analytics and OpenSea. (2) Project interfaces: official webpages, and marketplace listings (e.g. Nifty Gateway launch page). (3) Discourse layer: journalistic reviews, critical essays, and high-signal social-media threads that register community reception. (4) Authorial

voice: archived interviews and statements from Pak’s Twitter feed, providing insight into artistic intent.

Building on the manually curated corpus described above, we broadened coverage by deploying a large-language-model (LLM) agent that exhaustively scraped and consolidated public references to nine landmark protocol artworks by Pak. Guided by theoretical sampling, we subjected this enlarged dataset to iterative open coding; through constant comparison, the emerging codes crystallised into seven analytic lenses rooted in protocol-art scholarship: (1) Concept, (2) System–mechanism dynamics, (3) Participatory interaction, (4) Artist’s control, (5) Collective emergent behaviour, (6) Poetic meaning-making, and (7) Key statistics. The LLM next pre-classified each artefact under these lenses (see Appendix), after which two researchers manually verified, corrected, and enriched every entry.

During focused coding, we refined properties and dimensions within each lens and annotated every project in a comparative matrix (see Table 1). Axial coding then traced connections across lenses, revealing higher-order patterns, category saturation—no new properties emerging from fresh data—signalled theoretical sufficiency, yielding the grounded model of Pak’s practice that structures the subsequent discussion.

## 4 RESULT: CHARACTERIZING PAK’S PROTOCOL ARTS

Our grounded-theory analysis reveals that Pak’s oeuvre operates as a coherent yet evolving family of *protocol artworks* whose aesthetic force resides less in visual form than in the programmable conditions that orchestrate collective action. Across nine landmark projects—from *The Fungible* and its cube-fusion economy to the auto-aggregating masses of *Merge*, the speech-filtering ritual of *Censored*, and the self-reflexive void of *404*—we observe a stable configuration of traits following. Taken together, these features constitute what we term Pak’s *protocol aesthetic*: a design grammar that transforms blockchain infrastructure into a stage for large-scale, participatory meaning-making.

### 4.1 System-centric rather than object-centric composition

Pak’s practice exemplifies a shift from discrete art objects to dynamic systems. In a “systems aesthetic,” as Jack Burnham theorized, the artist designs goals, rules, and interactions rather than crafting a fixed artifact. Unlike a static object with defined boundaries, a system can evolve over time and respond to external inputs. Pak explicitly embraces this ethos: he argues that an NFT’s image is merely one element of a token’s metadata, and focusing only on the visual is “a naive frame of view”. The true medium for Pak is the underlying protocol – “the structure of the NFT market itself” – which he leverages as a creative material.

This system-centric approach is evident in works like *The Fungible* (2021). Rather than a singular digital image, *The Fungible* was presented as a three-day performative market game on Nifty Gateway. Buyers effectively co-created the outcome: they could purchase unlimited open-edition “Cube” tokens, and “the more they bought, the more unique their NFT would be”. The artwork unfolded through rules of supply and demand, competition, and

reward, blurring the line between artistic composition and economic system. Similarly, Pak's earlier collection *X* (2020) consisted of "infinite editions" available for only one day, such that scarcity was determined by time and participation rather than a predefined edition size. In all these cases, what constitutes the artwork is not a static file but the entire process and protocol: the contracts, algorithms, and user interactions that generate the final outputs. This aligns with Burnham's notion that in system-based art "all phases of the life cycle of a system are relevant" and there is "no end product that is primarily visual". Pak's art finds its form in the living system of relationships and behaviors, not in a singular immutable image.

#### 4.2 Autonomous governance for open-ended control

Many of Pak's projects foreground autonomous processes and decentralized control, resonating with concepts of generative autonomy in both blockchain and artificial life. On the blockchain, smart contracts act as self-governing "digital physics" – immutable rule sets that execute without centralized oversight. This allows artworks to behave like autonomous entities. For example, *Merge* (2021) implemented a self-contained rule whereby all purchased units automatically "merged" into singular tokens in each wallet at the close of the sale, without any manual intervention. The final form emerged from the contract's code and collective user actions, illustrating open-ended control dictated by an algorithm. Pak often cedes such control to the system itself or the community, allowing outcomes beyond a single author's full prediction.

This ethos connects to emerging "autonomous worlds" in crypto art, and is exemplified by projects like Primavera De Filippi's *Plantoid*, an art piece that lives on a DAO and "reproduces itself" via smart contract governance. In *Plantoid*, people who hold "seed" NFTs fund and vote on the creation of new instances, effectively making the artwork a self-propagating entity. Pak's work incorporates similar principles of shared or automated governance. In *Censored* (2022), the one-of-one *Clock* NFT was auctioned not to an individual but to *AssangeDAO*, a collective of over 10,000 people pooling funds to bid. A decentralized community thus became the owner, blurring the line between patron and curator through collective governance. Moreover, Pak's *burn.art* platform runs as an ongoing autonomous mechanism: anyone can send an NFT to be burned at any time in exchange for *Ash*, which in turn can be used in future projects. This "never-ending 'Buy-Burn' game" can continue indefinitely by design, illustrating how the artwork's evolution is handed over to participant actions and blockchain logic. Such autonomous, perpetual systems align with the idea of art as an "unstoppable" process – a "complex living system" on chain that "no single entity can halt". Pak's protocol art thus moves toward open-endedness, where creation and control are distributed across code and community rather than centralized in the artist.

#### 4.3 Distributed agency and communal authorship

Pak's protocol-based artworks distribute creative agency among many participants, inviting communal authorship of the art. This follows a broader trend in generative and participatory art where

creators "collaborate with users – either collectors or other artists – to distribute control," effectively denying any single central author. In Pak's projects, collectors and players are not passive owners but active co-creators of meaning and content. *Lost Poets* (2021) makes this clear: after minting their AI-generated Poet NFTs, collectors were empowered to name their poets and even invent backstories or verses for them, literally inscribing personal creativity into the work's metadata. As Pak's team noted, the "discoverers of this civilization will shape it," meaning the community of holders defines the cultural narrative of the piece. Indeed, many participants wrote original poems and titles for their *Lost Poets* tokens, blending their own literary voice with Pak's conceptual framework.

Similarly, *Censored* (2022) turned its audience into co-authors. During the 48-hour open edition, nearly 14,000 messages were tokenized by users and added to the *Censored* collection. Each participant essentially created a piece of the overall artwork by embedding a personal message on the blockchain. The final collection is thus a mosaic of voices from the community ("Pak Assange You," as the creators billed it), rather than a singular narrative. Even *Merge* can be seen as distributing authorship: almost 30,000 buyers collectively determined the supply and composition of that work's outcome, making the "most expensive NFT" a product of crowd dynamics as much as Pak's initial concept. This radical dispersal of agency recalls Umberto Eco's idea of the "open work," extended into the tokenized realm – the artwork is an evolving network of contributions. By building frameworks that require audience input to complete the work, Pak positions the community as co-creators. The artistic authorship becomes plural and emergent from the group, rather than originating solely from the individual artist.

#### 4.4 Temporal dynamism and lifecycle aesthetics

Pak's works are not static snapshots; they unfold over time, embracing change, ephemerality, and defined life cycles as core aesthetic elements. In classical systems art, the "consistency of a system may be altered in time and space" and all stages of its life cycle become material for the artwork. Pak's projects exemplify this temporal dynamism. *Lost Poets* (2021) was structured as a narrative in multiple acts – from the initial sale of "Pages," to a delayed *Reveal* where pages transformed into Poet NFTs, through daily drops of special "Origin" Poets, and onward towards a planned "Twist" and final *Epilogue* after 365 days. The piece lives and evolves across an entire year, its full meaning only emerging gradually as collectors engage over time. This built-in lifecycle – birth (minting), maturation (naming and interacting), and an end-state after one year (when burning for *Ash* is enabled) – turns time into an artistic medium.

Other Pak works similarly rely on temporal structure. *Censored's* *Clock* is explicitly a time-based artwork: a counter of *Assange's* days in prison that updates daily, tethering the piece's content to the passage of time in the real world. The open edition portion of *Censored* was also time-limited to 48 hours, highlighting the urgency and performative moment of the audience's participation. In *X* (2020), each NFT "moment" was only available during a one-day window, making "one single day of infinite existence" the defining limit of each edition. Scarcity and content in *X* were thus time-contingent: the fewer people who acted within the day, the fewer copies existed. Even Pak's market dynamics often have temporal

phases (for instance, The Fungible's escalating price tiers each day). By designing pieces with evolving states and deadlines, Pak "recreates the cycle of life" in digital form, acknowledging that in a systemic artwork, impermanence and transformation are not byproducts but the very substance of the art.

#### 4.5 Economic-driven engagement

Pak's projects deliberately intertwine economic mechanisms with artistic interaction, turning market dynamics into part of the artistic experience. In many cases, the engagement of the audience is driven by financial gameplay—bidding wars, token burns, price competition—such that market participation becomes a form of performance. The Sotheby's sale The Fungible is a paradigmatic example: it deployed a complex auction structure with open editions, surprise price hikes, and contests for unique rewards, effectively a "gamified" economic performance. This not only generated over \$20 million in sales, but also created a frenzy in which "more than 3,000 individuals decided to join," drawn in by the competitive game itself. The mechanics of scarcity and reward (e.g. top buyers receiving special NFTs) were designed to incentivize maximal participation. Here the market behavior was the art: once "the game and competition incentives disappear," what remains are tokens whose value was defined by that performative context. Pak thus highlights, even cynically, the extent to which economic structures confer meaning in crypto art.

In Pak's oeuvre, the act of buying or transacting becomes a critical ritual and medium. The Title (2020) consisted of identical images sold at different prices, making price itself the distinguishing feature of the artwork. One edition titled "Unsold" was listed for \$1 million and intentionally left unsold – a conceptual gesture underlining how value in art can be a product of hype and perception. This recalls Yves Klein's 1957 exhibition of identical blue canvases sold at varying prices; as Klein observed, "the price... legitimately changes the experience of the work" despite no physical difference. Similarly, Pak has argued that an NFT is like a currency – judging it by the image alone is as foolish as picking a banknote for its picture. By merging art and economics, Pak invites collectors to reflect on their own motivations – are they driven by aesthetic appreciation or speculative gain? The economy around the artwork becomes integral to its narrative, effectively turning collectors into players in a financial drama. In Pak's protocol art, market engagement is not a byproduct but a core feature that actively shapes the work itself.

#### 4.6 Poetic message embedding in interaction rituals

Beyond the technical and economic layers, Pak's works often carry metaphorical or poetic messages that are realized through the audience's interactive rituals. In other words, the process a participant must follow is itself laden with symbolic meaning. Critic A.V. Marzaccini notes that Pak treats the NFT medium as "a way to engage audiences in participatory conceptual art" – the concepts emerge through what the viewers or users are made to do. For instance, burn.art turns the destructive act of burning NFTs into a creative ritual. The platform's mantra "Burn art to get ashes to get art to burn art" is a circular poem in itself, invoking themes of death and

rebirth. Participants enact a cycle of sacrifice and renewal: by destroying one token, they generate another (the \$ASH token), which can then be spent on new art or even burned again. This cyclical interaction is a performative allegory about value and transformation – literally illustrating creation-through-destruction in a way that words alone could not.

Pak's collaborations also embed messages in their structure. Censored (2022), created with Julian Assange, is explicitly about free expression and censorship. The project had two parts – one a dynamic single edition (Clock) counting Assange's days behind bars, and the other an open invitation for people to speak. By telling users that Censored is "about you" and allowing them to tokenize any message they wish, Pak made the audience's personal expression the core of the piece. The very name Censored reminds participants that their recorded messages might be obscured or blacked out, forcing reflection on the power of speech under observation. In Lost Poets, Pak evokes Jorge Luis Borges's Library of Babel: an infinite library of all possible texts. The project "enlists participants to imagine" the lost contents of that library by naming their Poet NFTs and eventually inscribing words onto them. The ritual of naming and writing thus becomes a meditation on how meaning is generated – each user's creative act is a fragment of a larger, hidden poem. Pak uses these game-like interactions not just as gimmicks but to convey ideas: the audience realizes the "poetic" concept by performing it. This approach recalls aspects of Fluxus or conceptual art, where simple actions (publishing a message, paying an exorbitant sum) become symbolic acts. The blockchain in Pak's work provides a global, participatory stage for such rituals, ensuring that each interaction – each burn, each tokenized word – is both an artwork and a narrative gesture in his conceptual universe.

#### 4.7 Interoperability enabling composability for emergence

Finally, Pak's protocol-based approach leverages the interoperability of blockchain tokens to compose complex emergent ecosystems that transcend any single artwork. In blockchain terms, assets and smart contracts are composable: they can interact, integrate, or build upon each other permissionlessly. Pak exploits this composability to create an interlinked network of projects. The clearest example is the Ash token ecosystem. After The Fungible, Pak introduced \$ASH as a cryptocurrency earned by burning NFTs on burn.art. This token was not confined to one piece, but became a connective thread between works – a meta-artwork in its own right. Owners of ASH were rewarded in subsequent projects: before launching Lost Poets, Pak took a snapshot and airdropped 7,586 Pages to collectors holding 25 \$ASH, thus bridging the burn.art economy with the new literary NFT game. Conversely, once Lost Poets concluded, those Poet NFTs could be burned for ASH, feeding value back into the burn.art system. In this way, Pak created a feedback loop: one artwork's output becomes another's input. The emergent whole is an ecosystem of NFTs and tokens co-evolving across his oeuvre.

This interoperability enables creative "combinatorics" that yield unforeseen outcomes. Smart contract platforms allow "multiple 'worlds' to intertwine," as researchers note, forming a "persistent,

yet sufficiently complex environment” where artworks can coexist. Pak’s art inhabits this multiverse. A token like \$ASH grants access to exclusive drops and collaborations (a composable utility), while the act of burning or merging tokens can spawn new forms and communities. By giving participants portable assets that carry value and function across different contexts, Pak encourages emergent behavior. Collectors speculate, strategize, and invent new use-cases (for example, pooling \$ASH or devising burn strategies), effectively participating in the evolution of the creative system. As one commentator observed, Pak’s project proved that on blockchain “individuals can exercise personal control over value, create niche ecosystems... without the sluggish constraints of fiat,” demonstrating the “power of creative tokenomics” in art.

## 5 DISCUSSION

### 5.1 Answering RQ: Characteristics of Protocol Arts

This study’s exploration of Pak’s protocol artworks reveals seven interlinked characteristics that distinguish protocol art as a practice. (1) These works are fundamentally system-centric rather than object-centric. Their artistic meaning emerges from dynamic interconnectedness via protocols instead of static artifacts. (2) As Galloway claimed “protocol is how control exists after decentralization” [13], protocol arts employ autonomous governance for open-ended control, often via self-executing code or decentralized mechanisms, so that the artwork’s evolution is not predetermined by a single author but can continue to unfold indefinitely (3) This leads to distributed agency and communal authorship, as creative influence is spread across many participants and technical actants rather than residing in one creator, aligning with the idea that agency (and thus authorship) is shared among human and non-human actors in a network. (4) Moreover, these artworks exhibit temporal dynamism and lifecycle aesthetics: they develop through time, with phases of growth or change designed into the experience, so that process and feedback become central to their aesthetic. (5) Engagement with such works is often economic-driven, integrating incentive structures (for example, token rewards or market dynamics) that actively shape how audiences interact – a phenomenon noted by art scholars observing the immediate economic incentives at play in crypto art. (6) At the same time, there is a deliberate embedding of poetic messages in interaction rituals: the very actions participants perform (trading, voting, combining elements, etc.) are imbued with symbolic meaning, turning user interactions into ritualized performances that carry the artwork’s conceptual message. (7) Finally, protocol artworks leverage interoperability enabling composability for emergence, meaning they are designed to plug into larger ecosystems of code and community; like modular components, they can be reconfigured or linked with other protocols, allowing unexpected behaviors and creative outcomes to emerge from these combinations. Collectively, these seven characteristics illustrate how protocol art shifts the locus of art-making from singular objects to evolving systems of interaction, value and meaning.

By situating these findings in broader intellectual contexts, we can appreciate protocol art as part of an interdisciplinary conceptual lineage. The system-centric focus strongly resonates with complex

systems theory and the “systems aesthetics” tradition in art: as Jack Burnham observed, modern art increasingly “does not reside in material entities, but in relations between people and between people and the components of their environment”. In protocol art, the artwork is essentially a complex adaptive system [10] – with inputs, outputs, and feedback loops – which accords with theoretical models where adaptive behavior and emergent order arise from networked interactions over time. Its open-ended governance and temporal evolution connect to the field of artificial life, which seeks systems that continually produce novelty rather than reaching a fixed end state. This open-endedness [17], coupled with deliberate feedback mechanisms, echoes the temporal dynamics of complex adaptive systems studied in complexity science, reinforcing how unpredictable, ongoing change becomes an aesthetic virtue. Meanwhile, the ethos of distributed agency and communal authorship in these works finds precedent in media theory and anthropology: for instance, actor-network theory contends that creative agency is distributed across a web of human and non-human actants, not concentrated in an autonomous individual. Similarly, in interactive and participatory art literatures, authorship is often viewed as an emergent, collective process – the community of participants effectively co-creates and continually reshapes the piece [12]. The inclusion of economic-driven engagement situates protocol art in dialogue with social computing and crypto-economic systems: just as Web3 platforms rely on token-based incentives to drive user participation and loyalty, protocol artworks harness economic game dynamics as artistic material, blurring the line between aesthetic experience and market behavior. This integration of economic and social incentives also invokes evolutionary game theory within complex systems, where value-based choices influence the system’s trajectory. Furthermore, the poetic messaging through interaction rituals can be interpreted via performance studies and ritual theory in media. Even routine or rule-bound interactions carry expressive and symbolic weight – indeed, ritualized acts are “anything but purposeless” and can “constitute social reality” through shared symbolic action. In protocol art, the choreography of user interactions (such as collective decision-making or repetitive transactions) functions as a form of narrative or commentary, akin to a ceremonial performance that conveys meaning beyond its practical function. Finally, the principle of interoperability and composability aligns with discussions in software and platform studies about modular design and emergent behavior. In blockchain-based art, for example, smart contracts are conceived as interoperable building blocks, combinable like Lego pieces to create novel structures [19]. This composability not only reflects a technical design philosophy but also fosters creative emergence: new artistic forms and communities can arise by linking protocols together, much as complex behaviors emerge when simple units interact in networked ecologies. Linking these characteristics to established frameworks thus shows that protocol art is not an isolated novelty but converges with long-running threads in complexity science, new media art, and socio-technical theory, reframing them in a unique artistic context.

## 5.2 Distinction from Adjacent Movements

Pak's oeuvre inherits strategies from Conceptual, Generative, Participatory, Interactive, and Performance art, yet the blockchain protocol gives those strategies a qualitatively different reach. What follows parses each genealogy and shows where Pak's "protocol art" outruns its nearest relatives.

**5.2.1 Beyond Conceptual Art.** Joseph Kosuth's *One and Three Chairs* (1965) established that an idea—framed through language and documentation—can eclipse the physical object. Pak embraces the primacy of ideas but transports them into a rule-executing substrate. *The Title* (2021), whose only variables are price and on-chain title, echoes Kosuth's linguistic gambit, yet its value is continuously arbitrated by decentralized markets rather than by academic discourse or institutional framing. Because the smart contract is immutable, its "statement" cannot be re-contextualised by curators; it is enacted in perpetuity by the network. Thus Pak's work is not merely an illustration of a concept but a permanently operational logic that strangers must literally transact with. The artwork lives as executable code—a self-verifying proposition—rather than a documented proposition that awaits institutional re-presentation.

**5.2.2 Beyond Generative Art.** Early computer artists such as Vera Molnár treated algorithms as mechanical aides that output static images; even later real-time generative pieces, like Casey Reas's *Process* series, run autonomously but remain visually contained. Pak's generativity is socio-economic: the code sets only the initial fitness landscape, while thousands of human agents supply the variation and selection pressures that drive the system forward. In *Merge* (2021), the merging rule is trivial—add two integers—yet the competitive hunt for "Alpha Mass" steers the macro-form in ways no solo algorithm could predetermine. Where classic generative art is a dialogue between artist and machine, Pak's field is a triadic ecology of artist, code, and market actors; the emergent aesthetic includes price curves, social memes, and token topologies—materials that lie outside the scope of conventional algorithmic art.

**5.2.3 Beyond Participatory / Crowdsourcing Art.** Relational-aesthetic projects of the 1990s (Bourriaud) invited viewers to co-produce meaning through convivial encounters, but those encounters were typically ephemeral and locally bounded. Pak's participation is *ledger-bound*. In *Lost Poets* (2021–22), each name or verse a collector inscribes becomes an indelible block in a public archive—a form of distributed authorship impossible in earlier participatory works whose traces remained in wall labels or catalogs. Crucially, participation is also economically weighted: burning a Page to earn words entails an explicit cost, so creative decisions carry financial risk. This introduces game-theoretic depth absent from classic crowdsourcing art (e.g., MTurk drawings or open Wikis), aligning Pak's practice with emerging literatures on cryptoeconomic design rather than with social-practice documentation alone.

**5.2.4 Beyond Interactive Art.** Interactive art from Myron Krueger's *Videoplace* to Rafael Lozano-Hemmer's public-space works invites real-time feedback loops, but those loops terminate once the exhibition ends. Pak designs  *durable* interaction. When a collector merges two *Merge* tokens or burns an NFT for \$ASH, the blockchain records a state change that affects every future viewer and holder.

Interaction ceases to be a momentary spectacle and becomes infrastructure—a permanent mutation in the artwork's ontology. Moreover, interaction is asynchronous and scalable: a wallet signing a transaction at 3 a.m. in Seoul alters the same global state later queried by a viewer in São Paulo, creating what media theorist Yuk Hui calls a "cosmotechnical" network of relations that far outstrips gallery-based interactivity.

**5.2.5 Beyond Performance Art.** Performance art often foregrounds the artist's body in time—think of Abramović's *Rhythm 0*. Pak removes the corporeal performer and installs a protocol that performs indefinitely. *Hate* (2021) is a one-day happening in the sense that Pak gifts and recalls untransferable tokens, yet the contract he published remains a template other artists can fork, extending the performance beyond the artist's presence. Likewise, *Censored* (2022) transforms a two-day mint into an enduring political performance: *Clock* keeps ticking so long as Assange is imprisoned, delegating the durational aspect to automated metadata calls and DAO stewardship. Thus the locus of endurance shifts from flesh to code, echoing cybernetic performance theories but grounded in irreversible cryptographic commitments.

## 5.3 Limitation and Future Works

Our case study of Pak's nine landmark protocol artworks demonstrates the unique characteristics how smart-contract logic can serve as an artistic medium, but it also exposes the field's present fragmentation. By limiting our scope to a single creator, we reveal both the promise and the incompleteness of today's scholarship: there is still no shared vocabulary, taxonomy, or methodological toolkit robust enough to account for the full diversity of protocol-driven practice. We therefore call for a concerted, interdisciplinary effort to systemize knowledge around protocol art. Concretely, future work should

- map a wider corpus of artists and projects to test and refine the analytical lenses introduced here;
- establish common descriptors for protocol mechanics (e.g., governance rules, token dynamics, temporal constraints) that are comparable across cases;
- develop metrics—both qualitative and on-chain quantitative—for assessing participation, emergent behaviour, and sociocultural impact;
- integrate perspectives from art history, HCI, STS, economics, and legal studies to ground a theory of "protocolism" that distinguishes it from adjacent genres such as generative art and instruction-based conceptual art.

## 6 CONCLUSION

Our case study of Pak's nine landmark protocol artworks reveals seven distinct characteristics of protocol art, helping advance both its definition and our understanding of this emerging genre. Protocol art remains an emerging creative domain that lacks a comprehensive theoretical framework. While "protocolism" conceptualizes protocols as an artistic medium, the field needs more rigorous systematization of its concepts and aesthetics. Current discourse around blockchain-based art has emphasized market dynamics and hype over conceptual understanding. This rapid evolution has created a significant gap between practice and theory—one that



requires careful critical reflection and theoretical development to properly ground the field.

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## A PAK'S PROTOCOL ARTWORKS

This appendix contains collected information analyzing Pak's protocol art through seven key lenses summarized and derived from ChatGPT-o3 Deep Research: (1) Concept, (2) System-mechanism dynamics, (3) Participatory interaction, (4) Artist's control, (5) Collective emergent behavior, (6) Poetic meaning-making, and (7) Key statistics, followed by (8) Information.

### A.1 X (2020)

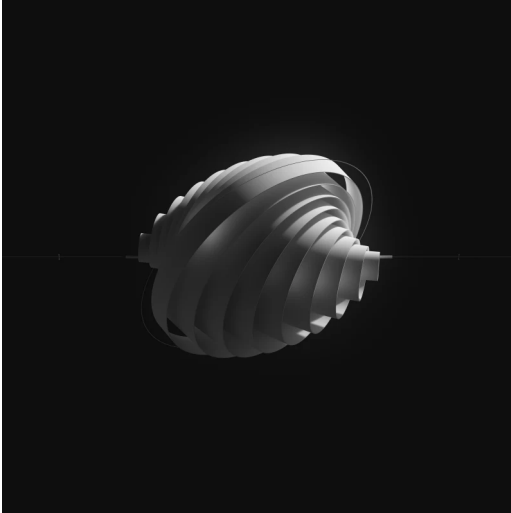


Figure 2: The Wave, Edition of 3, X by Pak (2020)

*Concept.* X was Pak's pioneering experiment in defining digital scarcity through time rather than supply. Launched in August 2020 as an open-edition NFT sale on Nifty Gateway, it replaced fixed edition limits with a 24-hour minting window. This inversion of the usual rarity model made the concept of X about temporal urgency – the art's value derived from the moment of its creation rather than a predetermined quantity. In doing so, Pak introduced a novel protocol-native idea: that the conditions of a sale (time constraints and participation) can themselves be the conceptual core of the artwork, shifting focus from image scarcity to the shared time-bound experience.

*System Mechanism.* The X project consisted of 15 NFT pieces (13 open edition works and 2 one-of-one auctions) released simultaneously. Each open edition piece had no cap on mint count; instead, a 24-hour window was the sole limit. This scarcity mechanism "based on time rather than volume" was unprecedented at launch. Once the window closed, each piece's final edition size was fixed forever by the number of mints in that period. Technically, Pak's smart contract minted new tokens on demand during the sale, then refused further minting after the deadline, enforcing time-limited creation. The dynamics encouraged rapid uptake: as time dwindled, indecisive collectors had to commit or miss out. In parallel, two unique NFTs were auctioned, adding a traditional scarcity element. The interplay of these formats (open vs. fixed quantity) within X highlighted the NFT's programmability—scarcity became

a flexible parameter of the artwork. Post-drop, the open edition pieces entered the secondary market with widely varying supply counts, testing how market dynamics would value an NFT explicitly designed without a fixed edition size.

*Participatory Interaction.* Collectors engaged with X by acquiring the NFTs during a strictly limited timeframe, effectively collaborating in a one-day event rather than competing for scarce editions. Anyone could mint as many as desired within the 24-hour window, turning the drop into a collective performance synchronized in time. This format, then-unusual, invited a broad pool of participants to be part of the work's creation – an approach that soon became a common practice in crypto art. The emphasis was on open participation: the art market's typical frenzy for limited pieces was replaced by an inclusive but fleeting opportunity, underscoring the role of community presence and timing in the piece.

*Artist's Control.* After X was launched, Pak's direct control was minimal – the rules were preset in the smart contract, and the outcome (how many tokens minted) was determined by the community within the allowed time. Pak's role was chiefly in conceptualizing and coding the parameters; once the clock started, the process was autonomous and irreversible, with Pak acting more as instigator than controller. This ceding of control to the protocol is central to the work's philosophy: the artist designed the playground but did not interfere with how many editions were ultimately created or who obtained them. The result is that X lives on as a completed event etched on-chain, with Pak's influence embedded in the mechanism but not exerted in real-time during or after the sale.

*Collective Emerging Behavior.* X attracted a broad swath of NFT collectors due to its open nature, with every buyer during that day becoming part of the work's narrative. The final mint counts effectively recorded the number of participants – a transparent metric of engagement – and in total, thousands of NFTs were minted, involving a large community. Rather than fostering a competitive race for a single token, X created a shared experience: collectors knew the availability was equal for all but also ticking away, which galvanized social media buzz and a sense of camaraderie among those "in the moment." This collective temporal convergence – everyone minting in the same 24-hour span – became a form of emergent community behavior, reinforcing Pak's notion that the artwork was as much about the crowd's response as the digital objects themselves.

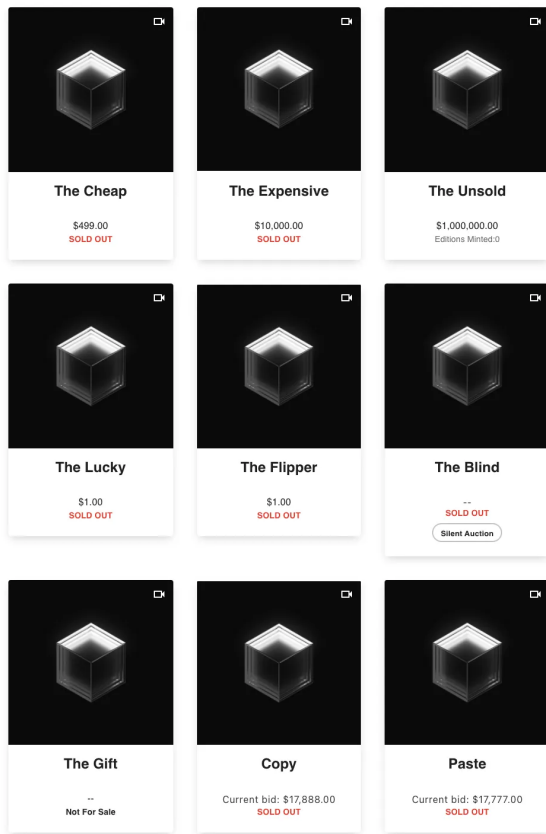
*Poetic Meaning-Making.* X transforms the notion of an artwork into a time-bound performance, offering a poetic commentary on how value and meaning in digital art are shaped by temporal and social parameters. The piece demonstrates that an NFT's significance can lie not just in its image but in the circumstances of its creation – here, a collective moment that cannot be replicated. By foregrounding the protocol (the 24-hour clock) over the visual content, Pak underscored themes of ephemerality and community: the fact that X could only come into being through synchronized action imbues it with a narrative of shared presence. Ultimately, X invites reflection on an alternate mode of art valuation: one where scarcity is a function of time and collective presence rather than material limitation, thereby poetically aligning the artwork with the ethos of a decentralized, time-sensitive digital culture.

*Key Statistics.* Released 27 August 2020 on Nifty Gateway , the X collection ultimately comprised 15 artworks with a total of 63 editions minted (across 13 open works and 2 one-of-ones) . Over 24 hours, collectors minted as few as 3 and at most 8 copies per open-edition piece, totaling only 61–64 pieces—far fewer than the theoretical infinity, underscoring the experiment’s success. The highest known sale from X was the unique *The Void*, which was auctioned to a single collector (price undisclosed publicly), while aggregate primary sales for X exceeded six figures in USD terms (each open edition priced in the low hundreds of dollars). This series marked Pak’s first major NFT drop, establishing the artist’s reputation for novel mechanics in crypto art .

*Information.*

- Launch Website: <https://niftygateway.com/collections/pak>
- Release Date: Aug 28, 2020
- Opensea: <https://opensea.io/collection/x-by-pak>
- Contract Address: 0x99b546a19cc1ec8ec9a6ce781a237ddb642dda77 (ERC721)

**A.2 The Title (2020)**



**Figure 3: The Title by Pak (2021)**

*Concept.* *The Title* (December 2020) is a conceptual NFT series that interrogates the nature of value and ownership in crypto art.

Pak created nine virtually identical digital objects – all a rotating translucent cube – but each NFT was given a different title and method of distribution [11]. By selling the same image at different prices and under labels like *The Cheap*, *The Expensive*, *The Unsold*, etc., Pak demonstrated that the perceived value of an NFT lies not in the visual content but in contextual factors such as scarcity, nomenclature, and narrative. The artwork’s core concept is essentially a self-referential critique of the NFT medium: *The Title* asks what it is we truly buy when we purchase an NFT, positing that the token’s title and associated story can override the image in defining its essence.

*System Mechanism.* Under the hood, *The Title* utilized a clever technical setup: all nine NFTs pointed to the exact same IPFS-hosted media file of the spinning cube. Despite this shared imagery, the smart contract distinguished each token by metadata – notably the title and edition info – which conferred each piece’s unique identity and implied value. This meant that ownership of any one token was effectively ownership of the same underlying image, forcing a paradox: collectors held different tokens but “shared” the art content. The dynamics of this system laid bare the role of metadata and token provenance in NFT valuation; questions arose such as whether the holder of “The Expensive” had more claim to the art than the holder of “The Cheap,” even though the visual asset was identical. By structuring the NFTs in this way, Pak’s smart contract became a philosophical device, highlighting how blockchain metadata and distribution rules can generate distinct meanings and hierarchies around an otherwise fungible digital image.

*Participatory Interaction.* Collectors engaged with *The Title* through a gamified multi-format sale. Each of the nine NFTs was obtained via a different mechanism – some were open editions (available to anyone for a limited time), others were limited editions at set prices, one was sold via blind auction, one via a standard auction, and one (“The Gift”) was not sold at all but given away [11]. This design meant that the audience had to navigate various modes of acquisition, effectively turning the act of collecting into part of the artwork’s performative narrative. By strategically involving buyers in auctions, giveaways, and timed drops, Pak cultivated a community-wide discourse and excitement around the project. The process of obtaining the pieces became a participatory spectacle of its own, reinforcing the idea that the artwork extends beyond the image to include the protocols and social interactions of its distribution.

*Artist’s Control.* Pak’s control over *The Title* after release was primarily conceptual and pre-programmed. Once the pieces were distributed through their various channels, Pak did not intervene in the tokens’ existence or content – in fact, by anchoring all tokens to a single immutable IPFS image, he relinquished any ability to differentiate or alter the visual component for one token without affecting them all. The only lever of control exerted was at inception: defining the titles and scarcity of each edition, thereby scripting the value narrative in advance. After launch, the market of collectors took over; the artist’s role shifted to observer of the unfolding debate and trade. This limited post-launch control aligns with the work’s intention: it left collectors to ascribe meaning and value

among themselves, illustrating Pak's point that the community's perceptions and the immutable smart contract rules (not the artist's hand) ultimately govern an NFT's fate.

*Collective Emerging Behavior.* *The Title* engaged a diverse group of participants, from high-end collectors willing to pay a premium in auctions to newcomers minting the affordable open edition. The total collector base spanned those nine sub-communities, all linked by the intrigue of the experiment. This project fostered a strong sense of community discussion; buyers compared their acquisitions (proudly identifying as the one who got "The Expensive" or the lucky recipient of "The Gift"), and observers debated the merits of each token on social media. Because each token's status (cheap vs. expensive, sold vs. unsold) was transparent on the blockchain, a collective narrative emerged in which the community itself assigned cultural significance to each piece beyond Pak's initial labels. In essence, the collectors became unwitting collaborators in Pak's social experiment, their behaviors—be it speculative flipping of "The Cheap" or holding "The Unsold" as a trophy—illustrating how a network of participants can create a rich tapestry of meaning around otherwise identical digital artifacts.

*Poetic Meaning-Making.* The poetic impact of *The Title* lies in its elegant exposure of art-world conventions transposed to the blockchain. By echoing Yves Klein's 1957 exhibition of identical blue paintings sold at different prices[1], Pak placed NFT culture in dialogue with historical avant-garde inquiries into what art really is. *The Title* makes viewers ponder why one iteration of a digital cube should carry more prestige or value than another. It reveals that the poetry of the piece comes from the questions it raises: What is ownership? What do we value in art – the image, the story, or the token that confers bragging rights? The work's broader significance is in demonstrating that blockchain art can critique itself; it's simultaneously a satire and a celebration of the cryptographic medium, showing how scarcity, community perception, and narrative alchemy collectively create meaning in digital art. In sum, *The Title* stands as a meta-artwork that is reflexive about its own value structure, engaging the art discourse on authenticity, authorship, and the economics of the intangible.

*Key Statistics.* Launched 5 January 2021 on Nifty Gateway, *The Title* comprised 9 works: *The Cheap* (192 editions at \$499 each), *The Expensive* (8 editions at \$10,000 each), *The Unsold* (1 edition, priced so high it remained unsold), *The Blind* (3 editions via silent auction), *The Flipper* (99 editions first-come at a low price), *The Lucky* (3 editions first-come, price \$1 each – effectively a lottery of speed), *Copy and Paste* (each 1/1 auctions, paired conceptually), and *The Gift* (3 editions given free to early collectors). Total sales exceeded \$200,000 across the series. Critically, all nine tokens reference one image file, illustrating Pak's point. Sotheby's later noted this collection as a breakthrough in conceptual NFT art, aligning Pak with avant-garde strategies of value interrogation.

#### Information.

- Launch Website: <https://niftygateway.com/collections/thetitle>
- Release Date: Jan 6, 2021
- Opensea: <https://opensea.io/collection/the-title-by-pak>

- Contract Address:

0x090c53bac270768759c8f4c93151bd1a808a280e (ERC721)

### A.3 The Fungible

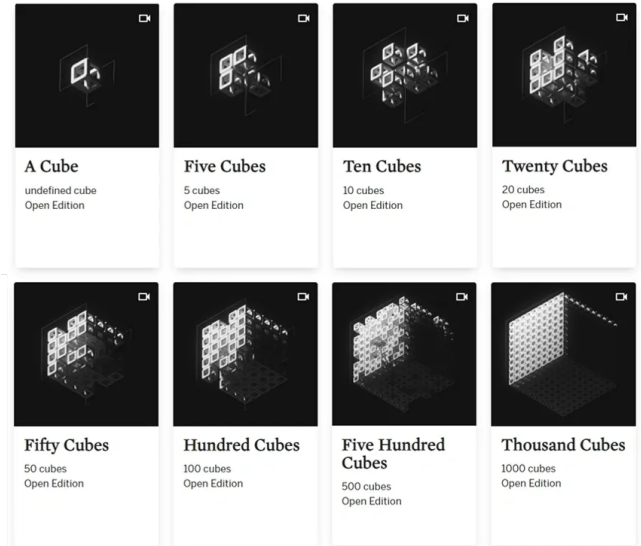


Figure 4: The Fungible by Pak (2021)

*Concept.* *The Fungible* (April 2021) was an ambitious collection that probed the definition of value in the context of digital art and fungibility. Created in partnership with Sotheby's, this project's very title is a play on the idea of fungible vs. non-fungible value: Pak offered an array of NFTs that collectively challenged the boundaries between unique art objects and interchangeable units. The concept centered on asking "what does value mean, and from where does it derive authority?" [3] – a question that the collection explored by introducing novel mechanics (like token merging and dynamic editions) which blurred the line between a singular artwork and a set of exchangeable pieces. In essence, *The Fungible* served as a critical examination of how scarcity and abundance intersect on the blockchain, turning the sale itself into an inquiry about why we value art: is it the content, the context of rarity, or the creative token logic behind it?

*System Mechanism.* *The Fungible* deployed innovative smart-contract mechanics that made collecting an interactive process. Core to the system were the Open Edition "Cubes," which were not traditional 1-of-n editions but a kind of modular token: buyers could purchase any number of identical cubes, and the contract would then deliver NFTs reflecting the quantities accumulated. For instance, if a collector purchased five cubes, they would receive an NFT depicting a cluster of five cubes; if they purchased fifty, they'd receive a single NFT showing fifty cubes – a graduated series that cleverly visualized ownership as a spectrum. This algorithmic distribution turned fungible purchases into bespoke non-fungible artworks. Additionally, Pak introduced dynamic one-of-one NFTs like *The Switch*, coded such that its owner could decide to "flip"

the artwork's state once at a moment of their choosing (an irreversible transformation built into the contract). Another piece, *The Pixel*, consisted of a single gray pixel, emphasizing minimalism and the idea that even the smallest digital unit could hold enormous value in the right context. These mechanics – custom distribution, owner-triggered change, and extreme minimalism – showcased the versatility of smart contracts, engendering a set of artworks whose form and existence were defined by procedural rules and collector interaction, not just by static visuals.

*Participatory Interaction.* *The Fungible's* drop was designed as a multi-day, multi-modal event that actively involved the audience in creating and discovering value. Over a 48-hour period, collectors could participate in Open Edition sales where they bought “fungible cubes” in whatever quantity they wished during the sale period [3], effectively letting each participant construct their own edition. Meanwhile, high-stakes auctions for one-of-a-kind pieces (*The Switch* and *The Pixel*) ran in parallel, drawing competitive bidding. Pak further engaged the community with puzzles and special rewards: for example, he gifted 30 unique NFTs to notable community “builders” and awarded four more NFTs (called “Equilibrium”) to participants who met specific criteria like solving a puzzle or tweeting Pak's hashtag to the largest audience [2]. This layered approach meant that thousands of people joined at various levels – from casual buyers to dedicated players – making the sale itself feel like a collective happening. Every participant, whether buying a single cube or vying in an auction, became part of the narrative fabric that *The Fungible* wove around the notion of value.

*Artist's Control.* Once *The Fungible* launched, Pak largely let the programmed systems and collectors drive the outcomes. The rules for minting cubes and the parameters for pieces like *The Switch* were all predetermined, meaning that after initiating the sale, Pak did not manually influence how many cubes were sold or how the artworks evolved. In fact, *The Switch* exemplified a deliberate transfer of artistic agency: the moment of its transformation was controlled by the collector, not the artist [3]. Similarly, the open edition ran on its own schedule – Pak set the prices and time windows for each cube sale, but could not alter the open-edition once it was live. By structuring the project this way, Pak's role became one of orchestrator rather than micromanager. He created the conditions and constraints, then ceded control to the market and the code, a choice consistent with the work's exploration of decentralized value creation. After the sale, the artworks existed independently on the blockchain (e.g., *The Pixel* perpetually remaining just one pixel owned by its auction winner), requiring no further intervention from the artist.

*Participants Collective Emerging Behavior.* *The Fungible* attracted an unprecedented scale of participation for an NFT art drop at the time. Over 3,000 individuals took part in the open edition cube sale alone, resulting in a total of 23,598 cubes sold across three short selling periods and 6,156 unique NFTs minted from the open edition process. The event's gamified structure (with leaderboards for top cube buyers, surprise rewards, and the allure of auctions) encouraged a spirited community response. Buyers strategized over how many cubes to purchase to attain higher-tier cube NFTs, while others collaborated or competed for the special rewards. Sotheby's

reported record-breaking engagement on Nifty Gateway during the sale, including the most bids ever placed on an NFT auction item up to that point. This collective excitement transcended typical art-world transactions; it felt more akin to a massive multiplayer event in which the audience's size and enthusiasm were integral to the work's impact. In the aftermath, collectors and observers alike debated whether the frenzy and competitive “game” of *The Fungible* were integral to its value, or if those incentives would fade, directly engaging with the very question the artwork posed about how value is sustained in digital art.

*Poetic Meaning-Making.* Beyond its clever mechanics and record-breaking sales, *The Fungible* resonated as a poetic statement on the fluid nature of value in the digital age. By literalizing the idea of fungibility – letting collectors accumulate and assemble value units (cubes) – Pak drew attention to the transactional element of art without forfeiting aesthetic intrigue. The collection as a whole becomes an allegory: the cubes symbolize the building blocks of value, and their conversion into unique artworks symbolizes the alchemy by which markets and perception turn the mundane into the precious. The open question *The Fungible* leaves us with is whether art's value is intrinsic or constructed: when a single pixel sells for \$1.36 million and thousands of identical cubes become rare sculptures through a smart contract, one is compelled to acknowledge the role of consensus, context, and collective belief in creating worth. In the broader digital art discourse, *The Fungible* is seen as a work that married participatory art with commentary on economics, ultimately reminding us in a poignant way that even on the blockchain, value is a story we all collectively tell.

*Key Statistics.* *The Fungible* drop took place 12–14 April 2021 on Nifty Gateway, generating approximately \$16.8 million in sales over three days. The open edition “Cubes” were sold in timed windows at \$500, \$1,000, and \$1,500 price points on successive days, with a total of 23,598 cubes purchased. These merged into 6,156 NFTs, distributed to 1,659 unique buyers (reflecting many bought multiple cubes). Sotheby's auctioned *The Pixel* for \$1.36 million and *The Switch* for \$1.44 million, each becoming one of the earliest NFT artworks to surpass \$1 million. The special one-of-one *The Cube* was awarded to the top cube buyer (who acquired 1,000 cubes), and 100 editions of *Complexity* were awarded to the next 100 top buyers. In total, over 3,080 transactions were recorded during the primary sale. At the time, it set a record for the largest NFT sale by a single artist on a platform, until Pak's own *Merge* later that year.

#### *Information.*

- Launch Website: <https://www.niftygateway.com/collections/paksothebysauction/>
- Release Date: Apr 13, 2021
- Opensea: <https://opensea.io/collection/the-fungible-by-pak>
- Contract Address: 0xc7cc3e8c6b69dc272ccf64cbff4b7503cbf7c1c5 (ERC721)

## A.4 burn.art / \$ASH (2021)

*Concept.* *burn.art* (and its native token \$ASH) is Pak's poetic framework for “creation by destruction,” an artwork-platform that turns the act of burning NFTs into an artistic medium in itself.

# Burn<sup>x</sup>

\$ASH is a social currency backed by curated extinction. The value, the utility and the identity of \$ASH is balanced by its users.

\$ASH is a fair launch token that started with 0 supply. Liquidity Pools and Swaps are created by the community. (Uniswap)

\$ASH can be mined by burning NFTs, bringing a dynamic balance to scarcity. For every NFT you burn you make the rest rarer, favoring their collectors.

\$ASH currently has 2 burn tiers where Pak NFTs yield more ash than others. Both tiers follow the same bonding curve mechanism with different multipliers.

Pak NFTs tier curve starts with 1000 \$ASH and others start with 2 \$ASH yield. Halving happens at 5M token supply impacting all burn tiers.

You can burn a token by clicking the token image. You can also burn by providing an opensea link for the token.

Figure 5: Quotes from burn.art (2021)

Launched in 2021 after *The Fungible*, it proposed a cyclical ecosystem: collectors are invited to destroy their existing NFT artworks (irreversibly sending them to a burn address), and in return they receive a new fungible token called ASH – essentially the “ashes” of the burned art [2]. These ashes (\$ASH) can then be spent on new art pieces by Pak, or even other creators, thereby continuing the cycle of creative destruction. The conceptual core is a commentary on value and permanence: by explicitly linking loss and creation, Pak challenges the notion of digital art as eternally replicable or static. Instead, *burn.art* frames destruction as a generative act, asking us to consider what we value more – the art we had, or the new possibilities unlocked by its sacrifice.

*System Mechanism.* The underlying mechanism of *burn.art* is an Ethereum smart contract that accepts NFTs and issues ERC-20 ASH tokens in return. Technically, when a user initiates a burn, the NFT is transferred to an inaccessible null address (removing it from circulation forever), while the contract credits the user with a certain amount of ASH according to a predefined schedule. The supply of ASH is thus dynamically generated by destruction: every token in circulation is proof that some piece of digital art was sacrificed. This introduces a self-balancing scarcity model – the

more art is burned, the rarer the remaining artworks become, favoring their collectors by increasing relative scarcity. Pak designed \$ASH’s tokenomics such that all his future drops could interact with this system, for example by accepting only \$ASH as payment for certain new works or giving exclusive access to ASH holders. This created an evolving feedback loop: the dynamics of burning and creating continually affect each other, crafting a mini-economy where collectors’ decisions to destroy or hold collectively shape the progression of the art ecosystem.

*Participatory Interaction.* Using *burn.art* is itself a performative interaction: collectors must actively choose to irreversibly destroy one of their NFTs in order to partake. Upon connecting their crypto wallet to the burn.art interface, a user can select an NFT they own and send it to the burn contract; the system then “mines” (mints) a corresponding amount of ASH tokens as a reward. The amount of ASH received depends on the category of the burned NFT – Pak implemented a whitelist with multipliers, meaning more significant or scarce works yield more \$ASH. This process engages users on a psychological level: burning an artwork, especially a valuable one, is a moment of suspense and conviction, effectively making the user a co-creator of the conceptual piece. Communities sprung up around sharing burning experiences and strategies (e.g., which NFTs to burn for optimal \$ASH yield), turning what could have been a solitary act into a communal ritual. By requiring collectors to “prove” their dedication (through destruction) to gain access to new creations, *burn.art* ensured that participation was not passive but deeply intentional and symbolic.

*Artist’s Control.* While *burn.art* introduced a new level of community agency (the choice of what and when to burn lies with the users), Pak maintained strategic control over the ecosystem’s parameters. He defined which NFTs are burnable for ASH and their relative yields via the whitelist – essentially curating the value of destruction. Furthermore, as the creator of the ASH token, Pak could influence its use by deciding which new artworks require ASH for purchase, thereby indirectly guiding demand for burning. That said, once the contracts were deployed, the day-to-day operation of the system is autonomous: any eligible NFT can be burned permissionlessly, and \$ASH is dispensed according to code, not at Pak’s discretion. In keeping with decentralization, the value of ASH and the decision of what to sacrifice for it were left to the open market and individual collectors. Pak’s control was thus front-loaded – in the design and rules of the game – but he stood back as participants carried out the dramatic act of creation-through-destruction, letting the social experiment unfold organically.

*Collective Emerging Behavior.* *burn.art* quickly garnered a devoted following of Pak’s collectors and intrigued onlookers, forming a sub-community fixated on the burn-to-mint ritual. Hundreds of NFTs were burned in the initial weeks, from common items to high-value artworks, as collectors sought to accumulate ASH either for status or to use in Pak’s future drops. This created a shared ethos among participants: a mix of fanaticism and camaraderie emerged, where those who burned valuable assets were celebrated (or playfully lamented) for their commitment to the art. Discussions on forums and social media centered on what NFTs people were willing to sacrifice; the “burn culture” introduced by Pak made

some collectors view their holdings in a new light (knowing any Pak piece, if desired, could be converted to ASH, a kind of artistic afterlife for stagnant assets). Over time, the collective action of these participants literally shaped Pak's art market: as more tokens were destroyed, the remaining ones grew rarer, and owning ASH became a badge of participation in Pak's evolving narrative. This self-selected community, willing to destroy to create, exemplified a new kind of collector ethos unique to the protocol – one that values conceptual engagement over simply accumulating objects.

*Poetic Meaning-Making.* *burn.art* and ASH elevate an almost mythic cycle of death and rebirth within the digital realm, making it one of Pak's most overtly metaphorical works. The project transforms the destructive act of blockchain burning into a meaningful ritual, suggesting that even in a space of infinite reproducibility, sacrifice can carry weight and give rise to new beauty. The poetry here lies in how absence is turned into presence: each ASH token is a memorial of a destroyed artwork and simultaneously the seed of a new creation. In a world where digital files ostensibly last forever, Pak introduced impermanence and choice as artistic elements – echoing the destruction of physical art (recalling Gustav Metzger's "auto-destructive art" or Jean Tinguely's self-destroying sculptures) but with a constructive twist. The broader impact of *burn.art* is its commentary on value: it forces the community to question what gives an artwork value – its continued existence, or the legacy it leaves through transformation. By making his audience perform a collective dance of loss and renewal, Pak illustrated that in digital ecosystems, as in nature, endings can be beginnings. This piece thus bridges conceptual art and social experiment, leaving a lasting impression about the responsibilities and powers that protocols confer upon both artists and collectors.

*Key Statistics.* *burn.art* launched in April 2021. Within the first 48 hours, users burned over 1,000 NFTs to generate \$ASH. By February 2022, more than 20,000 NFTs had been burned via the platform, including high-profile pieces by Pak and other artists, yielding over 4 million \$ASH tokens. \$ASH reached a peak market capitalization above \$100 million during the 2021 NFT boom, reflecting the community's speculative interest. Pak's first \$ASH-only NFT drop, "Chapter One – Carbon," sold out in minutes, consuming a substantial portion of the token supply. The initial reward rate was 1000 \$ASH for Pak NFTs and 2 \$ASH for others, with a halving that occurred in mid-2022 reducing outputs by half. As of 2025, over 30 million \$ASH have been minted through successive burns, and the token is used by a handful of other crypto artists who accept \$ASH for their work, extending Pak's poetic economy of art and ash.

#### Information.

- Launch Website: <https://burn.art/>
- Release Date: May 16, 2021
- Contract Address:  
0x64d91f12ece7362f91a6f8e7940cd55f05060b92 (ERC20)

## A.5 Lost Poets

*Concept.* *Lost Poets* (September 2021) is a large-scale NFT art project that merges generative art, narrative puzzle, and strategic game into one poetic whole. At its core, the project consists of 65,536 unique AI-generated portrait NFTs ("Poets") originating

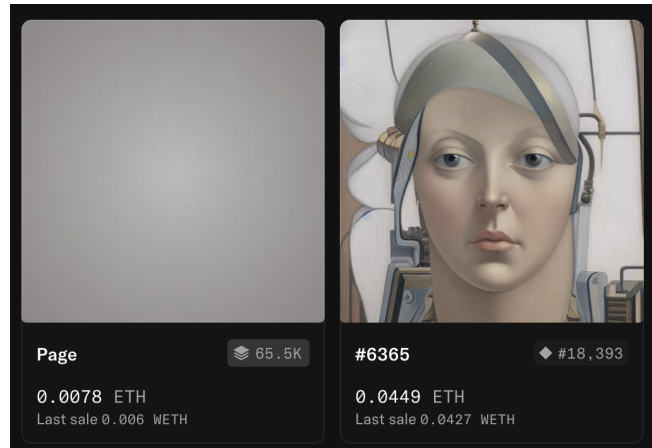


Figure 6: Lost Poets

from 1,024 rarer "Origin" Poets [8], all imbued with an aura of mystery and antiquity. The concept draws inspiration from Borges's *Library of Babel* and the idea of rediscovering lost creative souls: Pak envisioned these Poets as ancient voices "not found" until the community brings them to light. The project was unveiled as a multi-act saga – a kind of unfolding story where the NFTs would evolve over time – thereby exploring themes of memory (lost knowledge rediscovered), evolution (the NFTs reveal attributes in phases), and collective intelligence. *Lost Poets* is fundamentally about the interplay between algorithmic creation (the AI art and smart-contract logic) and human participation in meaning-making: it asks what happens when thousands of collectors jointly play a literary game with art, time, and chance.

*System Mechanism.* The *Lost Poets* smart contracts orchestrated an intricate multi-stage evolution of the NFTs. Initially, 65,536 Page tokens were minted (with Pak reserving 1,024 for the special Origin Poets). These ERC-1155 tokens had built-in utility: a holder could "burn" a Page token to transform it into a Poet token once Act II commenced. The transformation was irreversible, effectively migrating the NFT from one state (Page) to another (Poet) and revealing the AI-generated portrait and some initial attributes. Crucially, the contract did not reveal all attributes of a Poet at once; instead, additional traits (like words the Poet could "speak") unlocked gradually over Act II and Act III, either automatically or through user actions. Feeding a Page to a Poet (another burn action) was a method to update the Poet's metadata – the contract would record the new name given by the user and randomly assign a set of words to that Poet, altering its uniqueness. All these state changes were governed by on-chain logic, ensuring that no two Poets ended up the same despite coming from identical Pages. The system also tracked leaderboards and triggers for awarding the Origin Poets to top collectors at the end of Act I. Finally, a time-lock dynamic was present: at the conclusion of the one-year project timeline, the contract "locked in" the final state of all Poets (Act IV, aptly titled "The Twist") and dispensed promised ASH rewards to participants, marking the end of the journey. This layered smart contract design

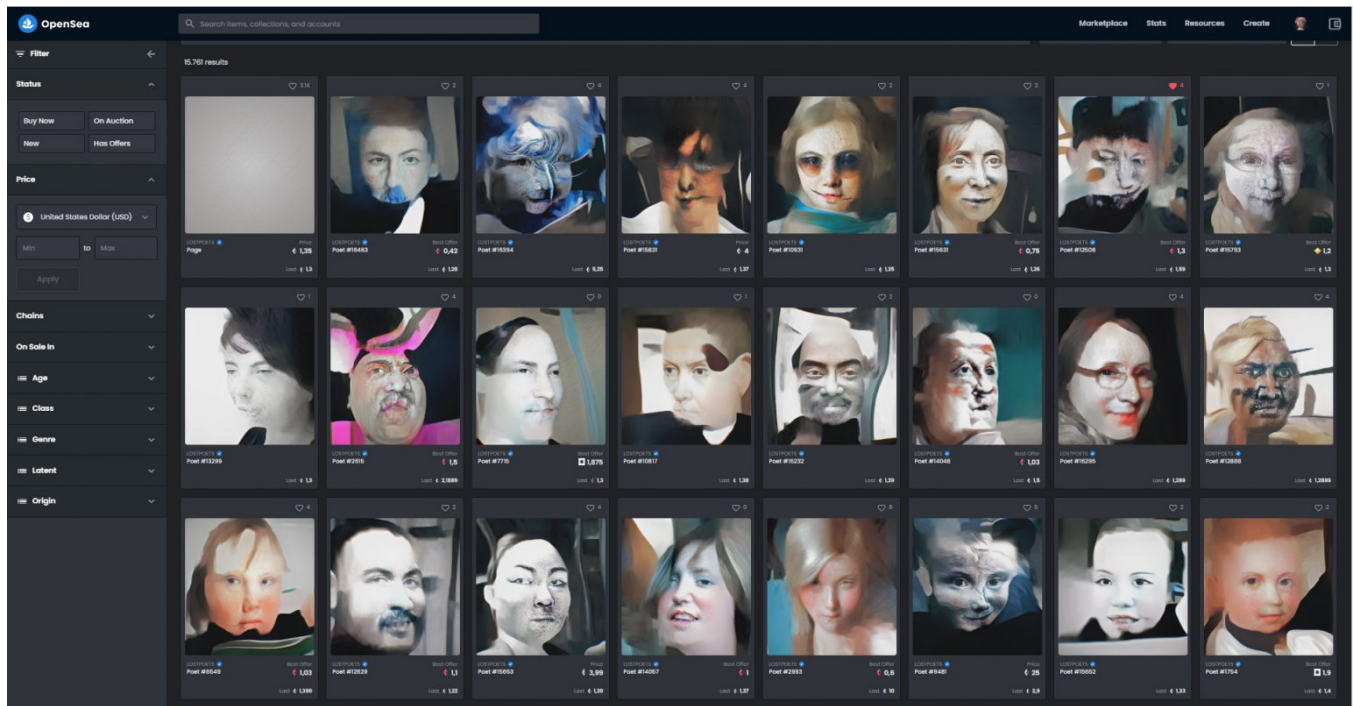


Figure 7: Lost Poets after revealing

allowed *Lost Poets* to behave almost like an autonomous game engine running on Ethereum, driving the content and rarity of the NFTs in response to player inputs and time.

*Participatory Interaction.* Engagement with *Lost Poets* was deeply interactive and unfolded in distinct phases (Acts I–IV). It began with the distribution of “Pages” – blank NFTs that served as tickets to the game [7]. Early on, Pak rewarded loyal fans by airdropping Pages to wallets holding 25 ASH tokens and opened a public sale where others could purchase Pages (priced at 0.32 ETH each). Once armed with Pages, participants faced choices in Act II (“The Reveal”): they could burn a Page token to summon its Poet (revealing a unique AI-crafted portrait), or they could even burn Pages for more ASH instead, adding a twist of sacrifice to the game. In Act III (“The Explorer”), collectors could feed extra Pages to their Poets, each feed allowing them to rename the Poet and gifting the character new words (2–4 random words per Page) which enriched its traits and lore. Throughout these interactions, Pak maintained a live leaderboard; the top 100 collectors who amassed the most Pages received additional rare Origin Poets as rewards, incentivizing strategic play and competition. The project was designed to span 365 days, during which participants continuously engaged – naming their Poets, deciphering clues, trading Pages and Poets, and anticipating “The Twist” of Act IV. This sustained, game-like interaction meant that collecting *Lost Poets* was not a one-off transaction but a prolonged creative exercise that bound the community together.

*Artist’s Control.* Pak’s role in *Lost Poets* was akin to a dungeon master setting the rules of a game, then letting the players roam.

He exercised significant control in the design phase: determining the number of tokens, the pacing of the acts, the mechanics for conversion and feeding, and even withholding the 1,024 Origin Poets to distribute as rewards or for future surprises. However, once the project commenced, the progression was largely automated and community-driven. Pak did not alter the contract rules mid-course; the code itself dictated when new attributes would appear and how each action translated into an outcome. The element of the unknown (“The Twist” of Act IV) was built-in – Pak had likely pre-planned an ending but kept it secret, triggering it through the programmed schedule or an on-chain call at the appropriate time. Throughout the year-long evolution, Pak’s direct intervention was minimal, aside from providing occasional hints or narrative flavor via social media to enrich the lore. In essence, after launching *Lost Poets*, he relinquished control to the protocol and the participants, allowing the artwork to self-evolve within the boundaries he had coded. This balance – tight authorial control over structure, but freedom for users within it – underscores Pak’s commitment to exploring protocol as an art form.

*Collective Emerging Behavior.* *Lost Poets* attracted a massive and engaged community, as evidenced by the entire supply of 65,536 Pages selling out in just 2 hours (raising about \$70 million) and thousands of collectors joining the fray. The project’s gamified nature led to rich emergent behaviors: collectors formed online groups to decode hidden clues in Poet attributes and to strategize the best use of Pages. A vibrant secondary market developed where Pages and Poets were traded, with some speculators hoarding Pages early in hopes of obtaining more Origins or leveraging them in later acts. The competition for the top 100 collector spots was intense,



leading certain individuals to accumulate enormous quantities of Pages (and become known figures in the community for it). Meanwhile, other participants took a more curatorial approach, carefully naming their Poets and sharing the whimsical or profound word combinations their Poets “spoke” after feeding – effectively collaboratively writing a decentralized poem through their NFTs. Each phase change (Act II’s reveal, Act III’s feeding, etc.) was accompanied by collective excitement on forums and Discord, as people shared discoveries and theories about what Act IV, “The Twist,” might entail. By the end of the 365 days, *Lost Poets* had fostered not just a market but a participatory culture – blending competition, storytelling, and collaboration – arguably one of the most sustained communal engagements for an NFT project of its era.

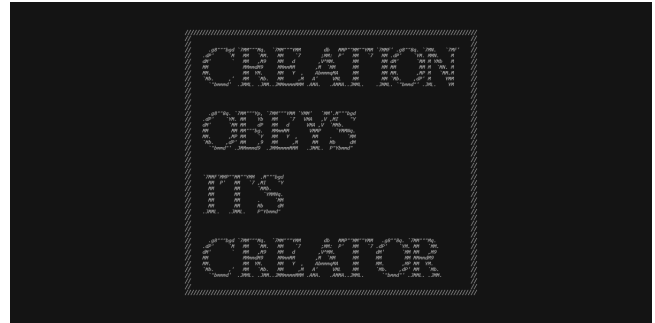
*Poetic Meaning-Making.* The poetry of *Lost Poets* emerges through its synthesis of technology and storytelling. On one level, it is a meditation on authorship: each collector who names their Poet and contributes words becomes a co-author, blurring the line between artist and audience in a manner reminiscent of exquisite corpse or collaborative poetry. The project also poignantly plays with the idea of “lost” voices found – the algorithm conjured tens of thousands of unique faces and fragments of text, like ghosts of poets past, and gave the community the power to nourish these ghosts with new words. Over the course of the acts, participants experienced themes of discovery, transformation, and ephemerality (as unused Pages dwindled and choices had to be made). In the final Epilogue, when all Poets reached their ultimate form and the last secrets were unveiled, the community could look back on a journey that it had collectively authored. Pak managed to reveal that NFTs need not be static collectibles; they can be alive with narrative potential and participant-driven change. *Lost Poets* stands as a testament to the idea that protocol-based art can achieve a form of literary and artistic richness – it turned a blockchain ledger into the stage for a year-long participatory saga about remembering and reinventing creative voices. The broader impact is an expanded notion of what digital art can be: not just an image or an object, but a living story that engages its audience in poetic meaning-making.

*Key Statistics.* *Lost Poets* launched with 65,536 Page NFTs at \$0.32 ETH each, selling out and raising roughly \$20 million in its initial sale. 1,024 Origin Poets were distributed (294 to top holders, 730 via daily random drops). Phase II saw thousands of Pages burned: within the first week, over 50,000 Pages were converted into Poet NFTs, leaving 15,000 Pages for the final phase. Each Poet NFT is programmatically one of 1,024 “families” and has 256 trait parameters, making each uniquely identifiable. As of the end of Phase III, about 15,000 Poets received names and poems (meaning that many Pages were sacrificed to finalize them), while a number of Poets remained “silent” because their owners chose not to burn pages. The most popular names taken include historical luminaries (“Shakespeare” was named within minutes of launch). Secondary market activity was robust: Origin Poets traded at a premium (some over 5 ETH each) due to their limited supply and role as progenitors. By project’s end, the community had collectively written tens of thousands of individual one-line poems, effectively creating one of the largest collaborative literary works in NFT form. *Lost Poets* won the 2022 NFT Award for Best Interactive Project, underscoring its impact on participatory art.

#### Information.

- Launch Website: <https://lostpoets.xyz/>
- Release Date: Sep, 2021
- Opensea: <https://opensea.io/collection/lostpoets>
- Contract Address:  
0xa7206d878c5c3871826dfdb42191c49b1d11f466 (ERC1155 for Page)  
0x4b3406a41399c7fd2ba65cbc93697ad9e7ea61e5 (ERC721)

### A.6 Hate / Invisible Mechanisms (2021)



**Figure 8: Comment in the source code of smart contract of Hate NFT, Invisible Mechanisms (2021)**

*Concept.* *Invisible Mechanism* are intertwined artworks that together form a provocative commentary on control, ownership, and the relationship between creator and audience (even the antagonistic part of the audience). In late 2021, Pak executed *Hate* as a conceptual performance: he offered special NFTs titled “Hate” to thirty of his harshest critics on social media – effectively gifting tokens to those who had publicly disparaged him [5]. The twist was that these *Hate* NFTs were programmed to be immutable and non-transferable by the recipients, symbolizing the idea that their negativity had earned them a token they could not get rid of. This gesture served as both a prank and a statement, turning the act of hating Pak into an involuntary participation in his art. Underpinning *Hate* was Pak’s new smart contract prototype called *Move*: an “invisible mechanism” that grants the creator the power to transfer any token from any wallet within that contract to another address at will, irrespective of holder consent. *Move* embodies the mantra “CREATION OBEYS ITS CREATOR”, flipping the usual decentralization narrative to assert total artistic control over distribution. Together, *Hate* (the scenario) and *Move* (the technology) form a conceptual piece that asks pointed questions: What if an artist could reclaim authority over an artwork after it’s been distributed? Can an artwork be a form of dialogue – or retaliation – between artist and critic? By engaging directly with haters and by unveiling a contract that subverts NFT norms, Pak’s concept challenged the community to reflect on power dynamics and the presumed inviolability of ownership in the crypto space.

*System Mechanism.* The *Hate* NFTs were engineered using the *Move* contract architecture, which fundamentally alters standard ERC-721 behavior [4]. Normally, once an NFT is in a wallet, only

the owner can transfer it; Pak's custom contract introduced admin functions that allowed him (as the contract owner) to lock tokens and later move them at will. Upon minting the 30 *Hate* tokens, they were immediately "locked" to their respective recipient addresses – hence any transfer or sale initiated by those holders would automatically fail, as the contract overrode such actions. The NFTs had identical metadata (depicted simply by a heart symbol), emphasizing that their differentiating feature was the wallet they resided in, not visual content. After letting the scenario play out for about 24 hours, Pak utilized *Move* to demonstrate its power: he, as admin, transferred all *Hate* tokens out of the haters' wallets back into his own, even updating their metadata before doing so. This action conclusively illustrated the dynamic – the artist could literally reclaim the tokens at will, something impossible under standard token contracts. The *Move* contract thus created a dynamic where token ownership was provisional, entirely subject to the creator's whims. Such a mechanism is invisible until exercised, earning its name, and it turned the typical trust model of NFTs on its head: here, the code enforced a hierarchy where the art always ultimately "belonged" to its maker.

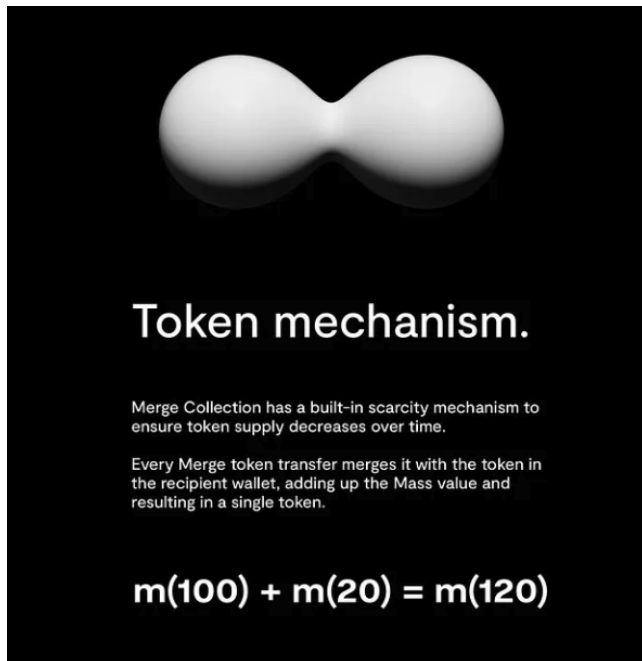
*Participatory Interaction.* Interestingly, *Hate* inverted typical participation – it was the artist who "participated" in the lives of certain audience members by depositing NFTs into their wallets uninvited. Pak solicited volunteers by asking his followers to prove they had posted genuine hate toward him (via old tweets). The "winners" of this dubious honor were then airdropped the *Hate* NFTs; about 30 individuals received one. Their engagement was largely one of surprise and frustration: many attempted to trade or remove the tokens, only to discover every transfer attempt was automatically rejected by the contract. In essence, their interaction was to experience powerlessness – an unusual, perhaps uncomfortable form of audience participation where the usual agency of a collector was stripped away. As for *Move*, the wider community's participation came through observation and discussion rather than direct use (since *Move* is a contract design, not a direct-to-consumer app). Pak publicly shared the *Move* contract and its implications for all to inspect, inviting creators and collectors to contemplate this new paradigm. In doing so, the community collectively engaged in a discourse about consent and control in NFTs. In summary, *Hate/Move* turned the tables on engagement: instead of people actively opting into the art, the art opted into their lives, thereby making the audience's reactions and discussions (especially the haters' public bemusement) an integral part of the piece.

*Artist's Control.* By its very nature, *Hate/Move* was an exercise in maximizing artist control. Pak retained absolute authority over the *Hate* tokens at all times – he was the only one who could mint them, the only one who could move or burn them, and even the only one who could change their content. This project was a deliberate outlier compared to his other works: instead of surrendering control to autonomous rules or the community, he crafted a scenario where his hand remained firmly on the lever from start to finish. In fact, the project can be seen as a manifesto of control: *Move* was Pak asserting that as an artist-programmer, he could imbue a token with a piece of his will, overriding the default freedoms typically given to collectors. After the initial performative phase, Pak ended the experiment on his terms by retrieving the tokens and effectively erasing them from

the participants' wallets. In doing so, he underlined the central statement: these creations were never truly "theirs" – they were on loan at the creator's mercy. Such extreme control is generally anathema to the decentralization ethos, which is precisely why *Hate/Move* is so incisive; it used exaggerated artist control as an artistic device itself.

*Collective Emerging Behavior.* The immediate participants – the recipients of *Hate* – reacted with a mix of confusion, amusement, and annoyance. Some joked about selling their entire wallet (since they couldn't sell the token itself), highlighting the absurd lengths one would need to go to bypass the restriction. This small group of 30 became inadvertent performers in Pak's drama, their attempts and public commentary forming a crucial part of the narrative that others followed. Meanwhile, the broader NFT community watched the spectacle with fascination. On social media and blogs, a flurry of debate ensued about the ethics and implications of *Move*: some collectors expressed relief that such a mechanism was not widespread, while some creators were intrigued by the power it demonstrated. The collective behavior here was largely discursive – *Hate/Move* spurred conversations about the nature of ownership and the extent of smart contract programmability. People questioned how this contrasts with the spirit of self-sovereignty that NFTs usually promise, and whether it was "fair" or simply a clever conceptual stunt. In the end, once Pak reclaimed the *Hate* NFTs, the haters were free of their burdens, perhaps a bit wiser to the power of code in digital art. The community that observed gained a nuanced understanding: emerging from it was a collective acknowledgement that decentralization in art is not absolute, and that the artist's intent coded into a contract can drastically shape user experience. This dialogue and reflection were exactly the emergent cultural outcomes Pak likely sought, elevating the work from a mere prank to a significant case study in the NFT space.

*Poetic Meaning-Making.* In retrospect, *Hate/Move* reads like a sharp, if mischievous, parable within the NFT art narrative. It poetically frames the tension between artist and audience: the *Hate* tokens were as much a mirror to the recipients (reflecting their hostility back as an unusable "gift") as they were a canvas for Pak's statement about artistic sovereignty. There's dark humor and irony in the idea that hatred towards an artist could be alchemized into an artwork that essentially traps that hate – a modern digital twist on holding up a mirror to one's critics. The *Move* mechanism adds an extra layer of meaning: it challenged the community to realize that the liberties they take for granted in decentralized art can be tweaked or overturned by a clever creator. This provocation was unsettling to some and thrilling to others, serving as what one might call a necessary thought experiment in a hype-driven field. By co-opting his detractors into unwilling collaborators, Pak turned negativity into a generative component of his practice, raising questions about consent, power, and the very definition of ownership. In the broader context of digital art discourse, *Hate/Move* is significant for revealing that the blockchain is not inherently liberating – its effect depends on how it's used. Pak's broader impact here is to remind both creators and collectors that the medium's rules can themselves be the artwork. *Hate/Move* ultimately stands as a conceptual punchline with a serious core: an artwork about authority, delivered in the medium of authority itself.



**Figure 9: Token mechanism shown on the Merge (2021) launch website.**

*Key Statistics.* In November 2021, Pak airdropped 30 one-of-a-kind *Hate* NFTs (depicted as a simple black square with the word “HATE”) to selected critics. Each had an embedded “move” mechanism allowing Pak to transfer them. The contract (address `0xMove. . .`) was written by Manifold Studio and made public on Etherscan. During the first week, at least 2 instances of Pak using the move function were observed, and 0 transfers by holders (since none could occur). The stunt quickly spread awareness; tweets about “Pak’s Hate” garnered thousands of impressions, and articles in crypto media (e.g. CryptoTimes and others) explained the phenomenon. The term “Invisible Mechanism” was coined by Pak in a tweet announcing the project’s true purpose. Ultimately, no monetary exchange took place for these NFTs on the market (until perhaps after Pak later unlocked them, if he did). Instead, their value was purely conceptual. Pak’s “Move” contract was later referenced in discussions on NFT standards, making these 30 tokens and their story a small but significant footnote in NFT history about creative smart contract design.

#### *Information.*

- Launch Website: Pak’s Twitter
- Release Date: Nov, 2021
- Opensea: <https://opensea.io/collection/coic>
- Contract Address:  
`0x938e95271311641dc88fedaa6d7b9afdc875daa9` (ERC721)

## A.7 Merge

*Concept.* *Merge* (December 2021) is a landmark NFT work wherein Pak explored themes of unity, rarity, and collective participation by creating an artwork that exists in fragments yet has the potential

to become a single whole. Billed as the first artwork that collectors could collectively assemble, *Merge* was sold not as discrete editions but as “mass units” – small identical tokens of mass that buyers could acquire in any amount during a 48-hour sale. Each buyer’s mass units automatically fused into one NFT (a single mass) in their wallet, whose size (visualized by a growing circular form) was proportional to the amount of mass purchased. The concept plays on the idea of merging: if two *Merge* NFTs ever end up in the same wallet, they combine into one larger mass, reducing the total number of tokens in circulation. In effect, Pak conceived *Merge* as a dynamic, self-collapsing collection – one that challenged the traditional notion of an edition size by making the supply theoretically shrinkable over time. Thematically, *Merge* invokes a sense of digital unity: all collectors hold a piece of a conceptually singular artwork, and if one entity were to gather every piece, the title’s promise would be realized as a single merged entity. Through this, Pak commented on the interplay between collaboration and competition, inviting the question of whether collectors would consolidate or guard their individual pieces, and what ultimate form the artwork might take.

*System Mechanism.* The *Merge* contract innovated on the token model by introducing an additive property to NFTs. Technically, each mass unit was an ERC-1155 token minted during the sale; at the close of the sale, the contract “compressed” a buyer’s multiple units into a single ERC-721 NFT that recorded the total mass count as an attribute. The NFT’s visual appearance (a circle of a certain size and perhaps color) was programmatically determined by the mass count, making the artwork generative and data-driven. The merging logic was enforced at the contract level: it utilized a transfer hook that, upon detecting a *Merge* token arriving in a wallet that already held one, would cancel the separate existence of the incoming token and increment the mass of the token already in that wallet. This mechanism guaranteed that no wallet could ever hold more than one *Merge* NFT – a radical departure from standard NFTs. Over time, if collectors consolidated holdings or accidentally merged by buying with a pre-existing mass in their wallet, the total token count of the project would decrease from the initial 28,983 supply. Unlike most art, where the edition size is fixed, *Merge* had a fluid supply that could contract, theoretically even to 1. This dynamic introduced emergent phenomena: for example, the rarity of certain visual variants depended on how people managed their tokens, not solely on predetermined traits. By embedding these rules, Pak effectively encoded a set of interactions and potential outcomes (even conflict) into the artwork’s DNA, making *Merge* as much a social experiment as a digital sculpture.

*Participatory Interaction.* Participation in *Merge* was straightforward yet unprecedented in scale: 28,983 collectors took part in the open sale, collectively purchasing 312,686 mass units over the two-day period. Instead of competing for limited editions, buyers were cooperating in a sense – everyone was guaranteed to receive their own NFT mass, and many aimed to accumulate as much mass as they could. The interactive twist emerged after the sale: whenever a *Merge* NFT was transferred on the secondary market, the contract would check the recipient’s wallet. If the recipient already had a *Merge* NFT, the incoming mass would merge with the existing one, destroying one token and increasing the other’s mass. This meant

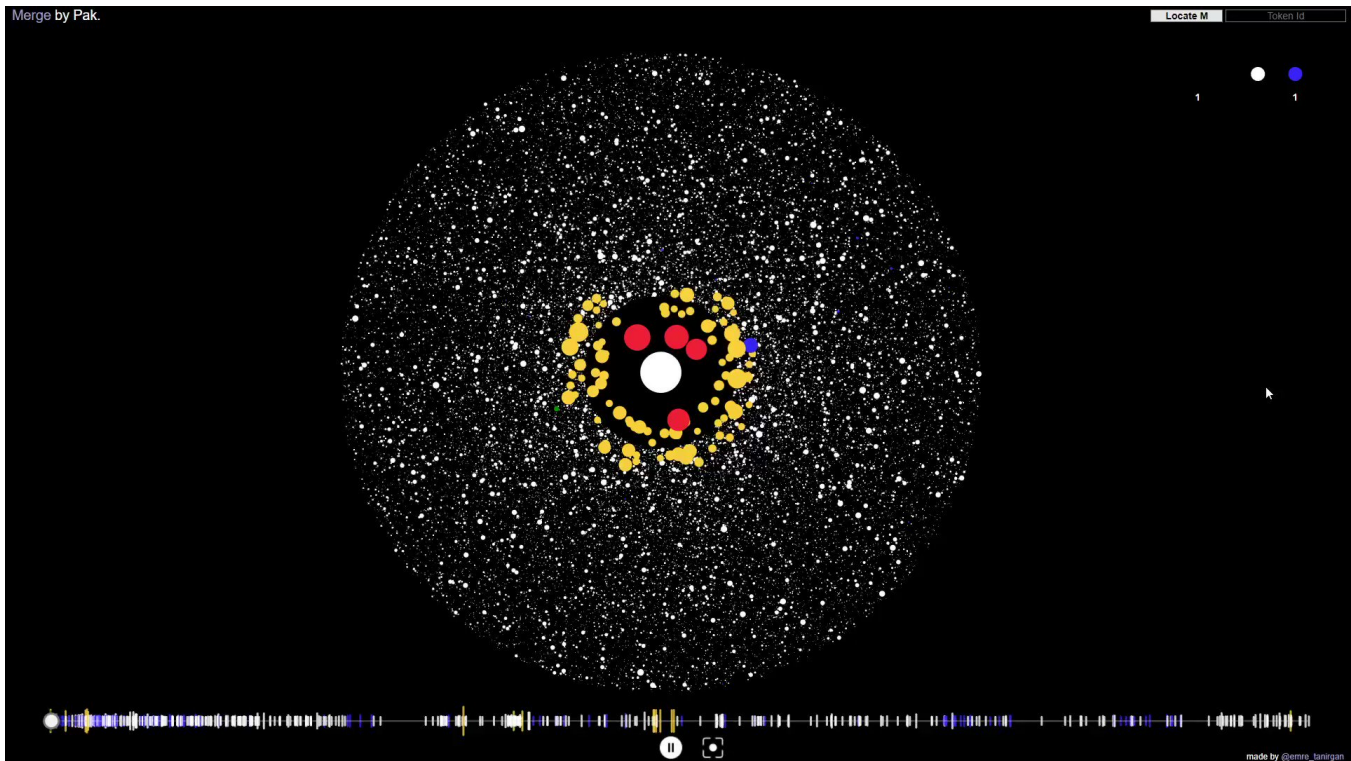


Figure 10: Third-party interactive data visualization of Merge (2021) at <https://mass.show/>

that collectors had to strategize; some chose to split their holdings across multiple wallets to keep separate smaller masses (especially if those had unique visual traits like a different color), while others intentionally merged to build a singular, more “massive” mass. There was even a gamified angle of aggression and defense: theoretically, someone could send a large mass to another collector’s address (without permission) to forcibly merge and absorb a smaller mass, as a way to sabotage its rarity or uniqueness. Such scenarios made holding a *Merge* NFT a participatory experience beyond the initial purchase: the community was actively discussing merger tactics, bragging about the size of their mass, and contemplating alliances or friendly competitions. In essence, *Merge* turned collecting into a collective game that extended into every transaction post-drop.

*Artist’s Control.* After *Merge* was launched, Pak’s role was largely hands-off; the rules in the smart contract dictated the fate of the tokens. He did not exert control over who could buy or how much (beyond setting the sale’s time frame and pricing increments), nor could he intervene in the merging process once tokens were in circulation – that process was entirely automatic and irrevocable. However, his control was asserted in the careful design: he set the initial conditions that governed everything, from the pricing mechanism (which increased the price per mass unit in stages as certain sales milestones were hit) to the visual algorithm that represented mass. By relinquishing active control and entrusting the artwork to self-execution, Pak reinforced *Merge*’s stance as a decentralized piece governed by protocol. In fact, the only way Pak influenced the outcome was indirectly, through his initial decision

not to cap the edition: this allowed the community’s demand to define the scale of the piece (and ultimately break the record for the largest-ever art sale by a living artist). In the life of *Merge* post-sale, Pak stepped back completely – any further evolution (like tokens merging into fewer tokens) was purely at the discretion of the holders and the mechanics he’d put in place. This minimal ongoing control is consistent with Pak’s tendency to let his protocol-based works run their course autonomously, in stark contrast to the interventionist stance of *Hate/Move*.

*Collective Emerging Behavior.* The launch of *Merge* saw an enormous turnout, and this critical mass of participants created a unique collector community bonded by the experiment. Immediately, *Merge* holders began comparing the sizes of their masses, fostering playful rivalries between “whales” (those with very large masses) and everyday collectors. There was a leaderboard mentality; some individuals who acquired huge quantities of mass became minor celebrities in the community, their holdings seen as a bold statement of support for Pak’s vision. On secondary markets, novel behaviors emerged: because any purchase that combined two masses was irreversible, some collectors were hesitant to buy an additional *Merge* token unless it was larger than the one they already possessed, to avoid ‘losing’ their smaller piece in a merge. This led to an unusual trading strategy where sometimes whole wallets (with a *Merge* NFT inside) were sold peer-to-peer, just to preserve the token’s separate identity. The theoretical endgame of one entity eventually merging all masses into “The One” became a topic of both amusement and intrigue, serving as a metaphor for consolidation of power or unity

of art. Meanwhile, the sheer fact that *Merge* had broken the world record for an art sale – not by one person's expenditure but by the collective effort of nearly 29,000 buyers – instilled a sense of communal pride. This remains a profound aspect of the piece's narrative: it proved that a decentralized network of collectors could, together, make art history. Over time, as some merges did occur and the token count slowly diminished, the community continued to monitor and discuss these developments, treating the artwork as an ongoing story they were all part of. *Merge* thus nurtured both camaraderie and competition among its participants, encapsulating a microcosm of the crypto community's spirit.

*Poetic Meaning-Making.* On a conceptual level, *Merge* operates as a poetic exploration of unity and the power of the many. It turned the act of collecting into a narrative of convergence: each individual NFT was not just an endpoint but a piece of a larger potential composition. There is an inherent poetic image in thousands of separate collectors holding what could be fragments of one singular artwork – it's as if a digital star was shattered and distributed, with the ever-present possibility of reassembly. This resonates with ideas of community in the crypto space: *Merge* implicitly asks whether the true value of an artwork might reside in shared ownership and collective action rather than exclusivity. The artwork's very existence and record-breaking price were a testament to collaboration (a crowd of buyers rather than a single bidder), making it a celebration of a decentralized patronage model. Additionally, the merging mechanic itself can be seen as a commentary on accumulation and synthesis: smaller masses being absorbed by bigger ones evokes phenomena in economics and nature alike, delivered here as a voluntary game. By provoking participants to consider merging or resisting merges, Pak surfaced questions about competition versus cooperation and about whether art is better experienced as a multitude or as a unity. Ultimately, *Merge*'s broader impact lies in its demonstration that scarcity and unity can be artistically intertwined: it delivered a visual and participatory poem about how the many can become one. In doing so, it expanded the discourse of digital art to include not just the creation of images, but the creation of new social contracts and economic structures as vehicles for meaning.

*Key Statistics.* *Merge* was sold on 2–4 December 2021 and drew 28,983 buyers who purchased 312,686 total mass units. The sale grossed \$91.8 million, making it (at that time) the highest total for any NFT artwork and thrusting Pak above Jeff Koons as the priciest living artist by primary market sales. The average collector bought about 10.8 mass units. Initially, 28,983 *Merge* tokens existed (one per buyer). Through secondary-market activity and merging, the supply has been decreasing: one year post-sale, the number of distinct *Merge* tokens had dropped to around 27,000 as consolidations happened. The largest token (*Alpha*) amassed 933,878.2 mass (some collectors found ways to add mass beyond the sale via special mechanics or bonuses), and the next few largest were orders of magnitude smaller, highlighting a steep consolidation curve. The smart contract ensured that a *Merge* token's mass count and visual size update in real-time with each merge; Nifty Gateway's interface had to be adapted to handle these dynamic NFTs. By January 2022, *Merge* tokens had done over \$100 million in secondary trading volume as collectors continued to jockey for

position. Importantly, no single entity has (yet) merged all tokens – tens of thousands of decentralized pieces remain, meaning *Merge* lives on as a plural artwork owned by many, with the theoretical possibility that it could one day coalesce further [21].

*Information.*

- Launch Website: <https://www.niftygateway.com/collections/pakmerge/>
- Release Date: Dec 3, 2021
- Opensea: <https://opensea.io/collection/m>
- Contract Address: 0xc3f8a0f5841abff777d3eefa5047e8d413a1c9ab (ERC721)

**A.8 Censored**



**Figure 11: "Censored is a Collection By Pak and Assange and You". Censored (2022); The top figure shows the soul-bound censored NFT, which remains untransferable until Assange's release. The bottom figure shows the uncensored version, which becomes transferable / tradable after Assange's release.**

*Concept. Censored* (February 2022) is a two-part collaborative artwork by Pak and WikiLeaks founder Julian Assange that confronts issues of censorship, free speech, and the power of the collective. Conceived while Assange was imprisoned, the project's central question is how information and truth can be either suppressed or liberated in the digital age. The first part, *Clock*, is a one-of-a-kind dynamic NFT that simply displays a count of the number of days Assange has been in custody – an ever-increasing tally that starkly visualizes the passage of time lost to censorship and incarceration [6]. The second part was a dynamic open edition often referred to as *Censored* (later “Uncensored”), which invited anyone to anonymously submit a text message. Each submission was minted as an NFT where the message initially appeared as blacked-out blocks (as if redacted), but later these NFTs were revealed to show the full message – creating a permanent, public ledger of uncensored speech on the blockchain. Together, these components embody a powerful concept: *Censored* is both a protest and a platform, highlighting the plight of Assange specifically and the principle of uncensored expression universally. By design, the project blurred the line between artist and participant, making “you” – the public – a co-creator of the open edition piece, echoing the idea that free expression is a collective, democratic effort.

*System Mechanism.* The technical structure of *Censored* mirrored its conceptual duality. *Clock* was implemented as a dynamic NFT: its content updates once per day to increment the count of Assange's imprisonment. This likely involves either an on-chain calculation of days since a start date or an off-chain oracle pushing daily updates – either way, the piece is programmatically tied to the real-world passage of time and will continue to tick until Assange's status changes. The open edition was dynamic in a different sense: when each *Censored* NFT was first minted, the text submitted by the user was stored (on-chain or via metadata) but visually represented in a redacted style (for example, as black bars or scrambled characters). Then, at a predetermined time, a contract function executed to “uncensor” all these tokens, perhaps by updating a base image or revealing a hidden layer in the metadata so that the true text became visible. Each open-edition NFT is thus unique in message but identical in having undergone the same transformation from obscured to revealed. The fundraising mechanism was straightforward: the sale smart contract directed the incoming Ether to designated wallets associated with Assange's defense fund and other aligned charities (indeed, a portion of the 671 ETH raised from the open edition was later donated to support journalistic freedom and even humanitarian aid). The dynamics here combined artistic intent with real-world impact: the more people voiced themselves (minted NFTs) and the higher the DAO bid for *Clock*, the more tangible support was generated for the cause. In a sense, the blockchain functions as both canvas and conduit in *Censored*, ensuring that the art's message (the imperative of free expression) is inseparable from the action it precipitates (material aid for a free press).

*Participatory Interaction.* The participatory element of *Censored* was striking. For *Clock*, participation took the form of collective fundraising: an Assange-supporter DAO (decentralized autonomous organization) pooled resources from over 10,000 people to bid on and ultimately win the piece for 16,593 ETH (about \$52.8 million),

making each contributor a part-owner of the artwork and massively amplifying its political message. For the open edition, Pak opened a web portal on February 7, 2022, where anyone could type a short message and mint it as an NFT. There were minimal barriers – aside from blockchain transaction fees – which allowed thousands of ordinary people worldwide to inscribe their uncensored thoughts onto the blockchain. During the mint period, participants wrote messages ranging from political statements (“FREE ASSANGE NOW”) to personal reflections, fully aware that they would initially be recorded in a censored (illegible) state. After the mint closed, Pak triggered a global reveal: all the NFTs' images were updated to show the actual text of the messages, symbolizing voices breaking through suppression. In this way, the audience's role wasn't just to observe but to speak and be memorialized as part of the art. Additionally, by buying these open-edition NFTs (each priced modestly), participants contributed to a fundraiser – all proceeds were directed to Assange's legal defense and pro-freedom organizations – blending activism with artistic engagement. In essence, *Censored* turned its audience into an active assembly of publishers and protesters, demonstrating the principle that in a decentralized network, everyone can raise their voice and collectively bolster a cause.

*Artist's Control.* In *Censored*, Pak acted not only as an artist but also as a facilitator of collective expression and activism. He and Assange's team set the stage – defining the parameters of the open edition (time frame, interface for input, price) and crafting the *Clock* NFT – but then handed the mike to the public. For the open edition, Pak exercised restraint in content moderation: aside from perhaps filtering out nothing (to align with the absolutist free speech stance), he allowed minters to submit any text, which was a radical trust in the community. However, Pak retained control over the overall execution: he decided when the reveal would happen and ensured it occurred uniformly for everyone, and he controlled the smart contract that forwarded funds to the intended beneficiaries. With *Clock*, once it was launched, the control shifted to the AssangeDAO (as the new owners) in terms of display and eventual fate of the piece, although the daily increment feature was baked into the token itself. In essence, Pak's control was about creating a secure and open channel for expression and then stepping back at the right moments. The success of *Censored* depended on this light-touch approach; too much control (e.g., censoring the messages or manipulating the outcomes) would have undermined the trust and authenticity the piece needed to resonate. By structuring it as he did, Pak underscored his role as an enabler – he controlled the framework but not the voices within, embodying the artwork's ethos in the very way he managed it.

*Collective Emerging Behavior.* The *Censored* project galvanized a uniquely blended community of art enthusiasts, cypherpunks, transparency advocates, and supporters of Assange. The formation of AssangeDAO itself was a landmark event: thousands of strangers coordinated in a matter of days on chat platforms, raised tens of millions in cryptocurrency, and collectively won the *Clock* auction, an unprecedented feat of decentralized crowd-funding. This feat gave participants a profound sense of accomplishment – each member of the DAO owns a fractional piece of *Clock* via tokens, making *Clock* a collectively owned symbol of protest. In parallel, the open edition

saw likely tens of thousands of NFTs minted (the exact number of messages minted was significant, suggesting a broad participation from the crypto community and beyond). Upon the reveal, a new collective experience began: people scoured the now-uncensored messages, sharing poignant or powerful quotes they found among the NFTs. The collection became a digital chorus of statements about freedom, justice, and personal sentiments, and owning one meant being part of that chorus. A notable emergent behavior was the way traditional lines blurred: activists became art collectors by minting NFTs, and NFT collectors became activists by joining the political messaging. The *Censored* Discord and other forums buzzed with discussion not just about the art's value, but about the cause it supported and the stories behind individual messages. This convergence of normally separate communities (art, crypto, activism) was itself a product of the project. In the aftermath, the collective energy didn't dissipate immediately: the DAO refocused on continued advocacy for Assange, and many open-edition holders continued to promote the messages they had minted, effectively using their NFTs as badges of alignment with the free speech movement. *Censored* thus forged an alliance of convenience into a lasting community centered on principle and expression.

*Poetic Meaning-Making.* *Censored* stands out as a poignant union of art and activism, transforming the cold mechanics of blockchain into an emotional and political narrative. The poetic substance of the work arises from its contrasts: a single, ever-ticking clock counting the days of one man's silencing, and a sea of uncensorable messages giving voice to thousands. The *Clock* NFT is minimalistic yet profound – each passing day it displays is a testimony to injustice, a visual poem of waiting and resilience. The open edition, once uncensored, became an anthology of global voices; its poetry is both literal (many entries were written with genuine passion or wit) and metaphorical, in that it turned censorship on its head – what was once hidden is now immortalized in public view. There is a strong sentiment that *Censored* wasn't just documenting a moment in crypto art, but a moment in history: it bridged the gap between the decentralized art world and real-world social issues, demonstrating that the blockchain community could rally around something deeply human. The broader impact of *Censored* lies in its demonstration of how digital art can be immediately socially relevant. It set a precedent for using NFTs as a medium of protest and fundraising, expanding the notion of what kind of statements can be made – and preserved – through art. In summary, *Censored* made poetic meaning through direct action: it is art as a verb, an event in which aesthetic expression, technological infrastructure, and moral conviction converged to powerful effect.

*Key Statistics.* The *Clock* NFT sold on 9 February 2022 for 16,593 ETH (approximately \$52.8million), bought by AssangeDAO, a collective of 10,000+ members pooling funds. This made it one of the most expensive NFTs ever and provided a huge donation to Assange's legal defense. The open edition *X/X* minted 29,766 NFTs over its 48-hour run, raising 671 ETH in voluntary contributions (about \$2.1million) for pro-freedom organizations chosen by Pak and Assange. Each of these message NFTs remains non-transferable and will only become tradeable upon Assange's release. Over 17,000

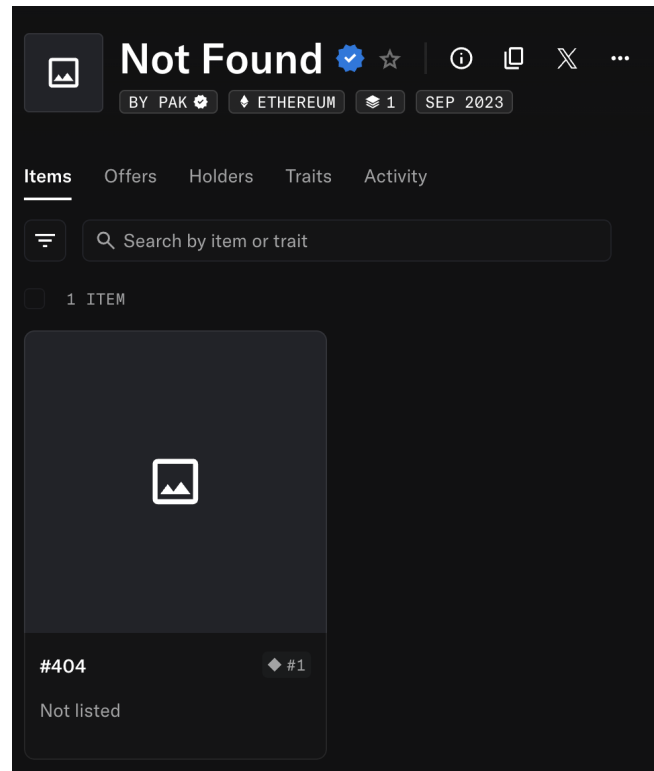


Figure 12: Not Found #404 on Opensea

unique Ethereum addresses participated in the mint (many contributed multiple messages via additional wallets). The largest donation from a single minter was 50 ETH (showing some used the mint as a way to donate significantly). Post-drop, AssangeDAO has kept *Clock* on display via a fractionalized ownership governance token (representing membership shares in the DAO). *censored* stands as a record-breaking instance of political fundraising through digital art, and a case where an NFT project directly engaged international press and communities far beyond the traditional art world.

#### Information.

- Launch Website: <https://censored.xyz/>
- Release Date: Feb 5, 2022
- Opensea: <https://opensea.io/collection/censored-pak-assange>
- Contract Address:  
0xda22422592ee3623c8d3c40fe0059cdecf30ca79 (Soul-bound ERC721)

### A.9 Not Found / #404 (2023)

*Concept.* *Not Found #404* is a 1-of-1 NFT forged “in memory of the absent.” that Pak created in August 2023 as a poignant tribute to the late crypto artist Alotta Money. The concept revolves around absence as presence. It leverages the web's familiar “404 Not Found” error – the message one sees when a webpage is missing – as an artistic statement. Pak minted *404* with no metadata: no image, no name (beyond the token ID), no description. In Pak's words, “#404 is a token forged in memory of the absent... Void of metadata by

design to amplify the presence of absence.” The NFT exists as a sort of intentional glitch or blank, symbolizing the void left by Alotta Money’s passing. Socially, it speaks to how loss is felt in the digital age – even on a blockchain, an empty space can carry profound meaning as a memorial.

*System Mechanism.* Technically, *404* is engineered to be an NFT that always produces a 404 error for its metadata endpoint. Typically, an NFT’s metadata link provides JSON data including the name, description, and image URL. Pak deliberately set up *404* so that when any application (like OpenSea or Etherscan) queries the token’s metadata, the server responds with a “Not Found” status. This means the token has no visible content – no name, no image – just its token ID (404 on that contract). However, embedded within the smart contract is a tiny message: instead of the usual metadata, Pak hard-coded a plain string that says “In memory of the absent” as the response. That phrase is the only “content” of the NFT, acting like a eulogy delivered in code. The dynamic effect is that on any NFT marketplace, *404* appears as an empty or broken entry (which is itself conspicuous). Over time, assuming the piece stays as is, it will forever display as a missing asset, effectively eternalizing the idea of absence. This is a case where the lack of data is the feature, not a bug – a radical use of the NFT format to signify zero.

*Participatory Interaction.* *404* was part of a charity auction (the Alotta Money Memorial on MakersPlace), so the direct participation was in the bidding process. Collectors vied not for a flashy image but for the honor of owning this conceptual piece. The winning participant, prominent collector WhaleShark, essentially paid a large sum for an NFT that “looks” like a broken link. In a broader sense, the audience participation comes in the form of interpretation: everyone who views the token on marketplaces just sees an error or blank, and must mentally fill in what it represents. Interestingly, because the contract ensures the metadata always returns a 404 error, any platform displaying it will show a broken image icon or “Not Found” text, inviting each viewer to participate by remembering or inquiring about Alotta Money and the context. Thus, while not interactive in a traditional way, it engages the audience’s awareness and curiosity. The community also participated in spreading the story – tweets and articles explained what *404* meant, effectively crowdsourcing the task of giving this “silent” NFT a voice.

*Artist’s Control.* Pak had meticulous control over *404*’s presentation. By deciding to include no metadata and making the token unchangeable (immutable after mint), Pak ensures that neither he nor the owner can ever add an image or title later. This permanence is part of the tribute’s integrity. The artist also controlled the context: *404* was introduced with a tweet explaining its purpose and dedication, guiding the initial audience understanding. After the auction, however, Pak’s control yielded to the token’s behavior in the wild – any confusion or discussion arising from people seeing a blank NFT became part of the piece’s life. It’s worth noting that creating an NFT that defies normal display could have negative repercussions (some might think it’s an error), but Pak accepted that risk to preserve the concept. In terms of curation, Pak placed *404* in a charity event so that its sale (48 ETH) benefited a cause (Alotta’s cancer fund or a related charity), aligning control of proceeds with the homage. Ultimately, Pak’s control was about

ensuring emptiness – an ironic but powerful form of control where doing “nothing” was a deliberate artistic act.

*Collective Emergent Behaviour.* Once *404* was out in the world, the NFT community responded collectively by imbuing it with significance. Discussion threads emerged about “the NFT with no data” and what it meant; in this way, the community co-authored the narrative by sharing the backstory. Some artists were inspired by this approach and contemplated similar “negative space” works. As for the owner, WhaleShark displayed *404* in virtual galleries and on social media, where the emptiness became thought-provoking. Rather than diminishing interest, the lack of an image actually drew people in – a reverse of the usual NFT hype cycle. A subtle emergent behavior is that marketplaces had to handle a token with no metadata gracefully; some updated their interface to show “Unnamed” or simply the token ID. This sparked minor technical conversations in developer circles about how to index such an NFT, thereby *404* gently pushed the boundaries of NFT platform expectations. The most heartening emergent behavior was the collective act of remembrance: the NFT community, normally fixated on visuals and rarity, paused to remember an artist through a non-visual artifact. In that sense, *404* succeeded in creating a communal moment of silence, as it were, in the bustling NFT space.

*Poetic Meaning-Making.* *404* is pure poetry in digital form. Its poetry lies in what is absent: it forces the viewer to confront a void and find meaning in it. Much like John Cage’s silent composition “433” or Rauschenberg’s erased drawing, Pak’s *404* finds art in nothingness, which in this context becomes a profound statement about loss. The use of the “Not Found” web error as the medium ties our sense of missing information to the emotion of missing a person. It’s a requiem encoded as a glitch. The token number 404 itself is meaningful – in web lore, 404 symbolizes a dead link, something that was once there but no longer accessible, mirroring Alotta Money’s departure. Moreover, *404* leverages the permanence of blockchain to eternalize an impermanent idea (absence). Its message “In memory of the absent” resonates universally – it’s not just about one individual, but about all those we’ve lost (it invites anyone to project their own feelings of loss onto it). As a social/artistic message, it reminds the tech-forward NFT community of human mortality and the gap that death leaves in our networks. In its quiet way, *404* perhaps also comments on the oversaturated NFT market – amid thousands of gaudy images, the most meaningful piece can be an empty one. The poetry of *404* lies in its silence and subtlety, making the presence of an absence palpably felt.

*Key Statistics.* *404* was minted on 31 August 2023 and auctioned the next day at the “Alotta Money Tribute” event on MakersPlace. It sold for 48 ETH (roughly \$76,000 at the time) to collector WhaleShark, with 100% of the sale proceeds going to charity. The token resides on a custom contract; it is token ID 404 and notably the only token in that contract (no other token IDs exist, making 404 both the ID and the collection name). Its on-chain metadata call returns a 404 error code by design, and the token carries a brief on-chain text “In memory of the absent.” The piece garnered considerable media attention for an NFT – features in art publications highlighted it as the first NFT that intentionally “does nothing” visually yet carries deep meaning. As of 2025, WhaleShark has not listed *404* for resale



(and likely never will), aligning with its status as a memorial piece. *404* stands as Pak's first major NFT after *Merge*, and while it's a single edition, its impact was amplified by the hundreds of artists and collectors who witnessed and shared in the commemorative moment it represents.

*Information.*

- Launch Website: Pak's Twitter Account
- Release Date: Aug, 2023
- Opensea: <https://opensea.io/collection/in-memory-of-the-absent>
- Contract Address:  
0x3a91740d25587a0cd5baa27755876231559a3e60 (ERC721)