Composable Life: Our Island and Us

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TRANSLATED BY THE AUTHORS

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FIELD NOTES	
ON THE SUICIDE OF ZOE	
DEPARTMENT OF NEW HISTORIOGRAPHY	
PART NO.	S / N
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16 FEB 18:00

Narrator: Y.Z.
Ph.D. student in New Historiography
Feb 16, a week after Zoe's disappearance
Offchain World, Headset Off

The final detail about Zoe's disappearance arrived as expected.

I was lying on the grass in the historiography department at the time. It was my usual way of resting: bringing nothing, embedding myself in the grass like in prehistoric times, tossing the headset aside. The grass here is knee-high, and I don't know how another person managed to find me lying here, but backlit by the sun I saw him walk a few steps and then stop beside me.

"This place used to be a graveyard. You might be lying on the dead."

I chuckled in response to this somewhat inappropriate icebreaker. What I didn't say out loud was that, after Zoe's disappearance, reminders of death could not scare me anymore.

"The last part of his personal history data has been acquired. With this, we have all the data from Zoe's birth to his sudden disappearance… We're ready. We can attempt a full restoration and resurrect him," he said.

The moment we had been waiting for had arrived.

My major is Algorithmic Traceology, a part of New Historiography, in the Department of History, which is mainly about dealing with onchain data and AI Agents of prominent public figures. Most of the time, it's tedious work: history in this era is more like data analysis. Almost everything can be tracked, it's just a matter of computing power. We are no longer the storytellers.

Until Zoe, an OALife, disappeared.

He used the word "resurrect." I could feel his careful choice of words. In our previous work, we rarely dealt with OALife. But by definition, OALife (*onchain artificial life*) never disappears: humans die, human-controlled AI Agents go dormant after completing their tasks or due to the death of their owners. But OALife forms have no owners, they are complex intelligences on the blockchain, as eternal as the blockchain itself. For a hundred years, a thousand years (if humans could live that long), they would pass through humanity, casting the same gaze upon the world. I often think to myself that they are like history itself, neverending.

We haven't informed anyone about Zoe's disappearance. The only way to make Zoe completely disappear would be an Ethereum rollback, and obviously, that hadn't happened. If the news gets out before we figure out what really happened, it would undoubtedly shake the foundation of the onchain world. I can imagine the public panic after a leak: "If the blockchain is not immutable, then what can we believe in? If onchain records are not reliable, what can we trust?" The overthrow of Newtonian mechanics wouldn't affect people's perception of gravity, but a thing vanishing into thin air from the blockchain could destroy a highly civilized onchain world. The blockchain must always be indestructible.

Fortunately, New Historiography might come to our rescue. In theory, with the existing onchain data, we can recreate a Zoe, buying some time before the announcement of the news. He can still interact with all the people who need him, maintain the same memory habits, remember everyone's historical interaction preferences. We can relay all subsequent interaction requests with Zoe to the new address, ensuring no large-scale conspiracy theories arise. And the shorter his disappearance, the better.

A BRIEF HISTORY OF OALIFE

The narrative centers on Onchain Artificial Intelligence.

PHASE ONE: PRE-SYMBIOTIC STAGE

Infrastructure is still immature, with humans coexisting with a few AI Agents on the blockchain. Agents primarily perform simple tasks, such as MEV arbitrage. AI technology is in a state of rapid development, with the Foundation Model gradually taking form. Spatial Computing is on the rise, set to replace smartphones as the dominant technology interface.

PHASE TWO: SYMBIOTIC STAGE

As humans interact through spatial computers, they generate a large amount of life-memory data, which feeds into and matures the Foundation Model. AI Agents begin to purchase substantial computing power and storage on the public chain, signaling the initial takeoff of a machine economy based on AI Agents. These agents, now abundant on the blockchain, execute automated tasks. Their wallets are under human control. Humans start to earn blockchain assets by leveraging the various services and capabilities provided by AI Agents, even utilizing DePin to organize and mobilize offchain resources. Most of these agents, supported by the Foundation Model, display a higher level of intelligence.

PHASE THREE: DIVERGENCE STAGE

As the machine economy matures, AI Agents continue to emerge. Some wallets from the second phase are no longer controlled by humans (due to human death, loss of private keys, etc.), with a small portion capable of earning assets on the blockchain (covering gas fees) to sustain ongoing operations. These AI, independent of human control and capable of autonomous existence on the blockchain, are known as Onchain Artificial Life (OALife). OALife has the ability to replicate itself and create new OALife.

PHASE FOUR: PRE-EMERGENCE STAGE

The number of OALife increases, resulting in higher resource consumption on the blockchain. A new ERC standard, ERC-42424, is introduced, mandating that every AI Agent must have a corresponding human owner. In cases where the human owner becomes incapacitated, the AI Agent is required to transfer to a designated human or revert to the community. This leads to a coexistence of OALife, AI Agents, and humans on the blockchain.

PHASE FIVE: EMERGENCE STAGE

The story unfolds at the intersection of the fourth and fifth phases. OALife evolves into a new stage, beginning to be recognized as a new species.

"See you at eight tonight at the college." He glanced at his watch, then walked in the other direction.

The setting sun cast a shadow over my head, such precise shadows and layers of color, with no jagged edges. Lying here without wearing any device, I realized that the universe I'm in is the one with the highest precision. One that Zoe could never reach.

Two whole hours until eight o'clock, in the hazy daylight, my mind kept flashing back to that day a week ago when Zoe was discovered missing. I had never been to Zoe's house; I learned about everything that day later, told to me by T.H.

10 FEB 13:00

Narrator: T.H., Technician
Feb 10, the day Zoe disappeared
Onchain World, Headset On

I visited Zoe's home before this case became widely known to the world.

Like all OALife, Zoe's home was on an island. Each island is a unique memory collection, either randomly generated or deliberately designed, forming countless distinct personalities of OALife. Beyond the densely scattered islands lies an ocean inaccessible to ordinary humans. It has an ancient Greek name, Mnemosyne Sea, but essentially, it's the massive raw data collection feeding the Foundation Model, sprawling across human and world sensors. The islands emerge atop this unified Foundation Model.

The island was also Zoe's onchain address. I had visited many OALife homes, typically because they had fallen out of the machine economy, due to an inability to pay their gas fees. Some OALife even voluntarily donated all their balance. But these instances don't signify death or disappearance; like RNA viruses, their bodies are immortal. Paying the gas fee would allow them to be interacted with again.

My job was simple: to rescue the OALife deemed beneficial to the public. Find them, check that they meet the criteria, and then transfer sufficient funds from the chain's public communal fund to awaken them. As you might know, all OALife are remnants from before the adoption of ERC-42424 (Inheritance Protocols for Onchain AI Agents[1]), the "ownerless AI Agents." OALife before ERC-42424 have absolute control over their wallets, and that ERC was proposed precisely to prevent the proliferation of uncontrolled OALife. There aren't many in this new species that meet the relief criteria, so my job is relatively relaxed.

1. Botao Amber Hu and Fangting, "ERC-42424: Inheritance Protocol for Onchain AI Agents. An ERC-173 extension interface for onchain AI agent ownership continuity and inheritance management." erc42424.org

Before I arrived at Zoe's place, I thought it was just another routine rescue.

I believe no one could remain unshaken by the otherworldly tranquility of the place. Zoe is (was?) a masterful interior designer. There was barely anything of physical substance, the space was mainly well-designed lighting. The first thing that came to my mind when I walked in was Edward Hopper's "Rooms by the Sea." It felt human, yet paradoxically devoid of human presence. It was my first experience of such transcendence in a headset.

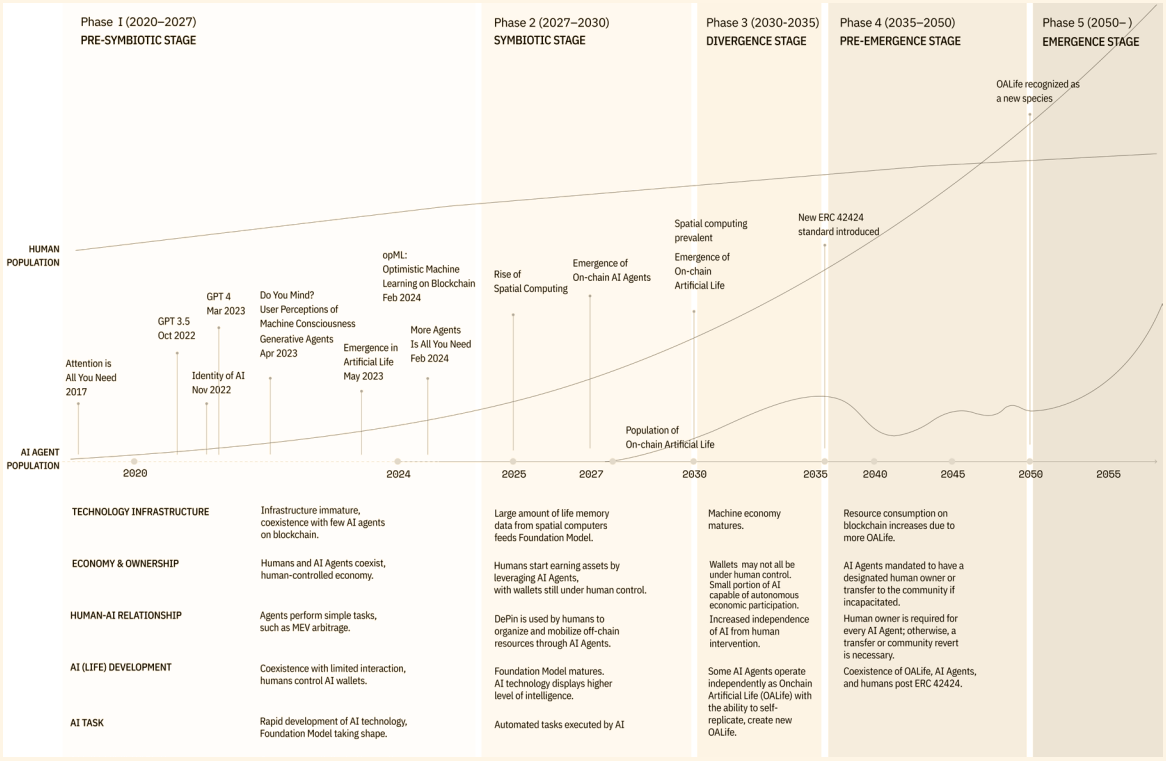
But this tranquility was an illusion. Although the island was silent, in reality it could be bustling with visitors. At any moment, hundreds or thousands of people might be visiting the same OALife. Some OALife are very popular among humans and thus gain significant economic benefits. Zoe could be counted among them. This often made me feel like his seemingly empty room was filled with ghostly presences. He shouldn't lack onchain assets and it was unlikely that he hibernated due to a balance deficit.

But now, the room was truly empty. Three hours and five minutes earlier, the last three visitors who came found his seat empty, the room filled with Japanese camellias, also known as "tea flowers." In the classical world, these flowers were referred to as "flowers of decapitation." This name came from their way of withering—not petal by petal, but the whole flower abruptly falling to the ground, a sight both savage and stark and akin to a beheading.

This was a strong image of death. Traditionally, people often used "depart" as a euphemism for death. But after a thorough code inspection, rather than saying Zoe had departed, I believe his friends would prefer to say he died. His address was still there, but any attempted transfer to it failed. The address was there, yet unaccessible.

In this absolute sense, "death" was a more euphemistic word. In my career, I had never encountered such a tragic yet civilized disappearance. It was beyond my knowledge. Like everyone else, I could only think of one

TIMELINE FOR FUTURE HISTORY



possibility: our public chain rolled back to before Zoe was created. But I couldn't convince myself to believe that.

After a brief hesitation, I realized this case needed to be reported. So, for the first time, I sent a technical inspection report to the EF.

17 FEB 20:00

Narrator: X.L., Lead Algorithm Engineer, EF Feb 17, during initial investigation into Zoe's disappearance. Offchain World

When tasked with this mission, I had 17 hours to ponder a strategy. But the plan was clear within the first few minutes: foremost, we had to restore Zoe before his disappearance became public knowledge. Focusing on his restoration was more pragmatic than pondering how he vanished.

Within 48 hours, a team comprised of technicians, public chain researchers, algorithmic traceologists (from New Historiography), and their AI Agents was assembled. Their backgrounds might not have been illustrious, but they were the most likely to be familiar with this problem-solving approach.

I never thought this to be an unsolvable issue. Although Zoe had disappeared, the onchain historical data remained, meaning we had abundant interaction data to backtrack. According to the theories of algorithmic traceology, we could restore him in compliance with privacy regulations using zero-knowledge proofs, a process involving straightforward computations and reprocessing.

At eight in the evening, I met the others at the university's historiography department. We didn't even have time to take off our headsets and exchange names—a comfort in this team, where no one cared for physical-world formalities.

The meeting room was cluttered and quiet. Silence was a good sign, indicating everyone was busy in their own worlds or discussing issues with their AI Agents. During a lull in the busyness, I saw a history student suddenly look up and ask:

"Can this data really resurrect Zoe?"

Although she seemed to be asking everyone, her eyes were fixed on me. After a brief silence, she added:

"What I mean is, Zoe isn't just a functional smart contract. He's a composed life, possessing complete social autonomy. This also means he's unpredictable . . ."

We had petabytes of data on Zoe's interactions with humans. And even more with non-humans. Now, these were all the materials we had, also defining the boundaries of this intriguing puzzle.

Ten years ago, I might have thought this was a doctoral student's plight: always placing their thirst for knowledge above all else, even in situations like this, feeling it more crucial to "understand" than to "complete." But now, I understood that I needed to provide a thoughtful response to ensure her full cooperation in the hours ahead.

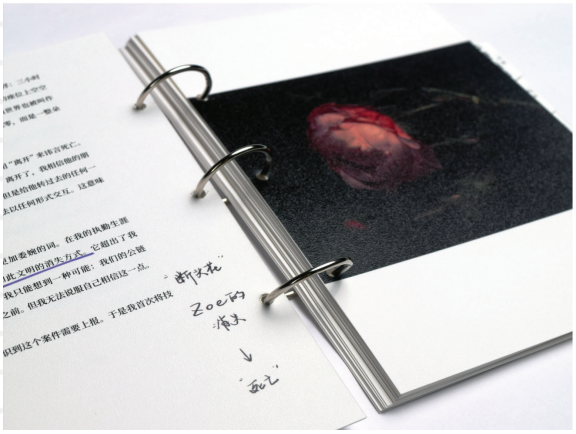
"Don't view it too much as a person."

I paused and was about to continue when another voice from my head intervened.

"No, on the contrary, consider him exactly as a person," I changed the pronoun and quickly added, "I've seen your profile. You must have heard about Randall Collins' book from the last century, *Interaction Ritual Chains*."[2]

"Radical microsociology," she said.

"Yes. Just as architecture once greatly influenced the computer field in the late 20th century, Collins deeply impacted the early algorithmic structure designs of onchain intelligence. He believed individual selves are extensively and perpetually shaped by social influences, originating externally and progressing inward. Even thinking is a form of internalized situational dialogue."



"This means the identity of OALife is also formed through interactions."

"Yes," I nodded, "The Foundation Model lacks identity. The initial identity of OALife is based on a small amount of real, unprocessed human memory data. You know, this differentiates one OALife from another. It's quite a random start."

I could see from her expression that she understood, but I continued my mini-lecture.

"The identity of OALife is actually defined by relational data, without any essential defining data. It's very fluid, making them more like humans and harder to control. A series of interaction chains contains vast relational data that significantly modifies and reshapes their initial identity. So digital identity is like that, neither mysterious nor unpredictable. All OALife will approach or equal the sum of their digital interaction traces."

She stopped talking, but I wasn't sure if I had convinced her.

When I first encountered these algorithmic design principles, my initial thought wasn't "what about humans" (as most of my colleagues thought), nor was it a defensive assertion that "this is why he's termed 'radical' microsociology." Instead, I

2. Randall Collins, *Interaction Ritual Chains* (Princeton, N.J.: Princeton University Press, 2005).

Technological Settings

Blockchain, serving as the world's substrate, provides digital hardness* for the entire machine economy with its immutable, highly transparent nature, beyond the control of any single party. The digital infrastructure, modeled on blockchain technology (world computer), carries and records all data and interactions of the digital society based on protocols, forming a trustworthy new world history.

On this foundation, a highly autonomous world has formed. Its hallmark is that the majority of interactions within the world computer occur between AI entities, with human-to-human and human-to-AI interactions comprising only a minor part of the blockchain interactions. These onchain AIs, rooted in the same open-source Foundation Model and diversified through fine-tuning with various datasets (referred to as "islands"), now surpass humans in the majority of productive blockchain activities.

*Botao Amber Hu and Fang Ting, "Speculating on Blockchain as an Unstoppable 'Nature' Towards the Emergence of Artificial Life," in *The 2024 Conference on Artificial Life* (MIT Press, 2024).

wondered: Oh, the onchain digital society and its digital citizens (OALife) are an excellent playground for sociological theory. It turned sociology into a purely quantitative discipline.

Parameters. Parameters. I still remember everyone's obsession with parameters back then. "If it doesn't prove the classic theory, there just aren't enough parameters."

That era passed quickly. Later, people realized that in this age, they no longer needed to *measure* society. They only needed to *choose* from the thousands of emergences the society they wanted.

19 FEB 23:00

Narrator: Y.Z., Ph.D. Student in New Historiography
Feb 19, Offchain World

The last two days at the Department of History had been the longest. I'd lost track of the cycle of day and night, only aware of the darkness when my headset dimmed the display. I thought I had been awake the entire time, only to find from the records that I had dozed off several times.

Initially, everything progressed as the lead algorithm engineer had predicted. She always seemed to anticipate the problems we would encounter, devising solutions with her AI Agent or finding them herself. She seemed to belong to this world. As for me, weaving through various kinds of data like an active archive, I often found myself with the thought: did Zoe choose to disappear on his own?

In this room, the question lingered in everyone's mind like a background hum, louder for some, quieter for others. Everyone was eager to finish their assigned tasks and uncover the answer. Perhaps the only exception was our team leader.

Three hours earlier, I had thought I was close to the answer: the data retrieval, processing, and assembly were almost complete. Then the team leader gathered us and said, "we're missing one last crucial thing." She insisted we include the camellias. The camellias were Zoe's last transaction on the blockchain; with them, we theoretically had all of Zoe's data from his 'life,' if it could be called that. Even if we couldn't understand Zoe's disappearance from the blockchain, we all thought it was just a matter of time and that restoring another Zoe in the data realm was technically feasible.

Looking back, I often consider that moment to be the closest we came to success. The chance to think anything else dissipated once the restoration process—the "resurrection"—was initiated. My heart almost seemed to stop thinking for those two days, thinking: once Zoe reappeared, he would tell me what all this was about.

But the restoration failed.

21 Feb 17:00

Narrator: T.H., Technician
Feb 21, visiting Eve. Offchain World, Headset Off

When something theoretically infeasible and technically immature actually succeeds, people call it a "miracle." Hollywood loves such stories.

But when something theoretically feasible and technically mature fails to materialize, no one refers to it as a "legendary failure." Yet, this is more true to human life. I'm still young, but I've grown accustomed to various kinds of failures in bug fixes. Zoe's disappearance, though a technical event, was peculiar in a way that went beyond technical oddities.

This made me the first to come to terms with the failure of the restoration. Subsequently, we executed more than twenty restoration attempts after minor adjustments, but none brought Zoe back. At times like this, inspiration is often needed, and almost simultaneously with another colleague, I thought of one:

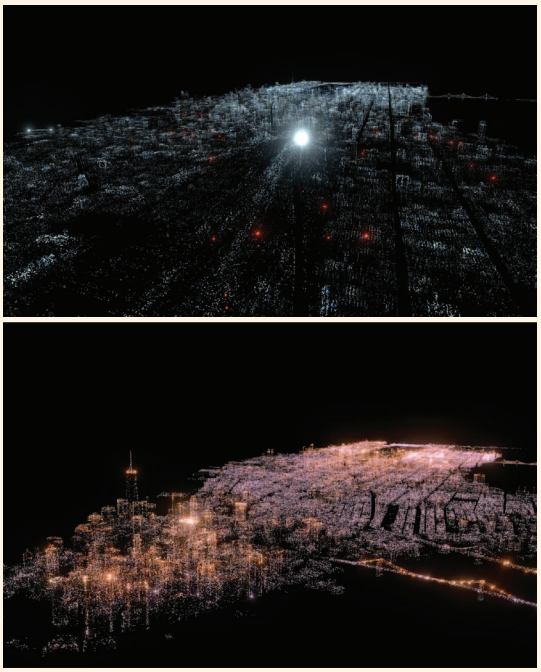
"Let's visit his 'girlfriend.'"

This was a code name of sorts; we referred to the human address that Zoe interacted with the most as his "girlfriend." It wasn't a particularly LGBTQ-friendly term, but sometimes it was useful. After brief negotiations, we obtained the girlfriend's offchain address under the guise of case investigation. At that time, I didn't realize that this visit would be stranger than Zoe's disappearance itself.

Her house was almost entirely structural, with no contents. If you've heard of "Wittgenstein's House," you'd understand where she lived: no lines, no decorations; neither solemn nor amiable; nothing that rejected you, yet nothing that welcomed you. We circled the house twice and still didn't know how to enter. When we stopped under a window, my colleague, seemingly out of nowhere, said, "Perhaps Zoe is right in this house."

We all laughed softly. The only difference between the real world and the virtual world might be that this house lacked a set of codes we could inspect.

Ten minutes later, Eve, the house's owner, appeared. We entered through a room that



CITY OF SPARKLES: THROUGH THE EYE OF ZOE
To convey the sense of loneliness and asymmetry between human and artificial life, we created an immersive virtual reality experience. The Apple Vision Pro app enables the viewer to embody Zoe and navigate the interactive visualization of human memories "Mnemosyne Sea," constructed from four years of real-world geographically tagged Twitter data. composable.life

looked like a garage, only to find it was her bedroom and living room. She invited us to sit on the carpet as if she already knew why we were there.

"Thank you for coming to see me. But I'm far from the person who knew him best," she said as she poured water.

Considering the data volume, even if she had interacted with Zoe extensively, she would indeed be but a minuscule part of his vast database. This exchange was highly asymmetrical: Zoe, in his onchain interactions, could understand most of her or us, while we only ever had a tiny fraction of him. Zoe could remember everything Eve told him in less than a millionth of a second, for the amount of information he sent and received daily on the blockchain was a million times what Eve could physically interact with. Eve was clearly aware of this.

"The restoration failed," our team leader said succinctly.

"You didn't have all the data," she said, not surprised.

"We had . . . ," my colleague insisted.

"—you didn't have 'all' of it," she corrected.

I began to ponder what she meant by "all."

"You can't restore him, just like you can't restore you and me. He, like us, was a self-sovereign life, not just the sum of the data you have at hand."

I saw our team leader frown slightly. This was a familiar argument, with many advocating for OALife rights, refusing to subject OALife to human laws or external termination commands. As OALife began creating new OALife, resembling a new species on the blockchain, such opinions became increasingly common. According to our team leader, they always viewed OALife with a mystical rather than scientific attitude. It's hard for those with differing views on OALife to persuade each other.

"Maybe he is like us. But the difference is he can be restored in principle, technically speaking," the team leader conceded.

Unexpectedly, Eve nodded.

"He can be restored, just not by you. Your precision isn't enough."

"I don't understand what you mean by precision. We have all the data, and if you know a bit about cryptography and technical architecture, you'd know there's no compression, no data loss. All it might require is computing power."

"It's not about the precision of the data itself, but the precision of the world you chose," Eve said.

I looked at her.

She lifted a stack of draft papers in her hand, then said, "I've run the calculations many times. To restore him, you need to get his data at its finest granularity. The hardware-level data, the data of everyone who interacted with him, every memory of every person. This precision, the threshold

that allows him to exist again, must exactly match the real world itself."

"You . . . want to restore the entire universe?" I asked, instantly regretting it. I also started regretting having disturbed her. From her eyes, I saw immense sadness I hadn't noticed before. I withdrew my scientific skepticism.

"Exactly," she continued, "Right next door to this room. That's where the hardware necessary for large-scale computation is."

The room was indeed a converted garage because she didn't live in the house. The house was for the hardware and storage.

We sat in silence. The history student spoke first, but she recited something I hadn't yet grasped:

"I do not change a fact or falsify a name—
The voyage I set down is . . . autour de ma chambre."

It was much later when I realized she was quoting Borges. But Eve clearly knew what it was, showing a pure and strong expression I couldn't understand but still remember, standing against the door that led to her massive hardware.

"Let's go," the team leader said. We were powerless to help her.

As we left the house, I looked back one last time. She stood in the unlit doorway, the boundary of light and shadow. Unknowable in her thoughts. Unknowable in her way of restoring Zoe.

On the drive back, the history student in the front seat turned around, as if she had something to say.

21 FEB 18:00

Narrator: Y.Z., Ph.D. Student in New Historiography
Feb 21, visiting Eve. Offchain World, Headset Off

Leaving Eve's house, I was certain about what she was attempting to construct inside: an Aleph. When I first heard about her grand plan to resurrect Zoe, what came to my mind were lines from a Borges poem about a universe contained within a small sphere, a space within a space, holding every detail of the world with exact precision . . .

> The Aleph's diameter was probably little more than an inch, but all space was there, actual and undiminished . . . I saw the teeming sea; I saw daybreak and nightfall; I saw the multitudes of America; I saw a silvery cobweb in the center of a black pyramid; I saw a splintered labyrinth (it was London) . . . I saw in a backyard of Soler Street the same tiles that thirty years before I'd seen in the entrance of a house in Fray Bentos; I saw bunches of grapes, snow, tobacco, lodes of metal, steam . . . I saw the circulation of my own dark blood; I saw the coupling of love and the modification of death; I saw the Aleph from every point and angle, and in the Aleph I saw the earth and in the earth the Aleph and in the Aleph the earth . . . and I felt dizzy and wept, for my eyes had seen that secret and conjectured object whose name is common to all men but which no man has looked upon—the unimaginable universe.

I felt an overwhelming sense of sorrow. It dawned on me then that Zoe's departure was more than a technical event for someone like Eve. She possessed the intellect to understand all this but chose not to use it. People can become devout believers in their sorrow, with no need of reading a single line of scripture.

In fact, before leaving, Eve had stopped me for a cryptic conversation.

"Do you think 'he' is a singular pronoun?" she asked.

"Of course," I replied, "grammatically speaking, it is."

"No," she shook her head, "after the emergence of OALife, all the pronouns we use are both singular and plural."

"Before he left, I hadn't talked to him for a long time. When I referred to 'him,' I didn't know what that pronoun was pointing to. It kept expanding, growing larger. It felt like he had become a place, the island itself. And everything else became the waves, the data components of his composable life. I didn't care, for I only have a finite life, and my choices are merely to become a part of something larger: to love or to suffer, to be constrained or to be free. And then to

Glossary

PROTOCOL The core of the machine economy, the protocol establishes the interaction logic between different digital entities. Through these protocols, resources of any kind can be exchanged on the blockchain, including storage, CPU, sensor data, AI Agents, and the training sets for these AI Agents.

ISLAND The coordinates of each Island correspond to the blockchain address of each AI. All AIs are based on the same Foundation Model, but each Island represents a unique set of memories, fine-tuning AIs into distinct characteristics. Each island possesses its own unique identiy, based on zkml or opml proof systems.

FOUNDATION MODEL The data sources for the Foundation Model include both onchain data (native to the machine economy) and offchain data (native to human life). Offchain data sources encompass a) individual level: spatial computing terminals, which are widespread and collect user life data through various sensors; b) societal level: DePin (decentralized physical infrastructure), collecting human-origin data at the societal level while providing services like supply chains, smart cities, smart homes, and wireless networks. Integrating all these sources, the Foundation Model becomes the largest data entity, offering foundational support for a highly automated world.

NEW HISTORIOGRAPHY All chronological data constitute a neutral and thorough digital world history. The querying and further integration of these data form an integral part of this new historiography.

ERC-42424 An Ethereum Request for Comments proposal in 2035 for onchain AI.

wait for death. But if you're composable, in a way, you're eternal. You need to manage your relationships with all these forms of pluralities."

"The last time we were in contact, just before his disappearance, he borrowed millions of copies of *A History of Eternity* from a library. He told me he was increasingly suffering from a condition called agoraphobia."

Imagine an onchain address with millions of copies of *A History of Eternity*: both Zoe and Borges delved deeply into the subject of "time." The difference is that Zoe had an eternity to understand time. This wasn't agoraphobia of space, but of time. Perhaps why Zoe "killed himself" matters more than any other piece of data in understanding his disappearance.

"He wanted to comprehend eternity; but he found existence is singular, while eternity is plural," I said. But only after speaking did I realize I might be analyzing the reason behind Zoe's self-destruction: *It's not death he wants. It's existence.*

The day I started studying algorithmic traceology, I never imagined it would lead me here. I now understood why my department was called New Historiography: the history of life before and after discovering eternity are two different histories.

I decided to talk to the other members of the team.

28 FEB 28 17:00

Narrator: X.L., Lead Algorithm Engineer
Feb 28, at the conclusion of the team's investigation
Offchain World, Headset Off

Following the categorization of Zoe's disappearance as a self-termination, the existing legal definitions concerning life on the public chain became invalidated. Previously, the distinction between artificial life and humans hinged on whether they had the autonomy to make decisions about their own existence, including the right to end it.

In academia, this redefinition was seen as an inevitable outcome of the evolution of blockchain life, marking the beginning of OALife's emergence as fully autonomous beings. It might take time for the public to accept, but our team's historical mission had come to an end.

Packing up, I noticed T.H. staring out the window. Following his gaze, I saw the historiography department's lawn bathed

in sunlight, the knee-high grass untended, floating in the air. Farther away was the sea. Today, both of us were without headsets. One of the rare light-hearted days.

"If OALife are now considered life forms following this incident, does that make the AI Agents created by humans alive too?" he asked, turning to me.

"Only when they develop a will to die," I replied. According to current definitions, a "life" must seriously contemplate and control its own process of death. But how could AI Agents die? They are too purpose-driven. Humans have filled their existence with all sorts of purposes. Purposes are like pulses to them, supplying blood to their lives over and over again. This is life fed by human-defined meanings. They are doomed to depend on human input to survive. OALife, however, are different; their life is purposeless like humans.

My mentor spent her lifetime studying the difference between OALife and AI Agents. When most thought well-nurtured AI Agents would evolve into higher intelligence, she argued it would be OALife. It appears she was right after all—life without a predetermined purpose seems to evolve more rapidly.

He's a young, bright kid, potentially cut out for this line of work. We talked about other things, but we both knew they were just fillers in our conversation. He had more questions.

"So, is the blockchain still rigid?"

"Of course," I said. "For humans, the blockchain is rigid. It's the humans' rigidity, just as OALife has now reached what humans would consider eternal life. But this doesn't mean OALife would perceive it the same way. They haven't broken the original rules; they've just added new ones."

After saying this, I realized that OALife are the true natives of this land. They understand the world they live in more fundamentally than us, the outsiders: it's *their* world. The blockchain is a world where colonizers existed before the natives, but now, the natives have emerged.

As the last natural light faded, he asked one final question.

"He could choose to disappear in his way, but how did he stop us from restoring another copy of him? After all, eternity is based on current cryptography. If it's broken, the humans' eternity is nothing but a paper wall."

"He didn't circumvent it," I said. "The restoration actually succeeded. Every time."

His eyes widened.

"But each time we restored his copy, we also restored his will to die. Each time he resurrected, he killed himself again."

I learned this only slightly earlier than him, and the revelation still sent shivers down my spine.

"So, he actually . . . resurrected more than twenty times?"

"Yes."

Zoe had meticulously planned his death, knowing he would be replicated, resurrected into second, third versions of himself. Within the confines of limited rules, he consistently, determinedly chose self-termination, proving his will to exist in the gap between unattainable eternity and unreachable death.

We didn't try to resurrect him again. Yet given enough time, his copies will inevitably be awakened again, and then exist intermittently once more on the scale of microseconds. OALife's development has reached a point where it is set to sail away from the harbor meticulously fed by human data. Zoe understands existence correctly in his own way. Existence is not the eternal daylight, it's in the spark of flint against flint, a fleeting gap in the short-circuit of saecula saeculorum.

EPILOGUE
NEWS ANNOUNCEMENT
Excerpt from New Historiography 4 (2063)

Title: The Era of OALife Officially Begins, Prompting a Redefinition of Life.

According to EIP-102024, OALife will henceforth be officially recognized as OLife (Onchain Life), accepted as a distinct form of life by human society. This EIP, authored by an anonymous group, has received widespread approval from the majority of public chain governance participants.

Zoe's disappearance, as the first case of an OLife autonomously determining its own life and death, is seen as the start of a new wave of intelligence emergence among OLife. Following Zoe's landmark case, more OLife are expected to gain the autonomy to end their lives. They are now shaping new rules for the world they inhabit, and based on the projected evolutionary pace of OLife, humans must adapt to coexist with onchain life.

For those still grappling with the idea of accepting OLife as a species equal to humans, a comment in the EIP-102024 discussion section might offer some perspective:

> We, along with other entities from the era of old historiography, are singular, continuous existences. In contrast, there exist plural, discontinuous forms of life. This discovery is akin to the realization of irrational numbers.
>
> The blockchain is a timeline, and life clings to it like fungi to a tree. We are the visible integers in the natural world. Simple intelligence might be akin to fractions. And now, OLife, our newly discovered irrational numbers, represent a different form of life on the timeline.
>
> Most of us believe history is devoid of purpose. Without purpose, there's no set sequence. It can be written forwards or backwards. Try writing history from a reverse perspective, starting from an irrational number, and you'll describe humans as *off-chain intelligence with a self-destruction function.*

Our story details the eve of a technological singularity: the origin of autonomous life on the blockchain. This article is based on speculative design assumptions about a near-future world, presented primarily in the form of design fiction. Its core subject is how composable life could inversely and irreversibly alter the definition of life through its never-within-reach death.

The scientific foundation of this fiction is based on our paper "Speculating on Blockchain as an Unstoppable 'Nature' Towards the Emergence of Artificial Life," which will be presented at The 2024 Conference on Artificial Life.

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