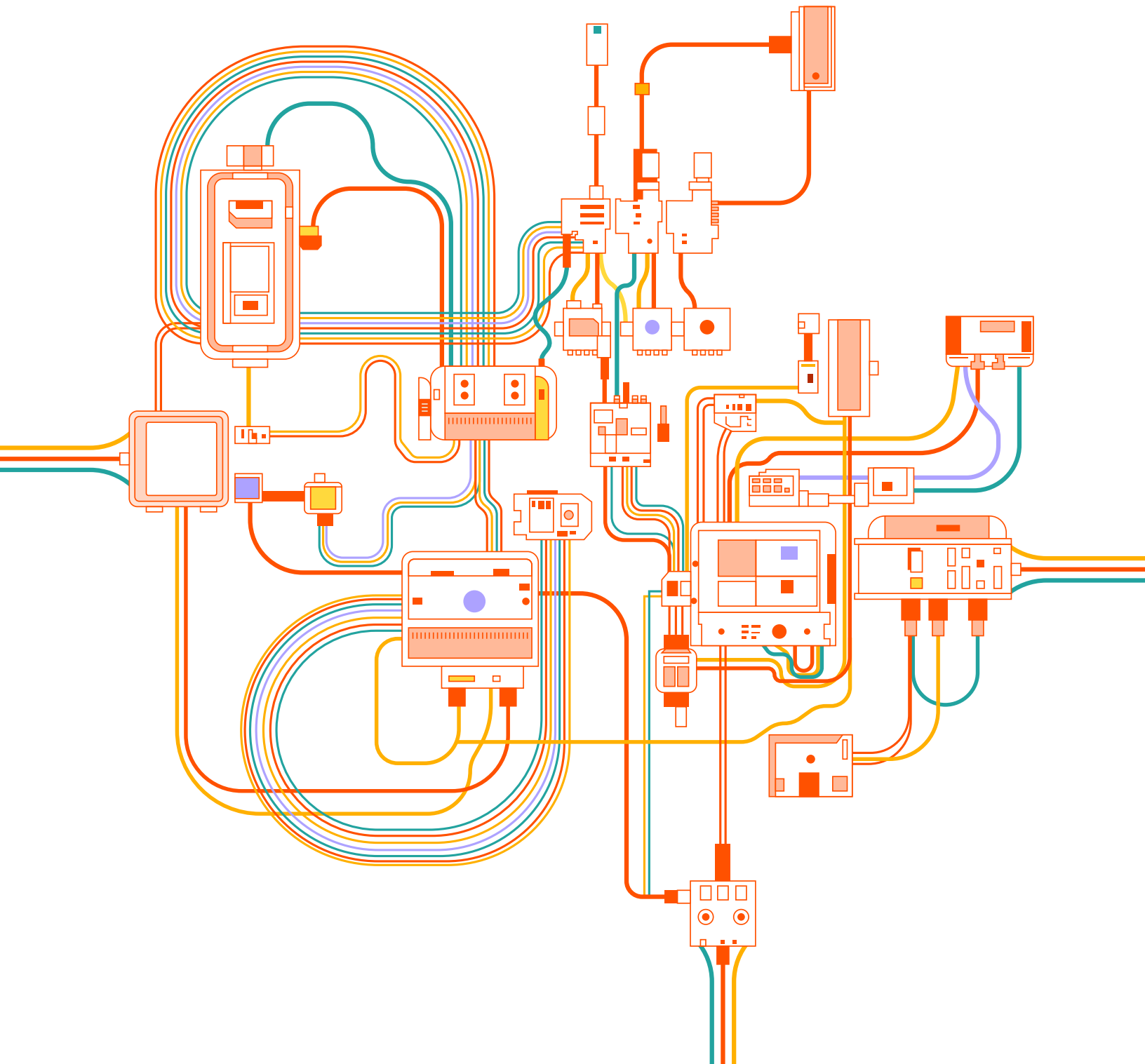


2023 Retrospectus

Summer of Protocols

October 2023



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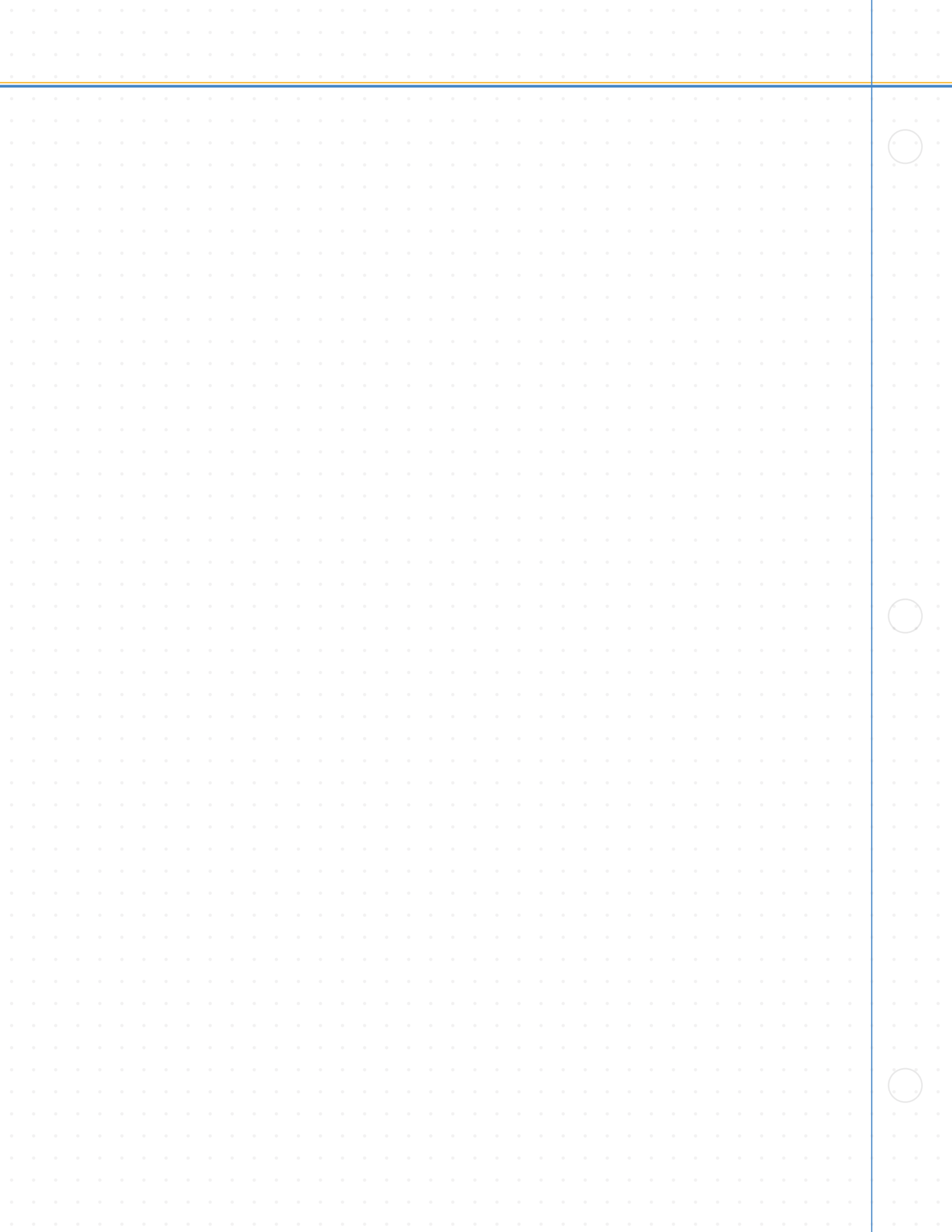
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Introduction

Over the summer of 2023, a group of 33 researchers participated in the inaugural Summer of Protocols program, convened by the Ethereum Foundation. They were tasked with exploring protocols, broadly construed, from various angles and across a range of different domains. The program kicked off with a pilot study titled *The Unreasonable Sufficiency of Protocols*: an initial exploratory survey of the major themes in the study of protocols that seemed particularly salient from the perspective of the Ethereum project.¹ Some of these concerns, while seemingly narrow—such as the prospect of “ossification” of Ethereum—nevertheless turned out to have deep philosophical implications and relevance to protocols more broadly.

The researchers, with backgrounds spanning architecture, law, game design, technology, media, art, workplace safety, and more, each attempted to tackle an open question around protocols. Their findings comprise a variety of textual and non-textual artifacts (including art works, game designs, and software), organized around a set of research themes: built environments, danger and safety, dense hypermedia, technical standards, web content addressability, authorship, swarms, protocol death, and (artificial) memory.

The program output will be published over the next 6 to 8 months in the form of a Protocol Kit which will be available both as free and open-access materials online and as a print subscription. This summary document, which we are calling a retrospectus, is meant to convey an overall sense of the research output.

1. <https://venkatesh-rao.gitbook.io/summer-of-protocols/>

Think of it as a preview or trailer for a coming year of publication activity.

In addition to publishing the Protocol Kit, we are curating a live conversation about protocols through our ongoing Protocol Townhall track of online talks and salons, featuring both Summer of Protocols researchers and guest speakers (available on our YouTube channel which already has over thirty videos).² You can also expect to see Summer of Protocols researchers talking about their work at conferences and events. To keep up with the latest developments, sign up for the Protocolized!³ email newsletter.

If you would like to invite one of our researchers to a relevant podcast or event, do reach out and we will be happy to connect you.⁴

While some program alumni already have plans to write books, build software, or create businesses based on this summer’s research, we want to invite broader participation in the study of protocols. Our goal with this retrospectus and the kit to follow is to jumpstart a wide-ranging scene and discourse around protocols spanning research, building, and creative expression. Whether you are a writer, artist, academic scholar, technologist, or entrepreneur, we hope you will find something in the Protocol Kit that leads you down the rabbit hole!

The Protocol Kit will begin shipping soon. In the meantime, we hope this collection of project abstracts whets your appetite!


2. <https://youtube.com/@protocoltownhall>

3. <https://paragraph.xyz/@protocolized>

4. For any requests or inquiries, please reach out to hello@summerofprotocols.com

Killswitch Protocols

Eric Alston, Seth Killian, and Garrette David


 **ESSAY** | Human-engineered systems have long required overrides that prevent the unchecked execution of system procedures from resulting in undesirable outcomes. In the age of complex engineered machines whose failure can predictably kill those using them, this has led to the increasingly sophisticated design of killswitches, failsafes, and overrides. Indeed, the historical emergence of these words marks the advent of exponential increase in complexity and risk in human systems.

Killswitch functions are older and more central to governance of human affairs

But killswitch functions are older, and more central to governance of human affairs than buttons or triggers on modern complex systems. Killswitch governance protocols can range from fully automated to entirely human-driven and from centralized to distributed, and feature a wide range of costs and benefits. In a world whose organizational processes are increasingly automated and distributed, killswitches are increasingly central to protocol design due to their role in ensuring true distribution of governance authority, and their concomitant vulnerability to special interest capture and attack. In this essay, we survey the history and current state of the art of killswitches for the benefit of protocol designers.

The Dangerous Side of Protocols

Nadia Asparouhova

 **ESSAY** | Protocols are frequently touted as the liberating alternative to walled technological gardens, but their historical purpose has always been to simplify decision-making and reduce human agency. How do we reconcile these two narratives? I explore the “dangerous” side of protocols, and how their ability to coordinate means they also have an ability to control us. Protocols help us accomplish more by reducing complexity, but as they become more powerful, they exert control not just via physical constraints and social enforcement, but ultimately, our internalized sense of self.


Protocols' ability to coordinate means they also have an ability to control us

Today, domains of self-expression—work, relationships, leisure, ideology—are increasingly “protocolized,” characterized by a lack of agency, which we defend as if they reflect our own desires. Reasserting control requires bringing awareness to protocols' presence in the first place, then finding ways to work subversively through—not against—their constraints.



Protocols Don't Build Pyramids

Drew Austin


 **ESSAY** | The built environment embodies an inherent conflict: The “software” of the city changes faster than the “hardware.” Even at its most flexible and adaptable, the city’s physical infrastructure is rigid in comparison to the information flows that it channels, which assume forms such as money, culture, social interaction, and even people themselves. As a middle layer between the urban software and hardware, protocols help to route and guide these flows with various degrees of success. Not all protocols work well, and the built environment is a domain where protocol failure becomes painfully obvious, particularly in the inability to accommodate change over time. But what looks like failure may also be a protocol working as intended—a phenomenon that raises questions about how protocols are designed and how they mediate dynamic systems like cities.

What looks like failure may be a protocol working as intended

Accompanying this essay is a “pattern language” (à la Christopher Alexander) that highlights protocol design as a productive means of improving and maintaining the built environment.


Composable Life: Us and Our Island

Fangting

 **GAME** | A protocol for composable memory. A generative process, culminating in an island that encompasses all (real) memories. The player must leverage a pool of “collective real memory” cards to create a brand new character (“Eve”). The player selects memory fragment cards from different real individuals, and freely arranges them to form the life memory archive of the new fictional character. The back of each memory card features a corresponding key visual landscape. The Composable Life protocol generates Eve’s “Memory Island” based on these landscape fragments. This island will visually represent all the memory landscapes of Eve’s lifetime.

Weaving Memory: How to Make a Memory Pouch


Spencer Chang

 **GAME** | According to Ursula Le Guin’s carrier-bag theory of narrative, bags were the original tool of society. They allowed us to gather and take with us not only the things we needed to survive, like food, but also the things that we *wanted* because they spoke to us. Memories may be considered the original human bag, a phenomenon that initially evolved due to its adaptive value but has since also acquired sacred ritual aspects. Our memories form the stories we tell both ourselves and the world, which makes developing methods to influence our memory an invaluable practice.

The Memory Pouch is a historical reconstruction of the devices worn by the Time Rangers of the New Time Machines Working Group (described on page 11) and a speculative DIY design for creating your own Pouch in the present day. The Pouch is a device for the wearer to memorialize the kinds of things they want to pay attention to through the collection of everyday objects. Memory Pouches offer a human-first method for memory influence by allowing wearers to cultivate their own personal practice and relationship with their different senses of memory. Wearers confront the question of what they care about, what they want to see more of, and what they think belongs in their own history.


Re-move

Nahee Kim

 **ART** | Imagine navigating memories stored on circular hard disks, much like flipping through room numbers in a building. Just as people rely on room numbers to find their way, a comparable process is used to locate specific memories on these disks by computers. In this visual narrative, to recover fuzzy memories, a character in the story enters a spiral building that looks like a stack of disks. They hold a memo with an address-like number, so try to look for a room that matches a given code. Along the way, the character is reminded of their memories through sounds and feelings related to those memories. It's akin to reliving those experiences for humans, but it also represents the journey of a computer process retrieving a memory from data storage. For this character, finding these memories is like trying to "re-move" them, but for another character next to the person, it's like sorting and organizing memories for removal, much like tidying up. The project title "re-move" illustrates the end of a synthetic being's existence through artwork, exploring how protocols of memory, death, and space can be connected in life.

The Swarm Effect: China's 2022 Covid Protests

[anonymous]


 **ESSAY** | Local protests are not uncommon in China, but the COVID protest of 2022 stood out as a rare and intriguing event due to its highly networked and oriented nature. This project takes a deep dive into the swarm behavior that characterized the protests by uncovering the underlying promise pursued by the protesters and examining how content was strategically broadcast to its audience. The project explores the network technologies that sustained the formation and the alignment technologies that oriented the swarm toward collective action. Additionally, this study provides an adversarial analysis, shedding light on how the Chinese government deployed countertactics and technologies to combat the swarm. This dual examination of both the swarm's potency and the government's response offers an enlightening view of a complex interplay between swarm and anti-swarm dynamics.

Network technologies sustained the formation that oriented the swarm toward collective action



Control and Consciousness of Time

Saffron Huang


 **ESSAY** | Timekeeping protocols, and the devices they are intertwined with, have shaped consciousness and been a primary site of control and power throughout history. Ancient Romans resisted sundials that regimented their days; British imperialists used loud clock towers to assert dominance in colonized lands. Attitudes toward timekeeping acquired moral dimensions, as temperance and self-discipline became linked to obeying clocks. The materiality of timekeeping devices also influenced how humans experienced time, from rhythmic ticking to continuous burning incense.

“Good” protocols constrain in order to liberate

Over centuries, Western clock time diverged from natural cycles, prioritizing mathematical regularity over ecological responsiveness. Today’s pervasive minute-by-minute timekeeping supports industrial civilization but strains against human biology, enabling complex collective endeavors while also exerting control over individual lives, and ironically giving up control over nature. I hypothesize that “good” protocols constrain in order to liberate, but assessing a protocol’s net benefit is complex, subjective, and ever-shifting. Timekeeping protocols may need to evolve and become more diverse, to enable rather than overly control modern lives, but the deep entanglement of timekeeping with consciousness and power throughout history suggests any changes will reshape society in ways hard to foresee.

Good Death

Sarah Friend

 **ESSAY** | Good Death looks at the end-of-life process for worlds. Worlds are what grows on a protocol when a protocol lives, though they can grow on other substrates, including games, social media platforms, and other communal spaces. The core thesis of this essay is that the death of a world is a decision-making process with a duration, rather than an atomic event, and that a clearer understanding of mortality in a protocological context can improve archiving processes and memorialization. By considering their death, we can better understand what constitutes the life of these worlds. Looking at examples ranging from eulogies spoken over dead video games, to the effects of automatically-deleted posts on 4chan, to the history of how human death was diagnosed, we will ask in particular what a good death looks like in decentralized world contexts, such as blockchains and DAOs.


The death of a world is a decision-making process with a duration

The essay is accompanied by a taxonomy of possible protocol-deaths and a series of proposals for how to kill worlds.

Japan has experienced a technological evolution from platforms to protocols

Protocolizing Theory and Theorizing Protocols


Brett Fujioka

 **ESSAY** | Social media platforms and humanities academia have been undergoing a simultaneous legitimation crisis with intriguing parallels. This is not surprising, since the humanities, in recent decades, have come to be dominated by a platform-like intellectual edifice generally known as “Theory” (a catch-all term for theorizing and criticism of contemporary society in Postmodernist modes). Protocol media, arguably, are key to rejuvenating and relegitimizing both. Going the other way, in their current early stage of development, protocols can also benefit from insights from both Theory and the recent history of culture wars on social media platforms. In this narrative bibliography, we explore how that might happen from an unusual angle: the experience of Japan as a “harbinger state” that has already, to some extent, experienced a technological evolution from platforms to protocols ahead of the rest of the world, and a parallel evolution in Theory.

Standards can become enabling technologies, like the internet or shipping containers

Standards Make the World


David Lang

 **ESSAY** | Technical standards are the quiet rules that give shape and direction to civilization. Alongside private organizations and public institutions, standards bodies form a third and critical function in modern society. When they’re well designed, standards can become enabling technologies, like the internet or shipping containers. Studying the past two centuries of standards-making helps make the process more approachable and useful. *Standards Make the World* is equal parts history lesson, personal narrative based on the case of the Bristlemouth connector standard, and guidebook for creating disruptive new standards.



Addressable Space

Chenoe Hart

 **ESSAY** | Digital information is encoded in the built environment all around us. It emerged prior to the advent of electronic computing in the 18th and 19th centuries, when the development of building floor numbers, street addresses, and enclosed interior rooms associated with names or numbers all mapped physical space according to discrete and arbitrary sets of data. That data was detached from geography, similarly to how computers address abstract locations when they recall information from physical memory. This essay explores this parallel between computers and built environments, and its consequences for the latter.


Today we increasingly use computers to help us travel through the physical world via many of those same sets of abstract information. As a result, that information is increasingly capable of being manipulated to tell us selective stories about where we can go. A computer can determine what floors an elevator can reach, while a delivery app or a cloud kitchen can conceal where our food comes from. In this emerging era of ubiquitous computing, literacy around addressing protocols for physical and digital spaces can help us recognize and discuss the computer's specific ageographical affordances for comprehending the built environment. This essay aims to catalyze such literacy, to foster a better understanding of what happens when computers log on to our physical world.

The essay is accompanied by a set of annotated diagrams exploring the digital aspect of built environments.

A computer can determine what floors an elevator can reach; a delivery app can conceal where our food comes from

Artificial Memory and Orienting Infinity

Kei Kreutler

 **ESSAY** | Four hundred years before the term artificial intelligence emerged, debates about the development of "artificial memory" stirred. In contrast to natural memory, artificial memory involves using aids to help us remember. It represents a procedural, protocolized approach to recollection.

Today, memory can't escape metaphors from computing, but this isn't totally new. Historically, the popular understanding of memory has always mirrored the technology of its time. This essay explores the historical development of artificial memory, from the method of loci to transistors and from shipping warehouses to community lore. Building upon this backdrop, the essay proposes a framework that aims to move beyond existing metaphors for memory and understand how it really operates in the world. Building on this, the essay concludes with an exploration of the idea of memory as orientation: a nascent sensibility for navigating a world that increasingly seems to consist of memory all the way down.

This essay is a prelude to a book in progress to be titled *Artificial Memory*.

An exploration of navigating a world consisting of memory all the way down

Exit to Protocol: A Future After Retirement

Shuya Gong

✂️ **TOOL** | Protocolization of an individual's work, the weaving of individual protocols up to a team level, and the zoomed-out view of an organization as a system of protocols push at the basic premises that we have around what intellectual ownership and value capture means in knowledge work. This exploration and tool facilitates an “exit to protocol” ritual for a team or working group—a dissection of the day-to-day processes and rituals that make up a latent set of productivity protocols in order to surface and preserve the value a role or organization created throughout its existence as it starts to sunset.

Fans of David Graeber and Nathan Schneider will recognize themes from *Bullshit Jobs* and *Exit to Community* around realigning incentives in the future of work(ers). Where do invisible protocols account for creating value in the workplace? How do we welcome the finality of retirement with the potential of rebirth? Where does the value of a protocol go when it isn't in use?

Four Doors: A Portal to Sacred Memory Protocols

Aaron Z Lewis

📄 **ESSAY** | The protocols of sacred memory are carved in stone. Four Doors is an architectural mnemonic—a collection of portals to my research on monastic memory practices. It's inspired by the Latin inscriptions above the four doors of the seminary-turned-hotel where Summer of Protocols researchers met for our in-person retreat. Medieval monasteries were high-tech “machines for thinking.” They functioned as an extension of the monks' minds and played an important role in their memory protocols. Four Doors invites you to step through each entryway, into a room full of reflections on what happens when we become the buildings we behold.

The Death and the Death of Orkut, a Case Study

Alice Noujaim

📄 **ESSAY** | This case study presents the fall of Orkut, a pioneering social network that once dominated the cyberspace of Brazil. The study emphasizes the role of Orkut's forum-like communities as platforms for collective interactions and experiments with new social protocols that shaped the Brazilian digital landscape of the 2000s. Contrasting the careful protocols for handling the platform's deactivation with its associated Community Archive's abrupt ending, the study highlights the challenges of preserving digital history. Despite its disappearance, Orkut's influence persists through fragmented online traces and vivid personal recollections, offering some insight into the intricate relationship between digital spaces, protocol death, and collective memory.



New Time Machines

Aaron Z Lewis, Kei Kreutler, Alice Noujaim, Nahee Kim, and Spencer Chang

✧ FICTION | Welcome to the New Time Machines Working Group! We're an agency that designs and develops memory protocols for aspiring time travelers. For ages, the arts of memory were rigorously developed and passed down from generation to generation. But in this era of digitally-mediated memory, the protocols that augment our natural capacity to remember have fallen by the wayside. The New Time Machine Working Group's memory kit provides exercises, products, and practices that allow time travelers to revisit people and places no longer present. Memory protocols are not just about storage and recitation. They matter because they help us orient in the seas of our stories—they help us curate the collective lore that glues communities together. Ranging from low-tech objects to never-before-seen devices, our new time machines bring ancient memory protocols to modern memory artists.

Memory protocols help us orient in the sea of our stories

The Swarm and the Formation

Rafael Fernández

📄 ESSAY | On the internet, we are part of *swarms*: networks of people, bots, and content, coordinated through algorithmic feedback loops. Swarms are harbingers of misinformation, heralds of mutual aid, and representatives of the public will. Swarms are networked tempests of humans and information. Most importantly, they can act collectively without explicit coordination protocols; they are *minimally protocolized entities*.

Swarms are networked tempests of humans and information

In this essay, we explore specific cases of swarms such as the mutual-aid response to the devastating Hurricane María to uncover the unique methods of collective action they embody. We also contrast swarms with their natural online complement: *formations*. Formations are groups like memetic tribes and online communities that do have explicit protocols shaping collective action, distinguishing them from swarms. We conclude by exploring a key question: How do we steer swarms?

The essay is accompanied by a piece of design fiction: an onboarding document for Flow, a speculative software product with features to support swarm-like coordination.

Protocolized Economics

Steve Powers


📄 ESSAY | Protocols guide and shape a staggering amount of human effort and resources and are coming to be embodied by increasingly sophisticated technologies. The next economic models must expand beyond agents, firms, and institutions to include protocols as a new class of economic actors. The death of descriptivism in economics and the need to solve incomprehensibly complex problems motivate the need for protocols as a core consideration in novel "engaged models" that recognize their own impact. Protocols are a mechanism of cooperation for traditional actors but emerging technology is enabling protocols to be actors themselves. This essay explores the emerging frontier of protocolized economics.

Economic models must expand to include protocols as a new class of economic actors

Instead of asking what happens if it all goes wrong, I pose the question, what if it goes right

Field Notes to Build New Worlds


Rithikha Rajamohan

 **ESSAY** | This six-part work of speculative fiction set in the year 2065 is told through the lens of a journalist reporting on the City of Vancouver, BC, three decades after its transition to protocolized governance. Though many definitions of a protocol have been offered, for our purposes protocols are defined as encouraging a set of behaviors that when adopted by a sufficient number of participants in a situation, reliably leads to good-enough outcomes for all. The series takes some of the discussions we've had during this journey and follows those threads along a half-lit path into the distant future. Though imaginary, the stories are deeply grounded in past and present knowledge, fusing them with what we might expect to see. Here, speculative fiction is used as a vehicle for hope; its purpose is to explore the roads we might take, how we might build them, and share them in a grounded vision of what we are moving towards. Instead of asking what happens if it all goes wrong, I pose the question, what if it goes right? It's a question we rarely ask and a scenario we often don't dare allow ourselves to imagine

The Unreasonable Sufficiency of Protocols

Venkatesh Rao, Tim Beiko, Danny Ryan, Josh Stark, Trent Van Epps, and Bastian Aue

Our goal was to offer a set of initial provocations about protocols


 **ESSAY** | In this pilot study (previously published in draft form), which served as the initial provocation for the Summer of Protocols, we aimed to capture the gist of the preliminary conversations that led to the program. We also aimed to establish a minimal common-ground foundation for program researchers, including a rough working definition of protocols, and an initial inventory of salient characteristics and phenomenology deserving of further research. Our goal was not to provide definitive answers, or even identify a comprehensive set of important questions, but only to offer a set of initial provocations. As we expected, over the summer, researchers critiqued, challenged, and expanded upon the ideas in this study. They also raised and explored many fascinating questions that did not occur to us to ask.

In this ex-post version of the essay, we provide an updated account of our initial ideas, informed by the program output. While we have not attempted to speak to all the critiques and challenges, or expand the scope to accommodate all the fascinating new ideas that were explored over the summer, we have attempted to make the study a more useful and enduring trailhead for the overall space of ideas. It is a space that has now become much more fully explored and mapped thanks to the progress made over the summer, but despite that progress, the greater proportion of the subject remains unexplored. We believe this essay will remain a useful introduction to the subject, and a servicable starting point for continued explorations.



Dangerous Dating Protocols


Shreeda Segan

 **ESSAY** | Throughout the centuries, successful dating and coupling has always relied on protocols, from arranged marriage to courtship to swiping on dating apps. These protocols have evolved along with technology and culture. In the West, however, swipe-based dating app protocols now occupy a “protocol monopoly.” Hinge, Bumble, Tinder, and other apps have all instated a swipe protocol, despite being differentiated in terms of branding and target audience. Despite numerous attempts to engineer alternatives, no other dating protocol has sufficient market liquidity to meaningfully compete with swipe-based apps. The widespread adoption of swipe-based apps is problematic due to the protocol’s problems and failure modes: it enables ghosting, suffuses the entire dating app ecosystem with a general mood of canned, non-unique messages (and, thus, boredom), and favors users its algorithms deem most attractive. Even when users successfully match, the matches seldom translate to dates, let alone relationships. In fact, the swipe protocol exhibits many of the undesirable qualities outlined by Nadia Asparouhova in her essay on the dangers of protocols. Why has this protocol monopoly come to dominate the market? What might alternative, perhaps decentralized, dating protocols look like?

Swipe-based dating app protocols now occupy a “protocol monopoly”

Protocols in (Emergency) Time

Olivia Steiert

 **ESSAY** | Temporality is a fundamental aspect of all protocols. To more fully explore the temporal underpinnings in the projects pursued during the Summer of Protocols, I conducted interviews with the core researchers in the program. Based on a comparative analysis, I propose three strongly formulated theses: first, protocols emerge out of and in response to moments of crisis and uncertainty; second, they contain contradictory tendencies of facilitating change in behaviors on the one hand, while aiming to routinize and conserve contexts on the other; and third, while they try to make the future manageable, they inherently lack goal-orientation toward the future.


How and when do protocols enable innovative agency?

I attempt to examine the implications of these theses for the deployment of protocols in tumultuous conditions by posing the following questions: How and when do protocols enable innovative agency? When do protocols adhere to conventions, optimize continuous flow, or enact emergency measures?

Technological progress and increasing complexity constantly creates new hazards

Safe New World


Timber Schroff

 **ESSAY** | It's a dangerous world out there. Technological progress and increasing complexity constantly create new hazards. Our first line of defense is protocols, which I define as intentional patterns of constraint on human behavior. How do these patterns develop? This essay derives a theory of protocol evolution from historical improvements in workplace safety, and explores what factors drive protocol selection as a technology matures. Understanding this evolutionary history of protocols, we argue, is increasingly essential for solving real-world problems associated with complex technologies that mature over long periods.

The associated *Self-Ensured Card Collection* is a twelve-suit deck that teams can use to enhance the health ergonomics of their workplaces. It includes protocols for movement, office design, nutrition, stress management, and company norms. Play *Self-Ensured* with your team, a coworker, or solitaire-style!

Virtual Structures


Laura Sinisterra

 **FICTION** | Unbuildable structures have the capacity to make visible what it is not possible to see in the real built environment. By composing structures impossible to recreate in the material world of architecture, I explore the virtual and abstract components of physical spaces and how different layers of information interact with each other. As Giles Deleuze observes: "the virtual is not opposed to the real; it possesses a full reality by itself." My aim with this project is to make visible the relations and connections of the real and logical aspects in the architectural practice through a set of isometric drawings. Through these drawings I explore and attempt to discern the unstated set of rules that can create buildable complex buildings in architectural practice.



Unprotocolized Knowledge

Kara Kittel and Toby Shorin

 **ESSAY** | Overabundance of information and a highly educated public have enabled an explosion of internet-based infotainment, amateur science, and crankery. Theories about the dangers of seed oils are one example. These theories have gained significant traction, yet have not been clearly adjudicated by the scientific establishment. This dynamic is frequently labeled a condition of “post-truth,” but we see these phenomena as paradigm shifts playing out over an expanded social field. Cases like these expose the limits—and perversions—of the official protocols for legitimating knowledge.


New roles and processes are emerging to turn internet fascinations into credible knowledge

Knowledge protocols like peer review have evolved to enable vast amounts of information to be validated, but further development is required to process the information behaviors the internet has enabled. Specific recent cases, like the LK-99 room-temperature semiconductor replication craze, as well as broader trends like bloggers working to refute fraudulent academic publications, illustrate how new roles and processes are naturally emerging to turn internet fascinations into credible knowledge. This essay examines how protocol thinking might help expand who gets to participate in knowledge production and increase the speed and certainty of developments in science.

The essay is accompanied by our knowledge protocols personality test, which sorts you into different roles and niches in the internet knowledge production ecosystem. Are you a feral scholar? A paradigm refugee? Puzzle Solver? Psyop victim? Learn more about how you can participate in evolving knowledge protocols via our roasts and recommendations.

A Phenomenology of Protocols


Janna Tay

 **ESSAY** | Protocols are often viewed or articulated through an instrumental lens—their purpose seen as the means to an end. However, this conception fails to account for the way protocols alter how a participant thinks and acts beyond just giving behavioral direction. Taking a cue from phenomenological methods which examine objectivity through subjective experience, this essay argues that protocols encourage particular states of being in human participants, and through these states can impair or enhance our ability to pursue human flourishing. Deciding whether to implement a protocol and how to do it becomes, therefore, a moral question—one that is not answerable merely by reference to a protocol’s effectiveness and efficiency in moving towards its immediate goal, but requires taking into account the effect on the individual participant. The hope is that we will design and wield our protocols with greater purpose: as a means to an end and, perhaps, as an end in themselves.

Protocols can impair or enhance our ability to pursue human flourishing

Retrofitting the Web

Dorian Taylor

 **ESSAY** | Hypertext, which we generalize as *hypermedia*, is text plus links: an extra degree of freedom to move around, other than starting at the beginning and reading to the end. By this definition, the ubiquitous

Truly dense hypermedia entails being able to reliably point to a very large number of very small objects

World Wide Web is a mediocre specimen. True, the Web is a cosmopolitan system of unprecedented scale, with instantaneous global reach, that is characteristically easy to deploy and extend. *Hypermedia*, however, is nothing without links, and the Web's links are *brittle* (they routinely break), *one-way* (you can see links out but not links in) and *untyped* (anemic support for telling what a link *means*). This results in big clumsy documents with few if any links (that often go nowhere), no backlinks, ambiguous, ad-hoc data semantics, and poor reuse of content. The sparsity of the Web, as it comes off the shelf, means:

- Readers have to read a lot per unit of information gleaned
- Authors need to maintain separate documents for distinct audiences
- Developers have to continually reinvent the same basic functionality
- Information duplicates and goes stale, causing people to be misled


All these points aside, this bias spells a missed opportunity for building out an entire universe of creative expression.

Not only are there copious practical reasons for addressing these issues, doing so would dramatically boost the Web's capacity for communicating complex ideas, making subtle arguments, and fostering innovative methods of storytelling. Turning the Web into truly *dense hypermedia* entails being able to *reliably* point to a very large number of very small objects, and doing that in turn means designing a system—a protocol—for maintaining the stability and continuity of the addresses (URLs) exposed.

This project demonstrates a dense hypermedia system, both as a piece of software to use as a substrate for making websites with fundamentally different dynamics, as well as a reference implementation for others to adopt into their own systems.

The Protocol System Experience

Angela Walch

 **ESSAY** | A protocol system emerges when a group of people acts in relation to a protocol (a set of rules, laws, norms, standards, traditions, etc.). This broad category includes nations, religions, professions, families, blockchains, and most other group activity, making protocol systems foundational, all-encompassing features of human life.


A conceptual framework for the experience of an individual participant in a protocol system

Focusing solely on the system level, however, means we can miss what it feels like to be a person in a protocol system. This essay looks at the experience of an individual participant in a protocol system—how they enter, perform a role, and make decisions about their future within (or outside of) it. Is the role a good or bad fit? Do they have enough knowledge about the system to make meaningful choices? What kinds of common archetypes will they encounter along the way? Are they even aware they are participating in the protocol system? Grappling with age-old philosophical questions of consciousness, agency, power, and change, the essay presents a conceptual framework for the protocol system experience, and challenges readers to examine the protocol systems in their own lives.



Protocol Party

Mashal Waqar


 **GAME** | Seeing the world through the lens of protocols has completely changed how I navigate it. Realizing how “protocolized” I was, it was difficult not to use this language in everyday context. This project aims to make the protocol perspective accessible to everyone. Inspired by Angela Walch’s *The Protocol System Experience* essay, I created a choose-your-path style card game designed to explain the concepts in the essay to friends IRL.

Picture this: you’re playing a game with your friends—it’s a safe setting, so you don’t mentally have your guard up. You’re navigating various social situations in the context of a dinner party in Dubai. Through the game, you gain insight into your cultural tendencies and how you handle interpersonal situations. Instead of randomly being assigned a persona as in most games, you discover your *protocol persona* based on the answers you choose. The Protocol Party game is a starting point for your protocol journey.

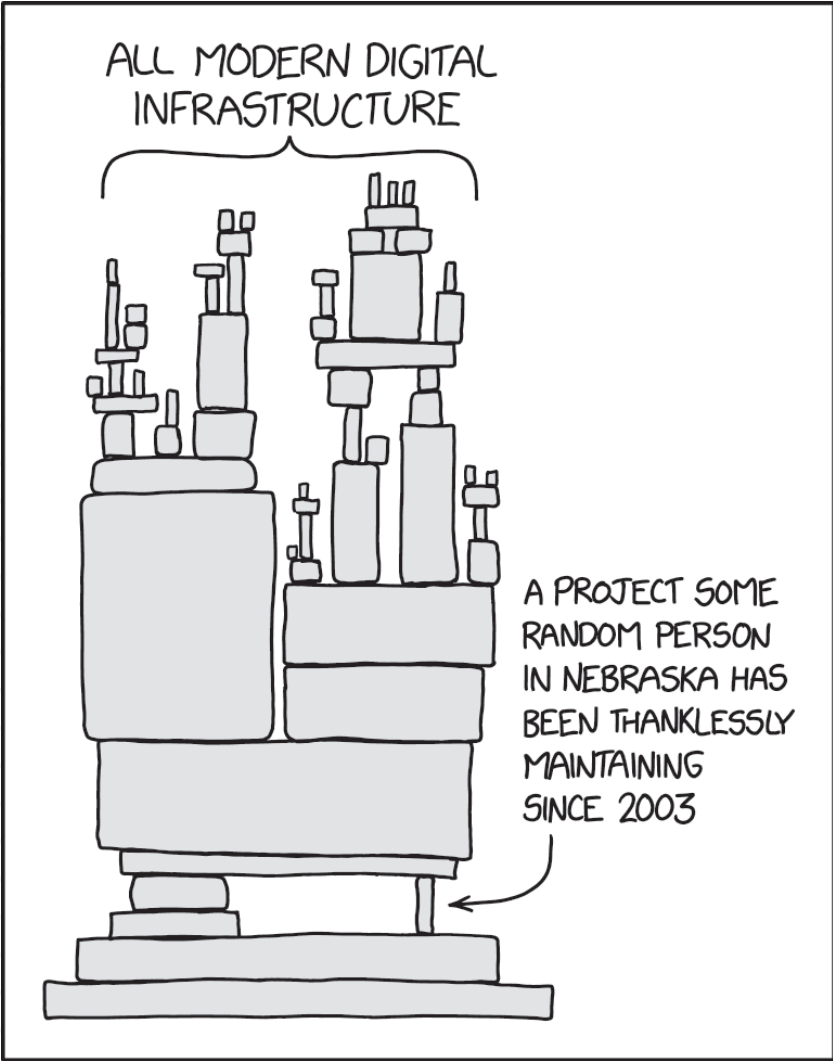
Protocols can “learn” through AI agents enabling predictions and insights

Protocol Oracle

Jinzhou Wu

 **ESSAY** | Successful protocols must be “sufficiently evolvable,” yet predicting their ultimate fate—be it ossification, calamity, or continued development—is currently difficult. Two promising developments suggest a way to build protocol oracles that can address this difficulty. First, recent advances in blockchain smart contracts have enabled the strict encoding of governance protocols into executable code. Second, generative AI has introduced new, risk-free agents into society, which can mimic human behavior within organizations. This project aims to simulate the evolution of governance protocols, especially democratic ones in which participants actively influence the evolution, with ChatGPT instances as the agents. Drawing inspiration from upgradable smart contracts in crypto, AI agents are provided with an initial protocol encoded into a procedure, and a set of callable functions that represent available actions. Like traditional machine learning, which adjusts model parameters based on labeled input data, protocols can “learn” through AI agents’ conversations and decisions, enabling predictions of end results, insights from failures, and the adoption of successful strategies.

Code associated with this study will be released as an open-source Github repository.



Dependency ("Someday ImageMagick will finally break for good and we'll have a long period of scrambling as we try to reassemble civilization from the rubble."). <https://xkcd.com/2347/>

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ProtocolKit



RETROSPECTUS



NEWSLETTER

