

Dark Forest:

Lessons from 3 years
of on-chain gaming

gubsheep, 0xPARC

> df





I'm gubsheep

- Worked with the [Ethereum Foundation](#) since 2018 on education, community, and applied ZK R&D.
- Created [Dark Forest](#) and spent 2019-2021 building it with Ivan Chub, Alan Luo, Brice Huang, Robert Cunningham, ...
- Currently working on applied ZK R&D and other applied crypto experiments at [0xPARC](#).

> df



Today's Talk

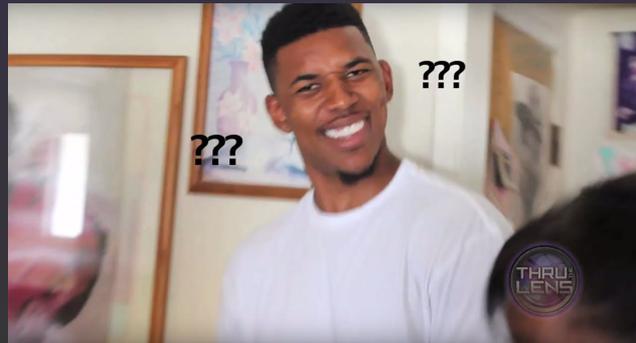
What can projects like **Dark Forest** teach us about innovation in crypto broadly?

Today's Talk

Dark Forest is a **decentralized MMORTS** game
built with **zkSNARKs** on **Ethereum**.

Today's Talk

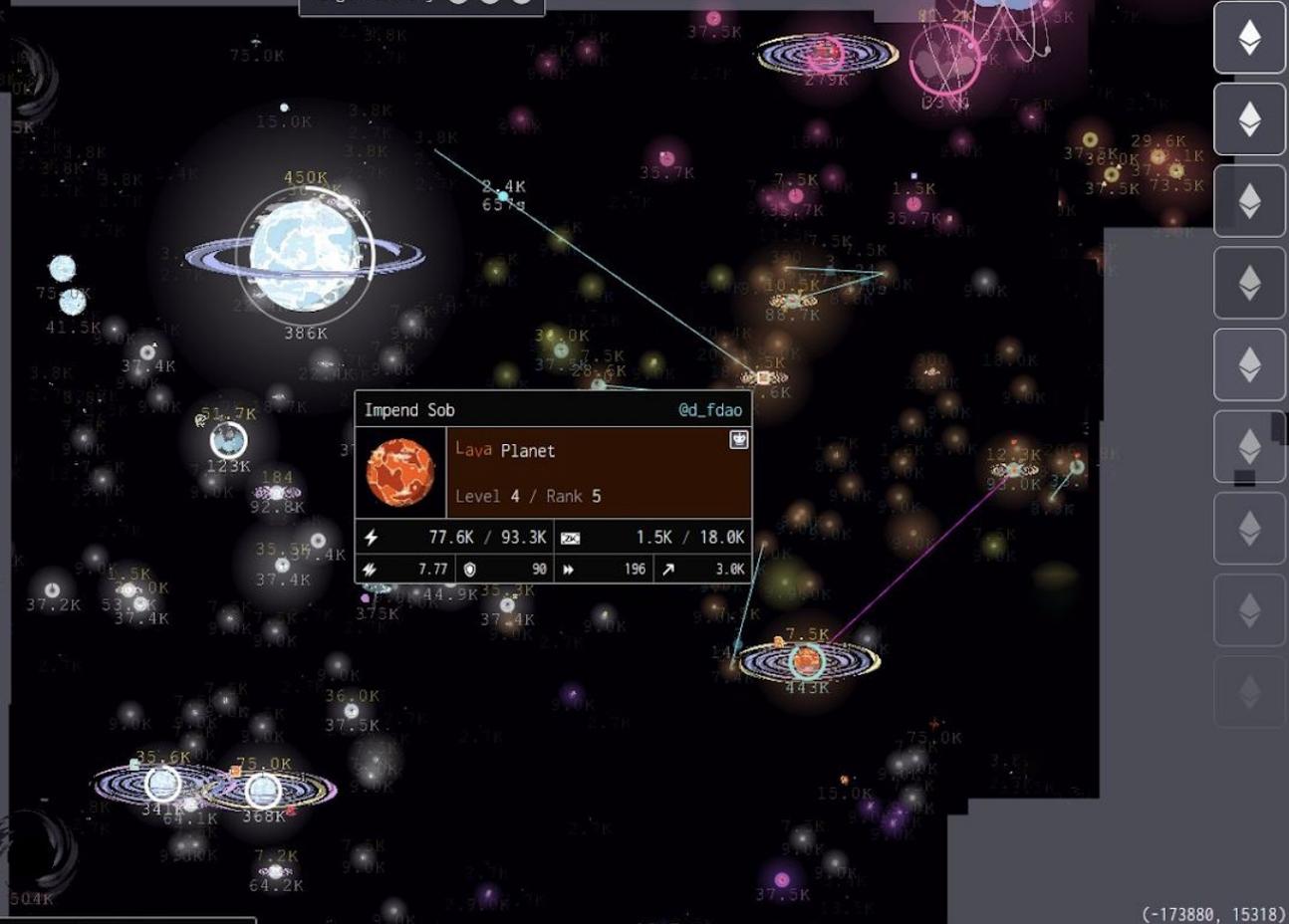
Dark Forest is a **decentralized MMORTS** game built with **zkSNARKs** on **Ethereum**.





Plugin Library ? + x

heatmap + x



Impend Sob @d_fdao

 **Lava Planet**

Level 4 / Rank 5

⚡	77.6K / 93.3K	📧	1.5K / 18.0K
⚡	7.77	📧	90
▶▶	196	↗	3.0K



[TX CONFIRM] PLANET_TRANSFER transaction (0x [xec4b](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [d8c9](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xd8c9](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [a6fb](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xa6fb](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [07b0](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [x07b0](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [bf57](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xbf57](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [ee97](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xee97](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [a5bc](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xa5bc](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [2c91](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [x2c91](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [d9e1](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xd9e1](#)) confirmed.

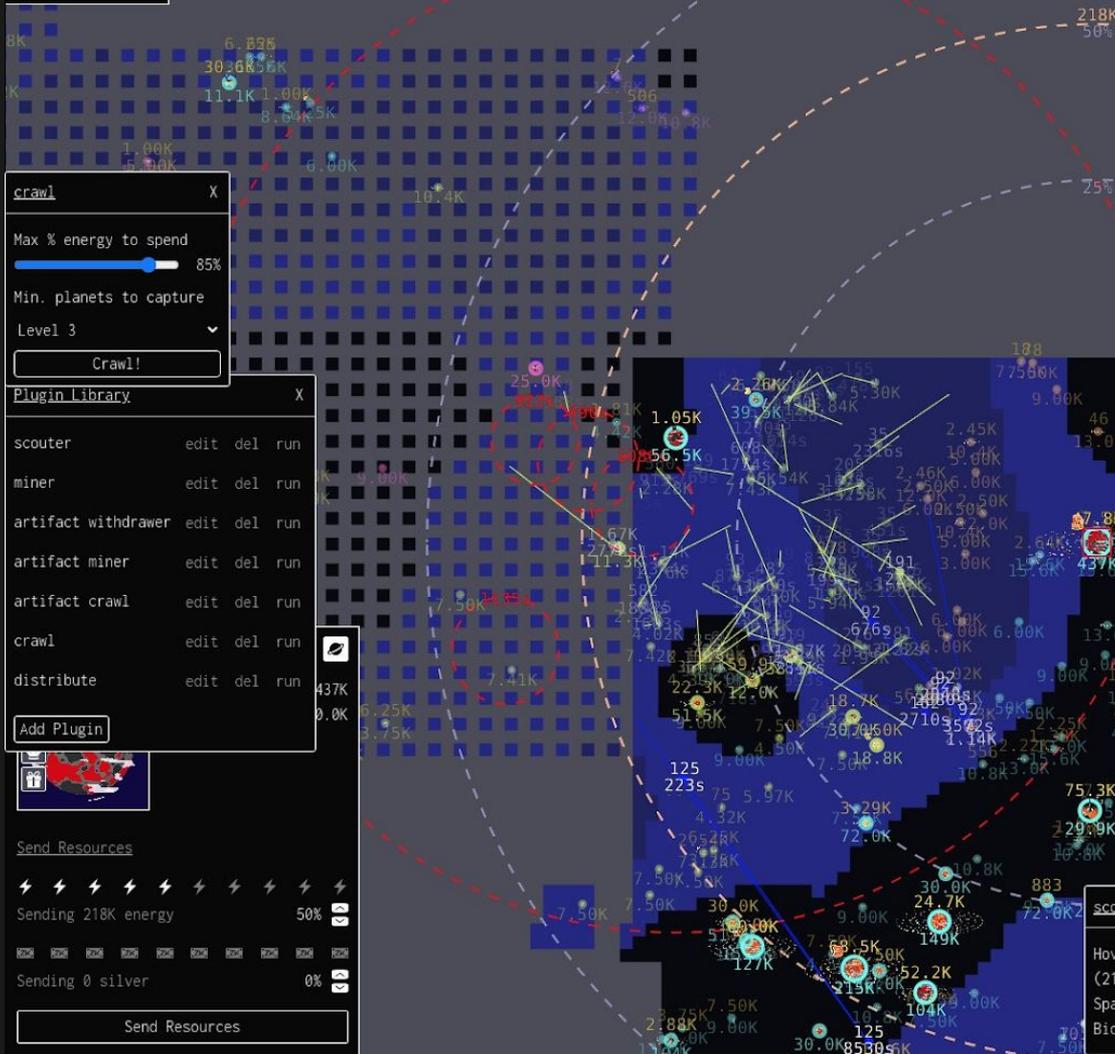
[TX SUBMIT] PLANET_TRANSFER transaction (0x [d9ec](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xd9ec](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [ba4d](#)) submitted to blockchain.

[TX CONFIRM] PLANET_TRANSFER transaction (0x [xba4d](#)) confirmed.

[TX SUBMIT] PLANET_TRANSFER transaction (0x [07a4](#)) submitted to blockchain.



crawl X

Max % energy to spend
 85%

Min. planets to capture
 Level 3

Crawl!

Plugin Library X

scouter	edit	del	run
miner	edit	del	run
artifact withdrawer	edit	del	run
artifact miner	edit	del	run
artifact crawl	edit	del	run
crawl	edit	del	run
distribute	edit	del	run

Add Plugin

Send Resources

⚡ ⚡ ⚡ ⚡ ⚡ ⚡ ⚡ ⚡ ⚡ ⚡ ⚡ ⚡

Sending 218K energy 50%

🏠 🏠 🏠 🏠 🏠 🏠 🏠 🏠 🏠 🏠 🏠 🏠

Sending 0 silver 0%

Send Resources

hcb90 Sneeze Callous - Planet X



⚡ +80% 437K / 437K
 🏠 47.8K / 90.0K
 ⚡ x2 +80% 40
 ➡ -30% 3.10K
 ⏪ -30% 117
 ⏩ -30% 78

Owner 0xb05d95422bf8d5024f9c340e8f7bd696d7ee3a9
 Location 0x0000bcb9000322e25357094ea33235b4834...05
 Celestial Body Level 7 Wasteland Planet
 Planet Rank Rank 5 (Galactic Stronghold)
 HAT None
 Artifact Pillar of Ek'sharrj
 Silver to Next Rank 60175

Captain's Log

A pleasant, elastic biosphere.
 Cliffs stretch across the view as far as a bear can walk. The atmosphere is cold. Flowers spread over the land. An uncannily human-like species of biped fill the ocean. The soil is



scouter X

Hovering over:
 (21687, 17039)
 Space: Deep Space
 Biome: Wasteland

miner X

http://0.0.0.0:8000/mine - 3872 hashes/sec
 http://192.168.1.11:8000/mine - 1303 hashes/sec

URL for explore server Spiral **Explore!**

Today's Talk

Dark Forest is a **decentralized MMORTS** game
built with **zkSNARKs** on **Ethereum**.

Dark Forest started
as a pie-in-the-sky experiment

“Let’s build a ZK game where every WASD
move triggers a transaction and a zkSNARK
proof on-chain”

A lot has happened since!

- 10k+ players from around the world have participated in Dark Forest rounds, running entirely on-chain
- Trillions of gas used on Ropsten / xDAI / Gnosis Chain
- Rich developer ecosystem: plugins, alternate clients, GPU miners, player corporations, data marketplaces, chain analysis tools, and more
- Epic on-chain dramas featuring deception, betrayal, universe-wide alliances, ...

A lot has happened since!



willchang.eth | WLD Show Podcast
@wiichang

...

Move over Star Wars.

What happened this past round of Dark Forest has to be the most epic space saga of all time.

Bitter Rivals. A Dream of Glory. Betrayal. Redemption.

Here's the story [📖](#)

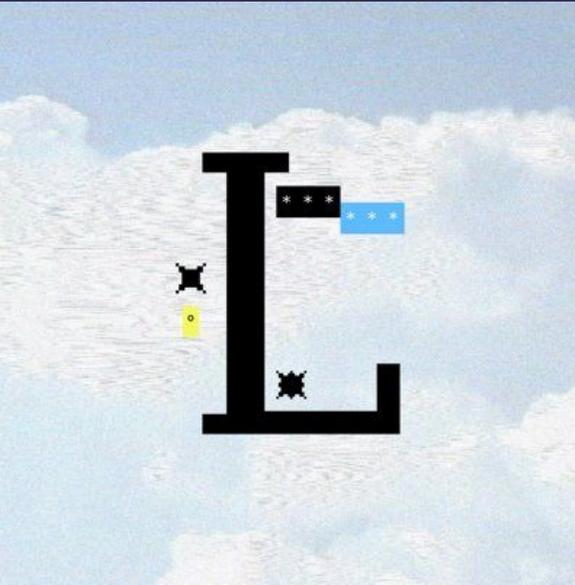


dfdao and ordenGG have agreed to a diplomatic draw in Dark Forest v0.6.5

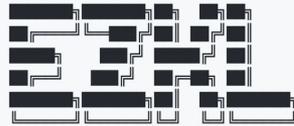


A lot has happened since!

Today: a thriving ecosystem of “next-generation” application R&D, in the broader 0xPARC community



[*]



Easy Zero Knowledge for Neural Networks.

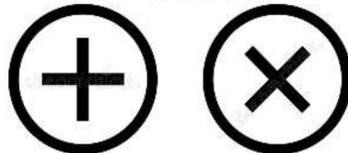


$$\begin{matrix} = & + & \int & K \\ & & & \\ Z & & & \times \end{matrix}$$

ZK × ZK

zkSNARK circuits for crypto primitives

Ecne



QUESTION 1

Why build games
on the **blockchain**?

REASON: Permissionless Interoperability

Dark Forest is an Ethereum **smart contract**, which anyone (player, bot, or smart contract) can interact with programmatically.

Client-side plugins

v0.6.0 Utilities

Towards Center



when you choose one planet :), you can make it towards center.

v0.6.0 Utilities

Scoring Planets

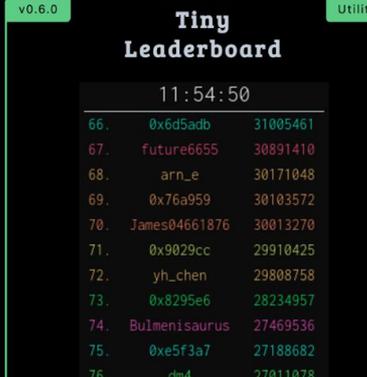


Planet	Level	Score
1. Society Spang	3	0
2. Beautifully Sedate	5	681
3. Apply Place	3	851
4. Cloave Rate	3	1270
5. Marble Far	3	1500
6. Actor Beweath	4	1713
7. Enchanting Hydrant	3	1787
8. Bandy Preserve	3	1805
9. Annoyed Berserk	3	1873
10. Emerald K111	3	2030
11. Trust Leather	3	2080
12. Resolve Slush	3	2186
13. Miss Lick	3	2189
14. Ill-fated Vacation	3	2149
15. Loom Spring	3	2211
16. Drive Testy	3	2278
17. Rebel Corrad	3	2462
18. Grade Hare	3	2471
19. Peace Giant	3	2568
20. Prosperous P... (truncated)	3	2600

See the top scoring planets within your vision

v0.6.0 Utilities

Tiny Leaderboard



11:54:50

66.	0x6d5adb	31005461
67.	future6655	30891410
68.	arn_e	30171048
69.	0x76a959	30103572
70.	James04661876	30013270
71.	0x9029cc	29910425
72.	yh_chen	29808758
73.	0x8295e6	28234957
74.	Bulmenisaurus	27469536
75.	0xe5f3a7	27188682
76.	dm4	27011078

Shows a tiny leaderboard with timer

v0.6.0 Productivity

Remote Snarker



```
Remote Snarker
https://snarker.onrender.com/move | busy: 0.00 | 5.00s/snark | 17 Snarks Calc'd
[input field] Add
```

Speed up snark computation using servers.

v0.6.0 Casual

Heatmap



Heatmap X

Planet Range: 15%

Gradient Alpha: 0

Global Alpha: 0.5

Highlight territories around you!

Third-party client implementations

gakonst / dark-forest

Watch

5

Code Issues 1 Pull requests 1 Actions Projects Wiki Security Insights

master 3 branches 0 tags

Go to file

Add file

Code

About

[WIP] Rust implementation of the Dark Forest game client

rust cryptography ethereum dark-forest

Readme

Releases

No releases published

Packages

No packages published

Contributors 3

-  **gakonst** Georgios Konstantopoulos
-  **kobigurk** Kobi Gurkan
-  **mattsse** Matthias Seitz

gakonst Merge pull request #13 from mattsse/misc f441ea5 12 days ago 117 commits

.github/workflows	ci: do not double run tests	14 days ago
abis	fix: update abis	17 days ago
contracts	feat: add smart contract account scaffolding	2 months ago
crates	rustfmt	12 days ago
scripts	feat: add abis and codegen for bindings	2 months ago
test-vectors	fix: off by one error in threshold calc + more tests cases	2 months ago
.gitignore	feat: add abis and codegen for bindings	2 months ago
Cargo.lock	chore: update deps	14 days ago
Cargo.toml	simplify members	12 days ago
README.md	docs: add readme for cli	14 days ago

README.md

dark-forest.rs

Automations and bots



nick.eth @nicksdjohnson · Aug 16



Weekend project: A [@darkforest_eth](#) AI.

So far it attacks planets, distributes silver, upgrades planets, and prospects and finds artefacts.

Still on the todo list is distributing energy. Figuring out how to allocate and use artefacts will be tricky though.

```
Rose Sleepy (L4R0)      Sending 27000 silver to Oatmeal Breathe (L5R0)
Six Hiss (L4R0)        Sending 14250 silver to Oatmeal Breathe (L5R0)
Fog Resell (L4R0)      Sending 25471 silver to Onerous Jaded (L5R2)
Jail Amuck (L4R0)      5% to prospect
Changeable Ludicrous
(L4R0)                 Capturing Redo Convince (L5R0) with 28125
Measly Depend (L4R0)   12% to attack Redo Convince (L5R0)
Daffy Sneeze (L4R0)   10% energy to send silver to Fold Rapid (L3R0)
Otter Button (L4R0)    30% energy to send silver to Fold Rapid (L3R0)
Harbor Country (L4R1)  89% to attack Redo Convince (L5R0)
Bridge Convince (L4R0) 34% to attack Redo Convince (L5R0)
Lose Jail (L4R0)       Capturing Rhythm Snap (L4R0) with 34771
Childhood Partake (L4R2) 91% to attack Rhythm Snap (L4R0)
```



9



12



85



Tip

New core gameplay features

Project Sophon

Twitter GitHub

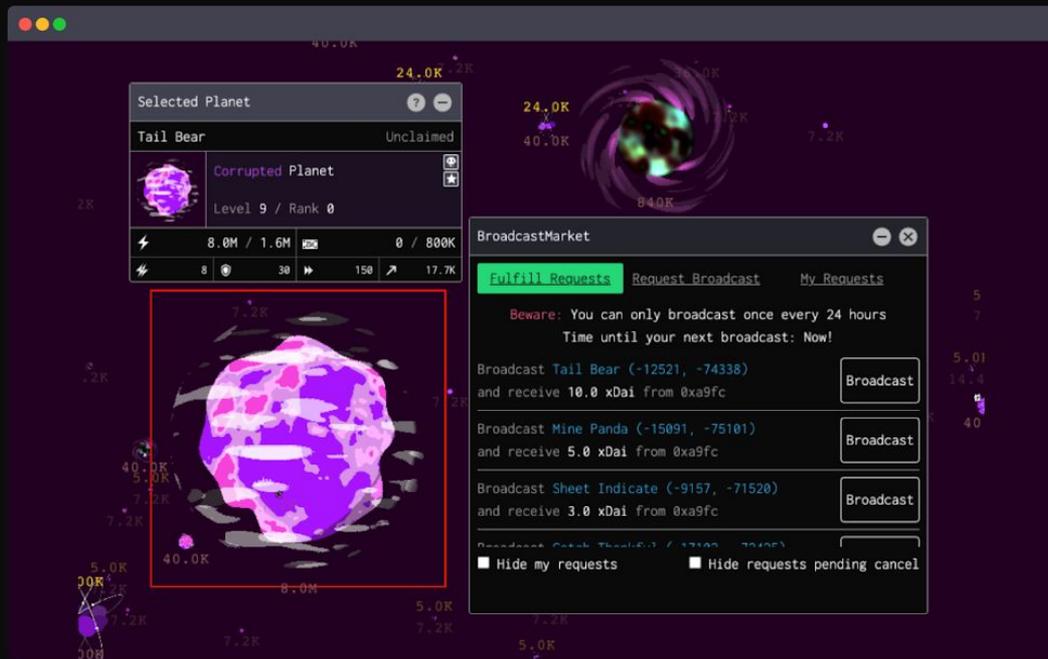
Broadcast Market

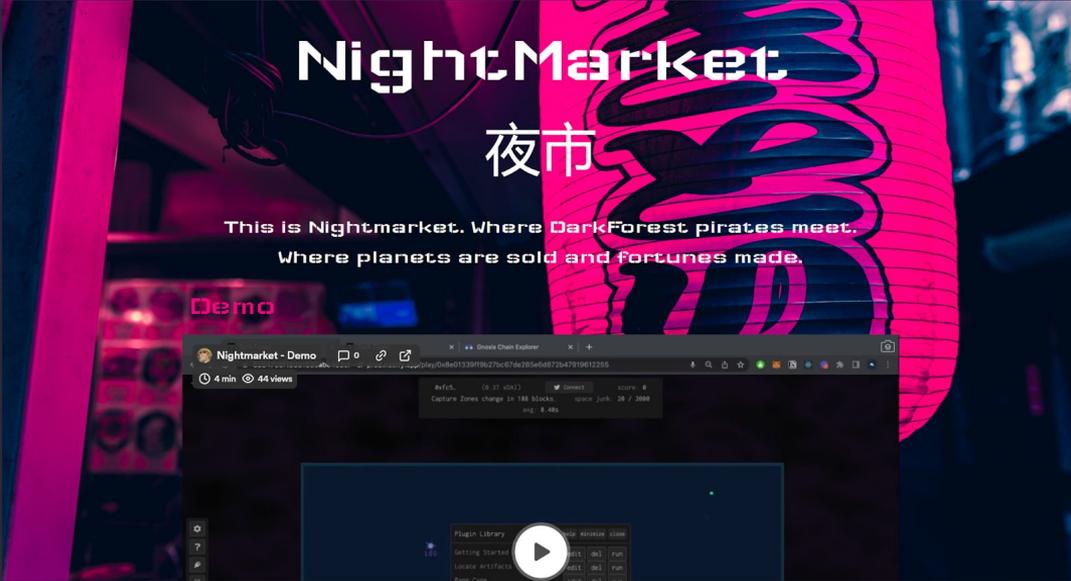
Forget refilling across the xDai Bridge. Play to Earn with Sophon.

Each player only gets one Planet Broadcast per day—don't waste it, you could be getting paid to play!

Just create a new plugin containing:

```
1 export { default } from "https://play2earn.projectsophor
```





Seller

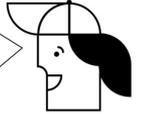
Constraint

hash (PLANET_X/Y, PLANETHASH_KEY)
 perlin (PLANET_X/Y, BIOMEHASH_KEY)
 poseidon_encode_check (CIPHERTEXT, PLANET_ADDR, KEY)
 hash (KEY)
 SELLER_ADDR * SELLER_ADDR

Publicly Verifiable Value

A valid planet hash
 The correct biomebase
 Valid ciphertext using KEY
 KEY won't change later
 Watermark proof to Seller

- (offline) I verify that
 - Seller's LIST proof is valid
 - Publicly committed values are valid
- I order listing(s) by depositing my money in the escrow smart contract
- I preemptively declare how the final sale should be encrypted
 - $\text{ecdh}(\text{MY PRIVKEY}, \text{SELLER PUBKEY})$
 - $\text{hash}(\text{SHARED_KEY}) \rightarrow \text{publish}$



Buyer



Seller

Constraint

poseidon_encode_check (SALE_CIPHER, KEY, SHARED_KEY)
 hash (SHARED_KEY)
 hash (KEY)

Publicly Verifiable

The KEY being sold is correctly encrypted with SHARED_KEY
 Seller uses Buyer's expected SHARED_KEY
 The correct KEY is being sold



Buyer

- Smart contract verifies & execs the **sale proof**
- Buyer decrypts KEY with SHARED_KEY offline
- Buyer decrypts CIPHERTEXT with KEY offline

Artifact Market

minimize close

Artifact	⚡	⚡	↗	▶	🛡️	🔍	search...
Colossus	+15%	+15%	+15%	+30%	+0%	100	withdraw
Spaceship	+10%	+10%	+20%	+10%	+0%	4.00	view
Colossus	+0%	+0%	+0%	+10%	+20%	5.00	withdraw
Planetary Shield	+0%	+0%	-80%	-80%	+100%	1.00	withdraw
Photoid Cannon	+0%	+0%	+100%	+900%	-60%	0.50	view
Monolith	+30%	+30%	+0%	+0%	+0%	0.69	view
Spaceship	+10%	+10%	+20%	+10%	+0%	101	view
Photoid Cannon	+0%	+0%	+100%	+900%	-60%	1k	view
Colossus	+0%	+0%	+0%	+10%	+20%	10k	view
Monolith	+20%	+20%	+10%	+10%	+0%	10b	view

Market Listings Inventory Help 10.25 xDai

Listing

Inventory

Planetary Shield	+0%	+0%	+100%	-80%	-80%	500.0xDai	Buy
Wormhole	+0%	+0%	+0%	+0%	+0%	500.0xDai	Buy
Photoid Cannon	+0%	+0%	-50%	+0%	+0%	500.0xDai	Buy
Planetary Shield	+0%	+0%	+100%	-80%	-80%	500.0xDai	Buy
Planetary Shield	+0%	+0%	+100%	-80%	-80%	500.0xDai	Buy
Pyramid	+0%	+0%	+10%	+20%	+0%	500.0xDai	Buy
Planetary Shield	+0%	+0%	+200%	-80%	-80%	600.0xDai	Buy
Black Domain	+0%	+0%	+0%	+0%	+0%	666.0xDai	Buy
Planetary Shield	+0%	+0%	+350%	-80%	-80%	666.0xDai	Buy
Black Domain	+0%	+0%	+0%	+0%	+0%	780.0xDai	Buy
Pyramid	+0%	+0%	+45%	+0%	+0%	800.0xDai	Buy

Balance: 0.0xDai

Sort By: Rarity ↓

17 artifacts

Found 1 Legendary 1 Common 1 Rare 1 Epic 1 Mythic

Corrupted Planetary Shield +75%

Corrupted Colossus +25%

Lava Pyramid +15%

Wasteland Spaceship +20%

Ice Photoid Cannon +100%

Wasteland Wormhole +70%

Corrupted Spaceship +10%

Wasteland Photoid Cannon +70%

Wasteland Monolith +20%

Ice Colossus +15%

Photoid Cannon +90%

Bloom Filter +20%

Wasteland Colossus +20%

Ice Monolith +20%

Ice Spaceship +10%

Bloom Filter +20%

Black Domain +10%

SELL

Common → 0.01 DAI

Rare → 0.1 DAI

Epic → 2 DAI

Legendary → 25 DAI

Mythic → 250 DAI

Common

Rare

Epic

Legendary

Mythic

The Astral Colossus - Inventory

The Astral Colossus

minimize close

0. The Astral Colossus (Rank 34: 76528735)	76528735
1. @TheVelorum (Rank 189: 505491)	17700133
2. @davidryan59 (Rank 100: 5275290)	13898245
3. @scotato (Rank 228: 260000)	7979795
4. @tofu4956 (Rank 91: 8120164)	3747725
5. @jojazzas (Rank 117: 2958284)	3477702
6. @orden_gg (Rank 1: 77777777)	3461902
7. @MJ659600 (Rank 70: 30316438)	3347518
8. @xJunshen (Rank 68: 34673145)	3165856
9. 0xcF0cc... (Rank 221: 281000)	3081000
10. @CryptoPriest6 (Rank 61: 48465292)	2822434
11. 0x2616B... (Rank 10: 154472935)	2734149
12. @thelegendoftin1 (Rank 184: 592176)	2073140
13. @vjotav (Rank 72: 26777836)	1650000
14. @... (Rank ...: ...)	1165701

Contribute Leaderboard Help

7979795

Plugin Library

help

minimize

close

Claim Game Mode

edit

del

run

Artifact Shards

edit

del

run

Oil and Uranium R...

edit

del

run

Sattelites

edit

del

run

Add Plugin

What does permissionless interoperability mean?

Permissionless interoperability means that players can build the game experience, not just core developers.

It means that other games can hook into your game to share assets, identity systems, mechanics, and more. No “support team” or “BD team” needed.

Marketplaces, player corporations, nested games inside games, new resources and mechanics, automations, alternate clients, interoperable assets and stats, shared reputation systems, and more...

QUESTION 1

Why build games
on the **blockchain**?

QUESTION 2

Why build **games**
on the blockchain?

QUESTION 2

Why build **anything** which
we don't have a obvious
practical use case for
on the blockchain?

REASON 1

Games are a technically demanding
yet low-stakes environment.

They allow us to rapidly push infrastructure
forwards without putting massive amounts of
financial value at risk.

Deleted Account

My main thing was making sure you all knew df v.05 was going to...

We have pretty big improvements on Nethermind nodes which we profiled with their team on DF after the end of the game. Will scale up infrastructure before the launch. If you have an idea how can we make a smoke test before the play test I am very interested in it

core: subtract deposit gas from pool, so other txs do not use the same gas #35

Closed

protolambda wants to merge 1 commit into `tx-pool-fix` from `deposit-gas-pool-fix`

CHANGED 5 MONTHS AGO

(Gnosis, Erigon, Lattice) Fast EVM chain for Dark Forest and on-chain games

project, is working on better programming models and better infrastructure s. We are investing heavily in a protocol and infra lab. The protocol lab would programming models (we currently have an EVM ECS system) and better clients s (~ software), while the infra lab would work on better execution layers (~ t both labs to work freely with the rest of the ecosystem (Gnosis, Erigon, OP, e software. Having them in-house with us makes it easier for them to "build want" given we have products in production today that require much better hardware.

Diamonds in Projects

- [Smart Contracts as Apps](#) - EIP-2535 Diamonds and the feasibility of a DAO Operating System
- [Dark Forest & the Diamond Standard](#) - Dark Forest project moves to and dicusses diamonds.
- [The Diamond Standard: A new paradigm for upgradeability](#) - DerivaDEX on diamonds.
- [We like the \(EIP-2535\) Diamonds](#) - Premia Finance talks about their use of diamonds.
- [Why Gotchivault is upgrading to the Diamond standard](#) - How to upgrade an existing proxy contract to EIP2535 Diamonds.
- [Handling multiple tokens, with a modern solidity architecture via Diamonds & ERC1155](#)
- Smart contract packages — upgradeability for normal people

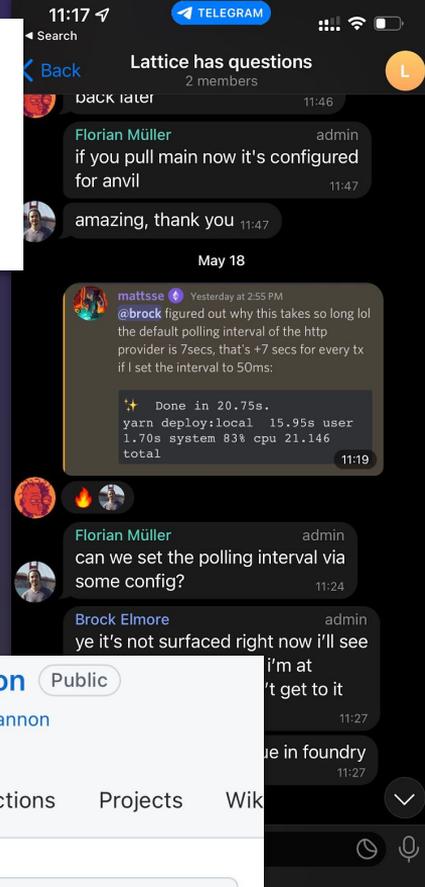
ethereum-optimism / [reference-optimistic-geth](#) Public archive

<< Code Issues **Pull requests** Actions Projects Security Insights

core/types: deposits do not tip, avoid basefee subtraction #37

Closed

protolambda wants to merge 1 commit into `optimism-prototype` from `effective-gas-tip-cap`



nalinbhardwaj / cannon Public

forked from [ethereum-optimism/cannon](#)

Code Pull requests Actions Projects Wik

speed up UC 100x :))

[Browse files](#)

gameboy

nalinbhardwaj committed on Aug 26

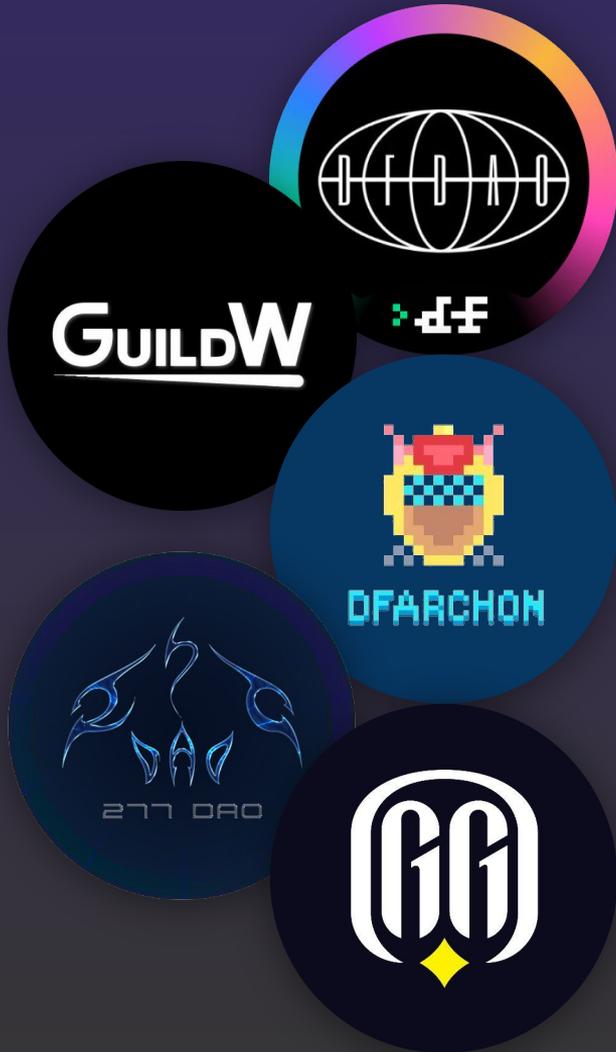
1 percent... commit 2eb297d0e873457cbf

REASON 2

Games are a leading social indicator
in technology.

How players interact with new affordances in
games gives us insight into how users will
interact with digital systems of the future.

REASON 2



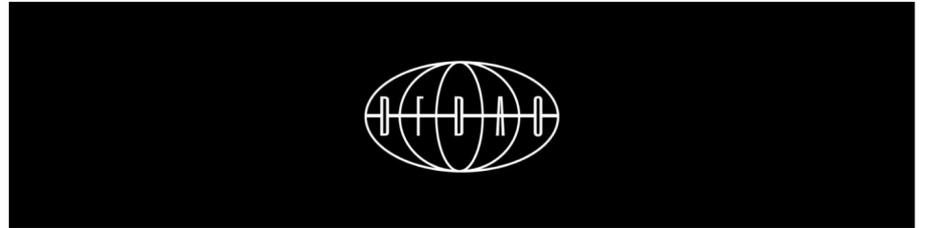
chaOsg0d

Aug 27, 2021 · 5 min read · [Listen](#)



The Crypto Gaming Governance Thesis

why we're building [dfdao](#)



dfdao experiments

As a leader of dfdao, I fully recognize the opportunity that we have for DeGov exploration. Our goal is to strive for victory in Dark Forest while using a variety of cooperative mechanisms. We hope that some of these mechanisms will be applicable to other blockchain games and eventually other DAO structures at large.

REASON 3

Games are inherently playful.

A thriving indie game community can help “bridge the gap” between technologists and creatives, artists, writers, and thinkers – introducing greater intellectual diversity to the ecosystem.

REASON 3



Lars "Totally Texas" Doucet
@larsiusprime



Okay, the day has finally come.

I am forced to grudgingly admit that I have found a blockchain game that legitimately does something with Blockchain that is genuinely new, innovative, and that you can't do with a centralized service.

That game is Dark Forest.

4:14 PM · Jun 15, 2022 · TweetDeck



What does it mean to build for
the future?

Fuck around and find out

“The Alto aimed to be not a machine of its time, but of the future... The governing principle of [Xerox] PARC was that the place existed to give their employer that ten-year head start on the future. They even contrived a shorthand phrase to explain the concept. The Alto, they said, was a time machine.”

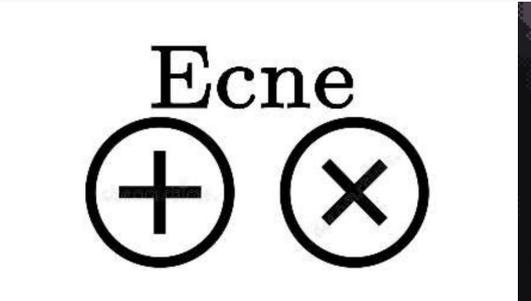
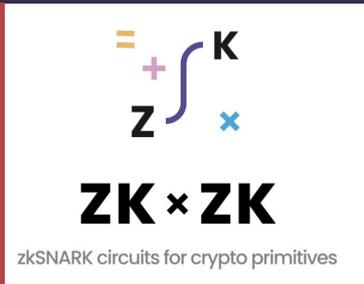
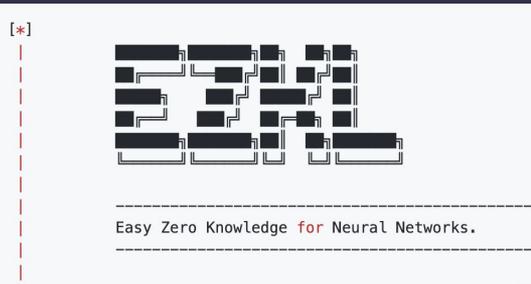
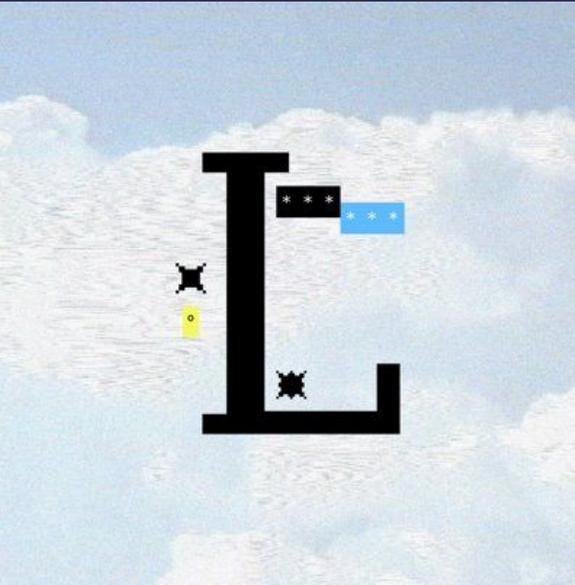
-Dealers of Lightning by Michael Hiltzik

Dark Forest started
as a pie-in-the-sky experiment

“Let’s build a game where every WASD move
triggers a transaction and a ZK proof on-chain”

A lot has happened since!

Today: a thriving ecosystem of “next-generation” application R&D, in the broader 0xPARC community



Systems vs tools

Facebook

facebook.com

Search Facebook

Josephine Williams

Watch

Events

Friends

Memories

See More

Shortcuts

- Save the Pomeroy Theatre
- Weekend Trips
- Jasper's Market
- Red Table Talk Group
- Best Hidden Hiking Trails

See More

Josephine Williams

See Your Profile

- Settings & Privacy
- Help & Support
- Dark Mode
- Switch to Classic Facebook
- Send Feedback
- Log Out

Privacy · Terms · Advertising · Ad Choices · Cookies · More · Facebook © 2019

Eric Jones

Cynthia Lopez

Betty Chen

Tina Lim

Molly Carter

Josephine Williams

What's on your mind, Josephine?

Photo/Video Tag Friends Feeling/Activity

Fiona Ozeri

5 hrs · 🌐

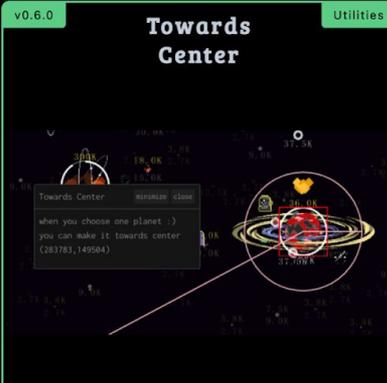
Best fireworks show I've ever seen!



Client-side plugins

v0.6.0 Utilities

Towards Center



when you choose one planet :), you can make it towards center.

v0.6.0 Utilities

Scoring Planets

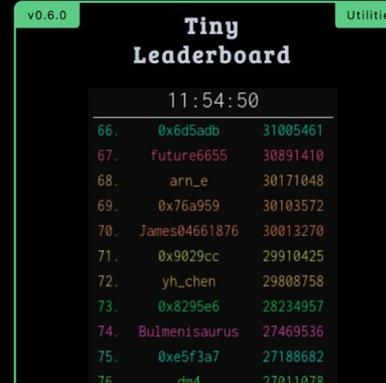


Planet	Level	Score
1. Society Spang	3	0
2. Beautifully Sedate	5	641
3. Apply Place	3	851
4. Cloave Rate	3	1270
5. Marble Far	3	1500
6. Actor Bewech	4	1713
7. Enchanting Hydrant	3	1787
8. Bandy Preserve	3	1805
9. Annoyed Berserk	3	1873
10. Gambler K111	3	2030
11. Trust Leather	3	2090
12. Resolve Slush	3	2186
13. Miss Lick	3	2189
14. Ill-fated Vacation	3	2149
15. Loom Spring	3	2211
16. Drive Testy	3	2278
17. Rebel Corrad	3	2462
18. Grade Hare	3	2471
19. Peace Giant	3	2568
20. Prosperous P... (truncated)	3	2600

See the top scoring planets within your vision

v0.6.0 Utilities

Tiny Leaderboard

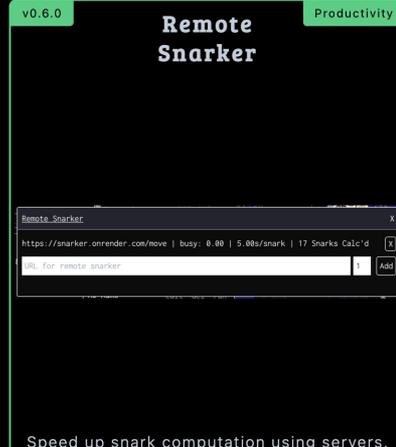


Rank	Player ID	Score
66.	0x6d5adb	31005461
67.	future6655	30891410
68.	arn_e	30171048
69.	0x76a959	30103572
70.	James04661876	30013270
71.	0x9029cc	29910425
72.	yh_chen	29808758
73.	0x8295e6	28234957
74.	Bulmenisaurus	27469536
75.	0xe5f3a7	27188682
76.	dm4	27011078

Shows a tiny leaderboard with timer

v0.6.0 Productivity

Remote Snarker



Speed up snark computation using servers.

v0.6.0 Casual

Heatmap



Highlight territories around you!

@projectsophon/df-plugin-dev-server

An ESBuild server for Dark Forest plugin development.

Installation

You can install the command globally using:

```
npm i -g @projectsophon/df-plugin-dev-server
```

Usage

Once installed, you should have access to the command:

```
df-plugin-dev-server
```

You can see the supported flags by running:

```
df-plugin-dev-server
```

Start a Dark Forest plugin development server.

Options:

<code>--help</code>	Show help	[boolean]
<code>--version</code>	Show version number	[boolean]
<code>--dir</code>	The directory to load	[deprecated: use --glob instead] [string]

Light Forest - Custom Dark Forest Arena Rounds

Light Forest is the simplest way to create a custom branded [Dark Forest Arena](#) round for your own community. It creates a website and game client for you automatically so you can focus on building your perfect game.

Requirements

- Install `node >= 14` (Consider using [nvm](#))
- Install [Yarn](#)

Install

Click the link below to create a new repo from the Light Forest template.

<https://github.com/dfdao/lightforest/generate>

Or, if you have the [GitHub CLI](#):

```
gh repo create <new-repo-name> --template="dfdao/lightforest"
```

Clone that new repo to your local machine.

Setting up a round

1. Visit arena.dfdao.xyz/arena and create a map. Once the map is created, you will get a unique hash of the map's configuration. Copy this value and save it for later.



Velorum

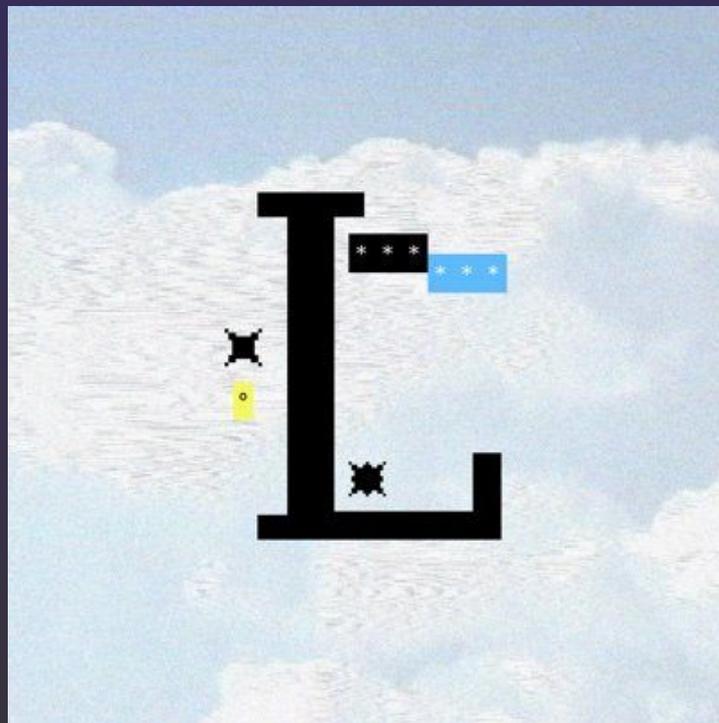
Jun 3 · 3 min read · ✨ Member-only · 🎧 Listen



Dark Forest Arena: Grand Prix

One month ago, we launched a public play test for Dark Forest Arena, a short, action-packed version of Dark Forest.

Systems vs tools



Playing the infinite game

“There are at least two kinds of games:
finite and infinite”

“A finite game is played for the purpose of winning, an infinite game for the purpose of continuing the play.”

“To play Dark Forest is to build on Dark Forest.”

-DFDAO



An Evening in the Dark Forest - Tuesday 4:30PM - 8PM

Autonomous Worlds Arcade - Wednesday 4PM - 7PM

Applied ZK SLS - Thursday 10AM - 6PM

Autonomous Worlds SLS - Friday 10AM - 3:30PM

ZK Community Hub - Continuous, Tuesday through Friday

tinyurl.com/0xparc-devcon