"Get Good": Cryptoeconomic Game Design Principles

Chelsea Palmer @ CryptoChicks Hackathon 2019

(& 2.0 @ George Brown College!)

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The Road Ahead: Agenda

- **Introduction**: where blockchain & games intersect
- **Foundations**: game theory and strategic play
- **Gamers Rise Up**: untapped global brain trust
- **Disruptive Use Case**: Team Just & FOMO3D
- **Against DAOsasters**: why games matter for cryptoeconomics
- **Dev Deep Dive**: Building on Ethereum Classic

Origins of Blockchain Gaming

- Next to Silk Road activity, online game microtransactions were one of the first feasible use cases for cryptocurrencies
- Many blockchain OGs have described deep roots in the online gaming sphere
- As tokenomics took off, especially in the 2017 boom, blockchain games popped up left and right

Hitting a Brick Wall

- After the bull run, many gaming projects reported the same problem: cryptocurrency transactions are too slow, complicated & resource-intensive to integrate into gameplay
- The revolutionary properties of Bitcoin (uncensorable, impossible to double spend) aren't needed in most centrally controlled gaming infrastructure

Reinventing Games for Cryptoeconomics
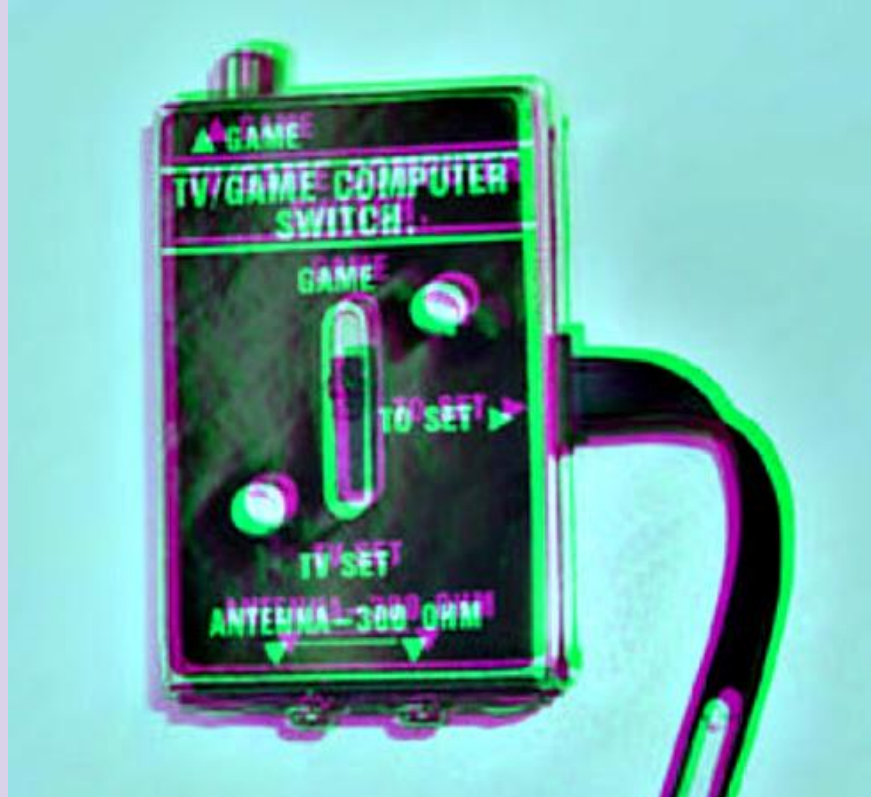
- If not microtransactions, then what might blockchain protocols be useful for in gaming?
- We have a newfound ability to set immutable, transparent terms in digital game environments
- Start with the design strengths of smart contracts, and shape games that wouldn't be possible without these advances
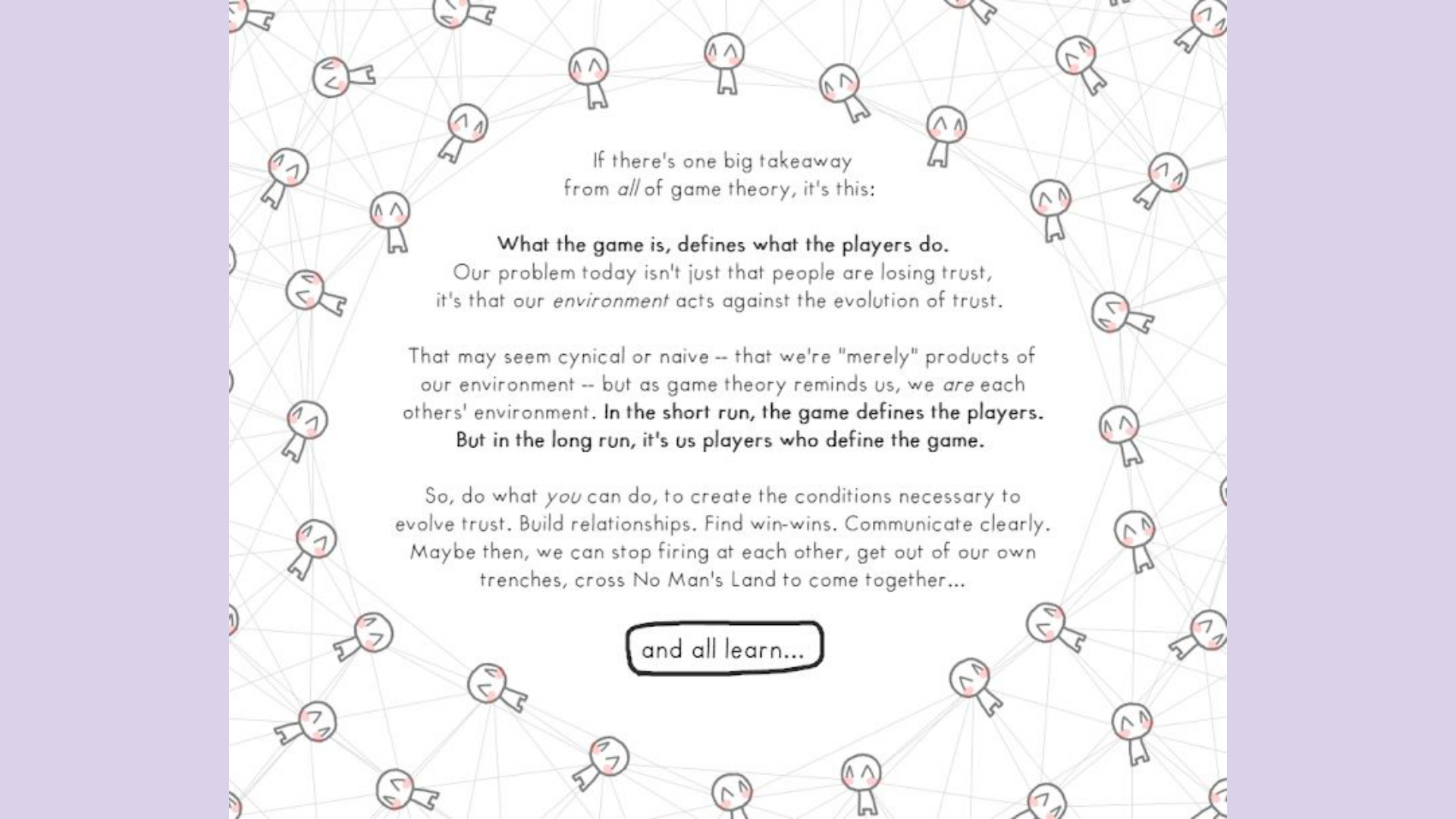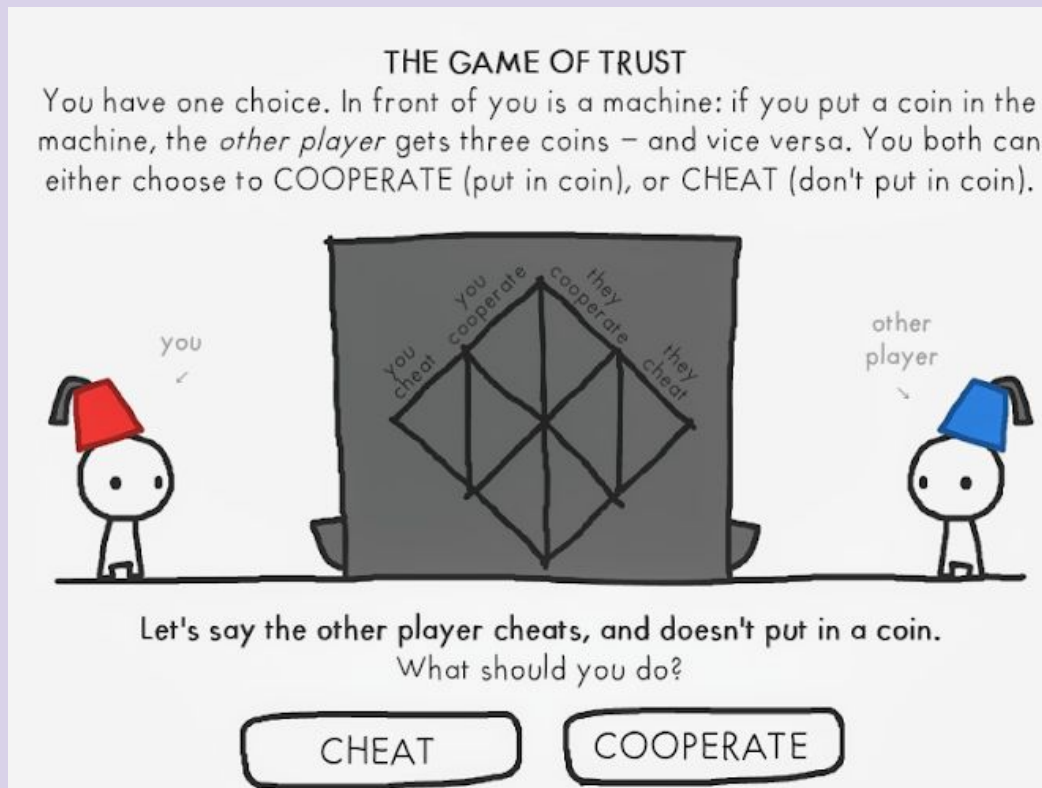
Strategic Games & Adversarial Gamblers

- Turn-based strategic multiplayer games have enthralled social groups since before television
- Similarly, mainstream gambling has always been about the "players" versus the "house"
- Exploring these areas, we start to see a great fit with immutable smart contract gaming design….

What Is Game Theory, Anyways?

- Game theory's a formalized study of behavior between supposedly rational decision-makers
- Originally spawned from looking at zero-sum games
- Nicky Case's "The Evolution of Trust" (pictured right) is a great primer on this https://ncase.me/trust/

THE GAME OF TRUST
You have one choice. In front of you is a machine: if you put a coin in the machine, the *other player* gets three coins — and vice versa. You both can either choose to COOPERATE (put in coin), or CHEAT (don't put in coin).

you

you cheat
you cooperate
they cooperate
they cheat

other player

Let's say the other player cheats, and doesn't put in a coin. What should you do?

CHEAT   COOPERATE

If there's one big takeaway
from *all* of game theory, it's this:

What the game is, defines what the players do.
Our problem today isn't just that people are losing trust,
it's that our *environment* acts against the evolution of trust.

That may seem cynical or naive -- that we're "merely" products of
our environment -- but as game theory reminds us, we *are* each
others' environment. **In the short run, the game defines the players.**
But in the long run, it's us players who define the game.

So, do what *you* can do, to create the conditions necessary to
evolve trust. Build relationships. Find win-wins. Communicate clearly.
Maybe then, we can stop firing at each other, get out of our own
trenches, cross No Man's Land to come together...

and all learn...

Gamers: An Untapped Global Braintrust

Jane McGonigal (pic retrieved from WikiCommons Media, CC BY-SA 2.0)

https://janemcgonigal.com/

Team Just & The Power of MemeSpeak

You're going to invest, right?
P3D earns you passive ETH dividends from its own volume, and all our 3D games!

AVERAGE DAILY VOLUME

1,276.1 ♦

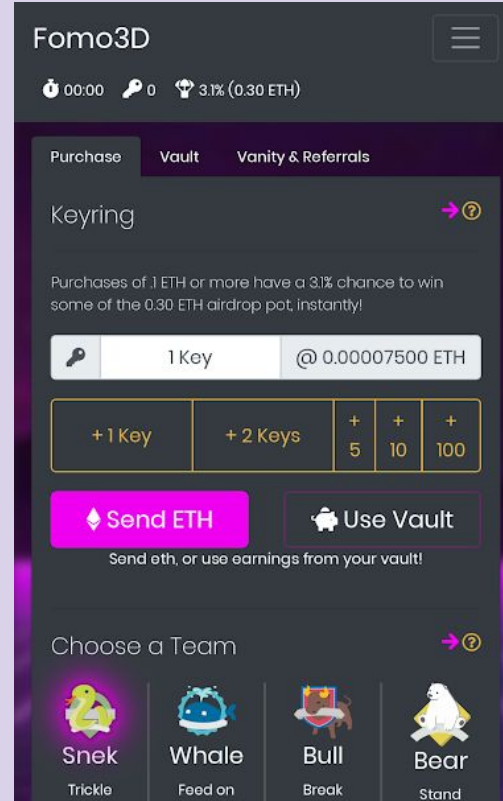someone else is EXIT SCAMMING

0.0002 ♦

= Total: 0.0002 ♦
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FOMO3D: Transparent Permissionless Gambling?!

http://exitscam.me
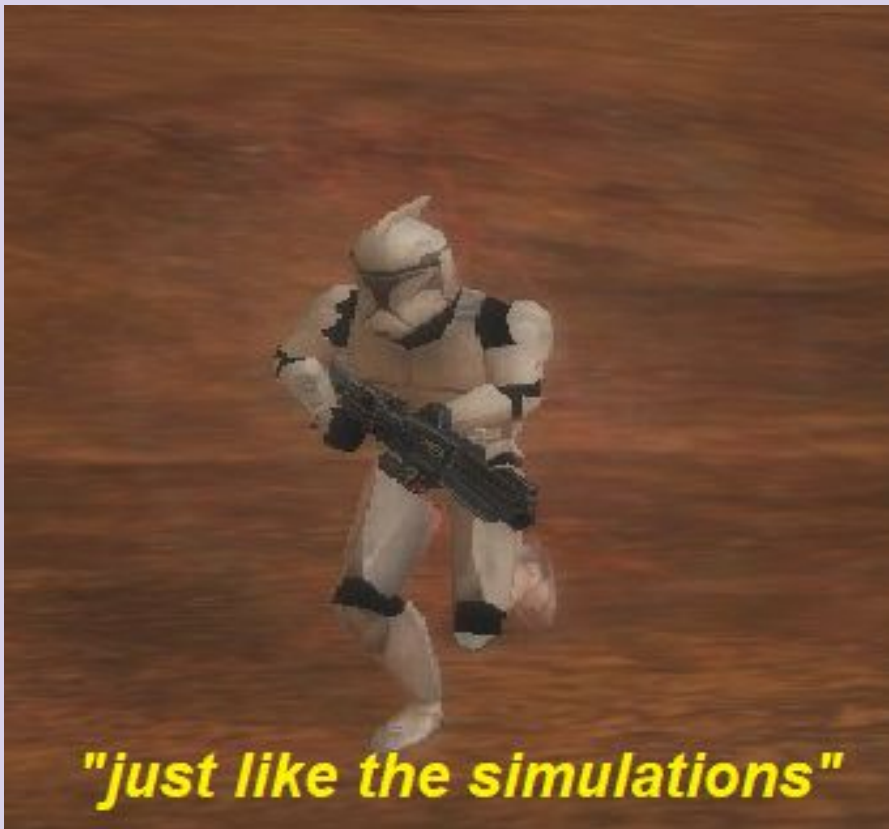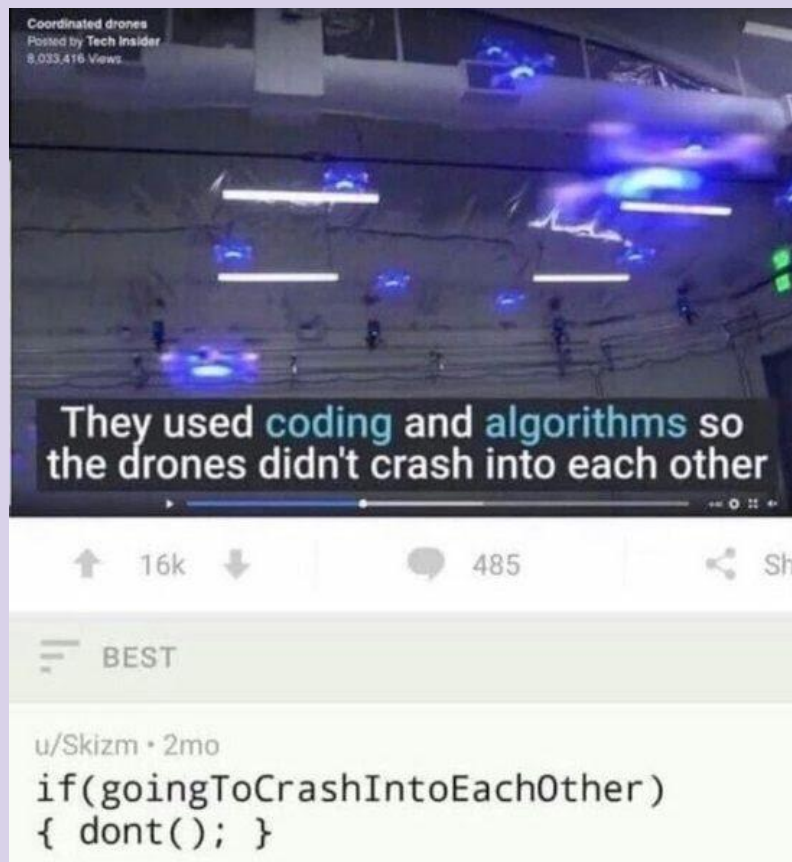
How FOMO3D Was Won: Humans x Bots

- Was the winner of 10,469.66 ETH in this "ponzi" lucky?
- Quite the opposite: they duped many bots & humans vying for the jackpot
- In fact, they utilized the machinations of the ETH mining fee market to "game" the whole blockchain

https://medium.com/coinmonks/how-the-winner-got-fomo3d-prize-a-detailed-explanation-b30a69b7813f

"just like the simulations"

Why Blockchain Tech Needs Games First

- People are incentivized to try to "break the system" in games- but with way lower stakes than we see in the larger crypto industry
- Additionally, we can pattern hypotheses about interpersonal behavior, testing true game theory "in the field" like never before
- ← ex. Unfortunately it's not this simple

Costs of Moving Fast: DAOsaster Edition

- Contracts interfacing with blockchains aren't easier to hack than traditional code, there's just more incentive with $$ locked in
- Real world financial experiments that don't set caps or prepare for disaster are likely to reveal glaring attack vectors in hindsight
- Ex: the DAO hack on Ethereum

http://hackingdistributed.com/2016/06/18/analysis-of-the-dao-exploit/

Ethereum Classic: Values and Vision

https://ethereumclassic.github.io/assets/ETC_Declaration_of_Independence.pdf

- Ethereum Classic declared independence from Ethereum on July 20th, 2016, at block 1,920,000, following the latter blockchain's "rollback"
- ETC's community prioritizes immutability over social governance, and maintains a future roadmap centred on PoW algorithms

The Ethereum Classic Code of Principles

We believe in a decentralized, censorship-resistant, permission-less blockchain. We believe in the original vision of Ethereum as a world computer that cannot be shut down, running irreversible smart contracts. We believe in a strong separation of concerns, where system forks of the codebase are only possible when fixing protocol level vulnerabilities, bugs, or providing functionality upgrades. We believe in the original intent of building and maintaining a censorship-resistant, trustless and immutable development platform.

ETC For What?

Donald McIntyre @TokenHash · 4h

Replying to @TokenHash

2/ ETC is Turing completeness + proof of work + fixed monetary policy.

High security smart contracts (programs) execute in the same secure environment as base layer, not outside with fancy pegs and federations or drivechains.

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https://twitter.com/TokenHash/status/1133963637540806659

Donald McIntyre @TokenHash · 4h

3/ Model is the same as Bitcoin: High value high security transactions at the base layer, and high performance and low value transactions on L2 and above.

The difference is that Bitcoin is incapable of storing and executing programs inside its environment.

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Donald McIntyre @TokenHash · 4h

4/ The tradeoff is that ETC is marginally less secure than Bitcoin and Bitcoin is pure store of value. However, it's better to have two parallel systems with everything else stacked on top, than a single chain supporting everything. People won't do it due to systemic risk.

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ETC Dev Tooling

- Kotti (Proof of Authority test-net, part of Goerli collaboration)
- #RUNEVM - but keep it pre-Byzantine!
- ETH tools under ETC rules: using Solidity and Truffle on Classic
- Testing, Testing, 1 - 2 - 3

https://medium.com/ethereum-classic/kotti-solidity-etc-oh-my-2ae36926454d

DECENTRALIZED.
IMMUTABLE.
UNSTOPPABLE.

GOVERN YOURSELF

Roll Your Own Contracts: Hands On Start

- Fork an existing smart contract and play around - it's a lot easier than trying to write one from scratch
- If your contract needs to call for information from external oracles, or user input, "contain your work" - don't leave yourself vulnerable to injections from malicious contracts
- Always engage in peer review before deploying to mainnet