

so I'm pretty curious about your background because uh you started code Arena last year and you said you sucked at code arena in the beginning and you seem to have been able to just really hit the ground running so I'm curious how did you actually transition from your business background into technical sure yeah

um

so I guess yeah I had like basically no technical background I was I started a publishing company in 2014 we did non-fiction books and was basically completely focused on like growing that so

leading the team there getting more authors making the books better doing the marketing for the books kind of over the years

and

a big part of what I learned doing that is like I love starting things uh once we were like 30 40 people I was like leading this is like not totally my vibe and once it was like 100 plus people it was like definitely not the way that I like to operate

um and so we hired a CEO who came in to kind of like run the day-to-day while

we my co-founder and I took different roles and did that for a little bit and at some point in that journey I was like the best thing for me to do is I've kind of been like semi-technical on the side and I was like I need to just go off and explore that and then I'll come back and we'll start another company related to this using all these technical skills I'll build so that was kind of like late 2020 uh that we decided all right I'm gonna take a year off and do that and the plan for the year was I'll spend half the year basically on like large language models which now seems to be a bigger topic of conversation than it was then so like all the AI stuff around that and then the second half of the year on crypto and so I did the first half of the year the kind of basics of AI and just like learning Python and like basics of any technical stuff um loved the implications of it and found the work kind of boring um so I was like maybe I'll like find the right area in this we'll see started learning solidity and in like two days I was like never mind never touching that again I uh I'm I'm going I'm sucked into

the blockchain bad uh so that was like  
late 2021 and I still had the philosophy  
of like I'm gonna learn this so that I  
can start a company in this space  
ideally related to publishing in some  
way and then do it under the same  
umbrella scribe and you know I had like  
I thought that was the plan  
and actually had a company that I was  
planning to start was

um

the the basic concept was like for  
authors or other creators in that world  
help them tokenize the revenue stream of  
a creative product they were going to  
make and sell it to their fans in  
advance so it's kind of like Kickstarter  
style at that point but then also the  
infrastructure to leverage that team to  
help them launch the product and like  
make it successful so like how did this  
idea started to go down that path and  
then I was like wait I actually have no  
interest in starting another company  
like what am I doing I'm having so much  
fun with this technical stuff like why  
am I getting sucked back into it so end  
of 2021 basically said to them like I  
need to keep exploring this path I'm  
going to step away from the business

um and spend a bit of time just kind of  
like messing around seeing where things  
went and by the summer kind of decided  
like the security stuff seems  
interesting so I'm gonna  
I'm gonna like really take that  
seriously as opposed to just like think  
of this as a as a mini retirement and so  
that's kind of when things started to  
click into place and take off a little  
more

oh nice so that was pretty much like a  
research and development thing you were  
doing as part of scribe you split off  
did your own thing and uh was everything  
just self-learning so you didn't have a  
technical background you just read the  
stuff online did tutorials just all by  
yourself is that how you went about  
learning yeah and that's it's honestly  
one of the things that felt best about  
crypto versus AI was like that felt like  
swimming Upstream in AI like I think  
it's become more possible now but at the  
time there was like good education but  
no community and no  
no respect like you couldn't do anything  
important through that path really it  
was kind of like you were bounded by  
like getting into an organization and I

don't know I felt like there were a lot  
of barriers to learning on your own  
unless you wanted to like learn and use  
it for one specific application  
um and in crypto immediately it was like  
oh my God everyone's self-teaching  
there's like Community there's cool  
people I want to hang out with and so  
yeah it was just a matter of like  
experimenting and playing but it felt  
like that that felt a lot more natural  
in this space than it did in AI  
yeah I definitely feel that too crypto  
space is just like everything is just  
your skill dependent right if you get  
good then you can make an opportunity  
for yourself in a space whereas other  
sort of more mature Fields yeah it  
certainly doesn't feel that way  
yeah and is there something cool about  
other people  
like I'm sure there's lots of people  
self-teaching everything but somehow  
they don't come together in every space  
and it felt like in in this area like it  
was just so easy to meet people and  
everyone was doing something interesting  
and everyone was in the process of  
learning and everyone to share stuff and  
like Twitter's Super Active it just felt

like natural to be learning on your own  
compared to other areas I'd explored  
especially like I kind of drifted in the  
AI stuff into bio for a little bit and  
like even more than anything else like  
that world was like  
go get a PhD or you know that's that's  
kind of the only path  
right yeah that's awesome yeah I like  
the communities in crypto is is super  
awesome like  
um I did a security M and then joined  
all sorts of discourse and met a lot of  
people uh what sort of uh communities  
and learning resources did you use  
specifically to learn the blockchain  
stuff  
yeah so a few friends of mine uh  
primarily Zach was one of the founders  
of of Carbondale started a group  
solidity Guild uh which yeah you're in  
now uh oh yeah yeah yeah I was like  
super early on like when I first started  
learning there was probably like five  
people on a Discord who were also  
learning so I joined at that point and  
that was like a really good Community  
like  
I don't know about you and I there's so  
many like Discord communities and like

if there's more than 100 people in a group it's like it actually doesn't really do anything for me um it's like cool to learn from but I don't don't feel like uh I get like a sense of community from it and so the vast majority of what I like consider Community is like one-on-one connections with people uh but then occasionally it turned into these kind of like oh that group was like 15 20 people that were active and actually felt like I could get to know them and like really support each other um so that was super impactful and then yeah just like reaching out to people who were doing things that were interesting and trying to find excuses to like collaborate or do something together to to be able to learn from them and get to know them and that's honestly in the auditing stuff um there was a guy throttle who I worked with what was it I guess on the spear bit Paradigm CTF team we were both we both like participated in that and then after that was like hey we should do some code during the contests and stuff together and like that was the fastest learning period of any of this

for me was just like the first time  
working with someone else who was taking  
it really seriously and who I felt like  
I could learn from and doing 10 contests  
together in four or five weeks and doing  
and spending every single day talking  
and it was like the download of someone  
else's brain to like be able to mesh  
together  
um and I've had a bunch of experiences  
like that working uh some with like 0x52  
some with trust and some other folks who  
like yeah it just feels like the  
one-on-one connections and ability to  
like work together is like such a huge  
level up and just makes it so much more  
fun so you started on code Arena and  
um I think in just a couple of months  
you said around 10 contests you already  
went up to 60k through your  
collaboration yeah that's that is pretty  
quick progress  
um considering you only spent maybe one  
year before that learning solidity  
yeah it was so it wasn't that wasn't  
exactly the timeline like I I played  
around with a little security stuff kind  
of through the summer of last year  
um and I every code Arena contest was a  
was a failure uh I



I think I was

I had a decent intuitions with it but

like hadn't done any of the study like I

know your process I I watched some of

the videos and like was very methodical

to start and mine was more like do a

contest even though I know nothing about

this space

um and then find nothing and then try

again

um so the first maybe like eight or ten

contests I think cumulatively I probably

made

under a thousand bucks total

um most of them were zeros you know the

occasional thing that was a few hundred

um

and then in August started to have a few

that kind of hit and then through

September worked with throttle and I

think we

probably in that month earned I don't

know 15 to 20 000 split between the two

of us so not like a crazy high amount

but like we won one contest and we did

decent on a few others uh and then it

was after that that things started to

really click so I think I uh

I don't remember the exact numbers but

maybe like 20 or 30 000 in October and

then 50 or 60 in November and uh what ended up being because of this bounty finding kind of like deep into the six figures in December and as kind of continued on the on that uh on that pretty positive path um so but yeah I feel like that September work with throttle was really like a big kickoff point for things starting to hit and and make a lot more sense nice so your recommendations to people who are just getting into this would be a find a small community of people where you can really make that personal connection and then once you can sort of start to work with people that are more experiencing yourself than your progress really kicks off from there possibly and I mean like for sure there's benefits of working with people who are more experienced it was uh that's like what I loved about some of the spirit stuff was like getting matched with people who were who had a lot more time working on this stuff but even working with people who are the same level of experience or who are less experienced I found just like seeing how

someone else's brain works and the kinds of things that they pay attention to is is like extremely valuable and and and on for me at least it's just like it's what makes it more fun I have so much more fun auditing with other people than than on my own so like that's probably the biggest motivation for why I wanna make an effort to keep doing that hmm and you mentioned about uh working with trust and a bunch of other people how was the collaboration process like you so you were calling so when you were working with throttle on kodorino you were having daily calls and debriefs um how did that process work for you yeah it's been different with with different people so like throttle and and I guess 0x52 I've never spoken to on the phone uh both of them was just only Discord only by text um and I I shared a Twitter thread that I can kind of send to you to include with this but um was basically like breaking down the process that we used but the idea is I found for a lot of collaboration it's there's a temptation to kind of like keep stuff to yourself until you're sure

about it and that kind of defeats the purpose

um and so what I try to make an effort to do working with people is like basically start a Discord server just for that one thing or just for this one kind of relationship and then every idea within the contest or within the audit start a new Channel with the idea and use that for the communication on it and what I found is like

I mean with the optimism audit was a great example where like I started a Channel with one idea trust started a Channel with another idea when they were sitting next to each other it was very obvious that those two ideas could fit together and become something more serious and I don't know if either of us would have found those things on our own without the other person

um so yeah I find like if the best thing would be to sit in the room next to someone the next best thing is like just making sure you're documenting every idea you have in a kind of public way so that you're able to see each other's ideas and kind of uh expand on them and also kind of learn from how the other person's thinking

yeah that I I can definitely relate to

that

um I participated in uh securian rice

and then they did an audit where a Rajiv

was just encouraging everyone to ask a

lot of questions

um it doesn't matter if they're dumb or

whatever just if you get your peers to

sort of explain to each other and

develop different ideas together that

really you know gets the brain juices

flowing and then we can come up with

some pretty cool stuff yeah and that

like I think several people has

mentioned that to me in these interviews

just asking the right questions and

poking around and working together these

are pretty uh common themes that I've

heard a lot of people mentioned to me

yeah I mean I think at some point it's

like

I don't know you spend the first few

months of this just kind of getting some

pattern recognition of like knowing when

something feels off knowing how things

should work knowing some of the common

things that go wrong familiarity with

big problems

um and then at some point it stops me

about knowledge of facts for the most

part and starts being more about like  
uh creativity or like ways of seeing  
things and

I don't think

I mean I think the only way you can  
improve that is to like expand your  
frame for how you approach it right and  
like one way to do that is that when you  
tried really hard on a contest and now  
there's a report of all the things you  
missed to be able to go through and be  
like hey I was trying my hardest like  
what made me miss these things and like  
what could I have thought of that would  
have led to me realizing that this was a  
problem and that I should have seen it  
um so that's like been a big Focus for  
me is like really slowing down with any  
contest I participate in and asking like  
how did I miss anything what's what's  
what was I missing that let someone else  
figure something out that I didn't  
um but the other way to do that is just  
like getting to work with someone and  
seeing them do it in real time uh so  
that's like  
yeah I think there's something really  
powerful there  
yeah I like to do that too just when  
reading the findings I would try to

think about sort of almost reverse  
engineer how the person found that issue  
and then maybe I could have used the  
same process to find the same issue in  
the next audit and Trust actually posted  
on Twitter um he paid you a really good  
compliment he said you had one of the  
best auto processes so can you describe  
a bit about uh your order process like  
what does that look like

yeah

um

I don't maybe that's more of an insult  
to everyone else I don't think it's that  
good of a process but basically the way  
I the way I try to approach things is  
like

I

I'll do a first pass that's like try to  
make sure I understand what's going on  
and so like I'm I'm going through the  
code top to bottom uh primarily for like  
full understanding but also as I do that  
to tag anything that either feels off or  
an area I want to come back to or  
something I didn't spend enough time on  
or an idea I have but like just trying  
to tag up like every single thing that  
comes to mind that I that might be worth  
exploring more

um

once that's done then I'll try to do a  
past that's focused on all those tags so  
like addressing the issues maybe like  
doing a proof of concept if I'm not sure  
if something's a problem thinking more  
deeply about it

um

and then after that I think the thing  
that's been a big unlock for me is I  
started uh there's kind of like a  
document for myself as I'm going through  
these contests where I miss things  
and at first I was like trying to track  
like what are all the facts about this  
and I kind of realized like that's not  
useful the thing that was useful was for  
me was to track for anything I missed  
what question would I want to have asked  
myself that would have led to me  
realizing this was a problem beforehand  
um so maybe it's like are there any  
instances of this common pattern uh if  
there's this situation did you look for  
this problem just like trying to call  
out the things that would have been like  
a mental trigger that would have made  
sure I would have caught everything and  
that document's grown quite a bit and so  
what I'll do and it's kind of broken



down by the different categories of what  
might show up in a protocol or themes  
and so what I'll do is go through that  
afterwards and be like now I've got this  
thing loaded in my head I've explored  
every idea I had from reading it now let  
me think like would there be a way to do  
this is there a risk that's similar to  
this is there some situation that this  
might come up and almost always there's  
more things that come up from that  
thinking which would have surprised me a  
few months ago I think a few months ago  
I was like I kind of like catch  
everything as I go through it that I  
could catch but I think that extra  
slowing down made a big difference so I  
try to take that time after to just be  
like what's every creative hole I could  
poke in this as opposed to what are all  
the things that I think I might want to  
explore and then just doing those kind  
of going backwards instead of forwards  
um and sometimes a part of that will be  
really just zeroing in on something that  
would be like a really bad thing to  
happen and trying to prove to myself  
that it's like there is a zero percent  
chance that that is possible  
um and this comes a little bit from I

did a bunch of formal verification work  
early on in this as I was exploring this  
um using a language called TLA plus so  
the idea with that is like rather than  
than having it very conveniently  
converted from a solidity file or like  
evm byte code into some Z3 proof or  
other formal verification you are  
manually looking at the solidity code  
and turning it into one big math formula  
that is able to prove definitively that  
certain states are unreachable but that  
exercise of turning solidity into a math  
formula like full contract into formulas  
that could prove that  
was very helpful in in these situations  
to try to think like okay the goal is  
make this state change in this way let  
me go down the decision tree of every  
possible thing that could happen and  
prove that like there is no way to get  
there on the path and often in in the  
process of doing that I realized that I  
was wrong and there is a way  
um so yeah that's I don't know there's  
not it's not much of a process but  
there's like a few different buckets of  
loose exploration deal with the issues  
of things that caught my eye explore  
based on that document then like try to

make the worst possible things happen  
and between all that usually we'll  
manage to find some problems nice  
nice now you mentioned tail light plus I  
actually saw your toy about that and  
looked into it a bit do you actually  
formally translate the language into tli  
plus and run the formal verification or  
do you just sort of mentally think about  
the problem and map it out in your mind  
now I almost never use dla plus  
there's two reasons for that one is  
it's very time consuming and prone to  
error in the translation so it's not  
perfect  
um and the other issue is that Z3  
provers  
um  
or basically the Proverbs that would be  
on the back end of that are not capable  
of handling handling very big complex  
situations  
um  
so  
even with relatively simple scoped down  
things that I'd created TLA plus specs  
for often it would time out and just  
like wouldn't be able to get there so  
you really have to if you're trying to  
do that properly turn everything into

like a very bite-sized piece prove that  
then use that as an invariant to prove  
another bite-sized piece and like build  
up very slowly which is a hugely time  
consuming process that uh you couldn't  
really do in like a quick audit scope  
but the process of I did do that maybe  
five six seven times as I was just  
getting started with all this stuff and  
that kind of built the muscle but now I  
just kind of like as I'm thinking about  
it in my head I'm kind of replicating  
that same logic of like  
how how would this decision tree break  
down and are there any paths on it that  
might do the thing that I  
want to try to accomplish  
right so actually going through the  
exercises gave you the mental model that  
you can just use now without uh yeah  
without going through the whole process  
that's very time consuming very  
interesting yeah it's one of the  
it's it  
it really reinforced the idea that like  
everything is just a state machine like  
the only things a function can do I  
guess besides like amid events are  
change storage variables or return  
values

and so like  
when you're thinking about a an exploit  
or an issue  
all you're really thinking about is like  
is there a way for a value to be  
returned or for a storage variable  
variable to be changed in a way that I  
don't want it to be or that I do want it  
to be if I'm trying to find an exploit  
and so it really simplifies when you  
look at these like complicated functions  
and you're like basically all this  
function can do is map out some logic or  
decision tree for how it's going to  
change storage variables and how it's  
going to decide what to return and once  
all I'm thinking about is  
in what branches does it change storage  
and what branches does it return  
different things it simplifies a lot out  
of the logic of these functions they can  
kind of seem overwhelming or complicated  
um and so yeah it really like hammered  
that in because like when you're turning  
it into math you're kind of ignoring  
everything that's not that everything  
else is just a way to know in what  
situations storage variables change  
basically  
right it's like you're almost like

working backwards saying um you know  
what can what like bad why can you  
change these storage variables and just  
look through the logic and see how you  
can reach that sort of path  
yeah exactly right and and my mentality  
through that is like  
if I assume that's not possible can I  
prove to myself that like everything is  
a certain dead end and I think like I  
haven't played with it yet but I know uh  
the pyrometer tool that just just came  
out is like there's a similar concept  
there right and like it's expressing the  
bounds of what you know based on like  
the facts of the function to get to that  
point and sometimes those bounds are in  
a place where you know that certain  
states are totally unreachable so I'm  
just trying to do something I guess  
somewhat similar to that in my head of  
saying like is this state certainly  
unreachable and if it's not then now let  
me start pulling that thread a little  
bit more  
yeah interesting I'm sorry your order  
process almost sounds like just building  
this big checklist of the previous  
findings that you missed and then you  
try to read through it after you've done

your initial pass to try to generate a bit more ideas so it's so it's like a very specific checklist of things that you missed in the past that uh will help you trigger new ideas uh is that pretty accurate

yeah yeah something like that I I try to position it to myself more as questions uh what I found is like if I think of this as a checklist of facts I end up wanting to check off the checklist and if I make it more open-ended then it's just like prompting ideas because it's never going to be the same finding right then it's if it is it's not doing anything that useful it's more like is there some principle of something that I missed that I could apply to think about some parallel in this situation

and that that tends to like I honestly don't think what what the questions are matter that much I think honestly what it is is there's a Temptation once you've gone through everything you've thought of to think you're done and that the additional work you do is kind of just like re-reviewing it or hoping something else pops out and so any kind of stirring the

pot of making me see something in a different way and forcing me to sit with it for a little bit longer when my brain is most primed to find stuff because I've got the system loaded up is extremely useful and it's hard for me to do without having some extra step that I'm supposed to do at that point that kind of helps me feel stay focused on it

um

yeah I think some people they like checklists on people they don't and then yeah I guess it's good to sort of act as a prompt for yourself I think when I started learning all this I started categorizing all the findings and then it was very specific and I was just trying to pattern match those and once I pretty much have those very firmly sort of loaded in my head then I can start to take on more like creative sort of ideas during audit so I guess the only only way to build up that a very specific checklist is to or once you've learned all the the common issues that come up then you have to just do a lot of contests right and once you you know read a lot of code actually go through the process of trying to find



everything and then reviewing those findings that you missed that's the only way that you can sort of start to build up your intuition around that I think so I mean yeah I've got a bunch of uh folks who I like

um

sometimes will like help bring in on an audit with me to like help them learn a little bit and who are kind of starting in this process and

so many people want to just like read audit reports like I don't maybe for some people that works for me it was just like

it didn't like emotionally connect or like it didn't like land like what was the thing that made this matter or that

I might have missed about this and so like the only way things started to

click for me was to say like I'm gonna

try my hardest and at the end of this

say I can't find anything else and then

see things that I missed and be like

I wanted to find this and I didn't so

like what was I missing when I gave this my all and didn't find it

um and in some cases those are like

honestly the biggest thing for me at

first was lowering the bar

that I like I thought every finding had  
to be something so serious and so I'd be  
like oh I knew about half of these  
things but I didn't see how you could  
steal every dollar from the protocol  
with them so I didn't think they were a  
big deal uh so that was like one type of  
realization but beyond that it's like oh  
I didn't think about this part of the  
system being vulnerable or I didn't  
think to look at this dependency and I  
should have explored that more deeply or  
whatever it is

um

I think there's like a there's a need to  
like put in effort and run into a wall  
before you can really like learn from  
anything that you missed  
and I think the the like writing it down  
is really just there as like little  
prompts and reminders for me of things  
that have

I've already kind of like taken in  
emotionally as like ah I remember when I  
tried my hardest and didn't think of  
that and like I remember the context of  
of what I was missing and whether that  
would be applicable here

um I definitely remember there's

um there's a theory somewhere I read

that your brain remembers things better  
once you sort of struggle a bit and then  
once you know you look at the correct  
answer then that really goes into your  
long-term memory a bit better  
right yeah it makes sense to me I mean  
how many times I can I can relate to  
like doing a tutorial and finishing and  
being like I have no idea what I just  
did I could not recreate that at all  
um versus the like sometimes more  
frustrating process of like banging your  
head against the wall trying to debug  
something and then we'll never forget it  
the rest of my life yeah  
yeah 100 did you have any issues with  
motivation when you were going through  
that initial slog of uh trying to  
improve because yeah some for some  
people it can be quite demotivating you  
know just never finding any issues and  
and the pay isn't that great on code  
Arena anymore so did you have any issues  
with that and you know on the mindset  
side uh do you have any recommendations  
for people  
no I'm psycho I don't know it's uh I'm  
in a bit of a weird situation because I  
I was thinking of all of this as like uh  
I'm gonna take like a few year

retirement after scribe and like  
um not press for money right now like  
this is just like I'm just gonna like  
play around and see what happens and  
this was the most fun kind of play I  
found uh so it didn't  
as it started and is now feels like a  
like a career  
at the time it was just like this is a  
video game I want to get good at it  
didn't feel like something I needed to  
really like push myself to be motivated  
by  
um  
so yeah I think it was if it was just an  
obsession right away so it didn't I  
there wasn't really like a need to push  
so much right yeah you mentioned to me  
before uh this is just you doing the fun  
stuff if I  
I think I can say with confidence  
because it was really what I believed  
like  
if I was doing this right now and so it  
would be whatever it was nine months  
since I started taking this seriously if  
I'd made zero dollars and was just  
starting kind of getting the hang of it  
now I'd be happy like I  
I was messing around in the space trying

to find the most fun thing to do and I

found it

nice

so you mentioned um last year during

October you wanted to reach a senior

Warden on a Sherlock and I think you

managed to do that pretty quickly after

that and recently you did a

collaboration with trust on the optimum

contest and came first which was a

really awesome result can you talk us a

bit uh through that process

yeah sure so so yeah I really like

um one of my problems with the code

Arena leaderboard is you need to do a

lot to stay relevant on there uh because

it's like total dollars earned and

um

I

I really like this stuff but I don't

like squeezing my schedule full I've got

two kids and like

um

tend to work better going deeper than

like volume and so it immediately was

clear to me like I'm never going to be

in the top of this leaderboard and if I

am I'm gonna hate the feeling of trying

to maintain it I'm not going to want to

let it go and I really like how

Sherlock's Works instead which is like  
they kind of I think they use like the  
chess ranking system where like the all  
the points from everyone who participate  
go into a pot  
so the people who are higher on the  
leaderboard or have more to lose and  
then everyone competes and then they get  
kind of redistributed out waited over  
time in some way so they kind of made  
clear to me that's like okay if I can do  
well per contest I do  
that's more important than doing a lot  
of contests which suits me a little bit  
more  
um and so  
yeah it kind of ran the math at the end  
of September because I kind of I've done  
one Sherlock contest through that month  
and we came third on it  
um and I kind of ran the math and I was  
like okay I think if I can come first or  
second in like four or five straight  
contests I can hit senior Watson and I  
think personally like I think senior  
Watson and Sherlock is the best  
work set up in this entire space like I  
I have trouble I've been doing a lot  
more like private audits they're fun but  
like I have trouble when I find a

critical and it isn't like a financial score because I feel like I was like I'm supposed to be winning right now um and uh so like Sherlock's just this beautiful mix of like big flat pay and the fun of the contest model and the leaderboard like I love it so I was like okay this is this is like where I want to be focused um and this just took that really seriously so in October I think I did five Sherlock contests and came first and three and second and two something like that and that was enough to to like cross into that senior Watson threshold um and since then I've done I think like four or five more as a senior Watson and and uh it's it's fun it's challenging because like if you're in that role you have so many more points than everyone else that you need to basically take down like 30 to 40 percent of the whole pot in order to not lose some rankings so it makes you take it really seriously which I think is their point and uh yeah it's fun to be in a situation with those contests where like you've got to perform to to be able to keep your spot

so I've been lucky so far with those  
I've come first in all of them but I'm  
always scared every time I do one  
because because you never know if you uh  
if you slip once it could be it could be  
a problem

yeah that's a really interesting  
incentive structure so how does it work  
exactly you get like a 10 or 20K flat  
payment depending on how long the  
contest goes and then you get a share of  
the pot just like everyone else and then  
do you have to do like a fixed review  
and that stuff afterwards as well  
yeah exactly right so it's it's 10K a  
week

and then whatever you get of the contest  
spot and then uh and then a fix review  
after

right and do you lose the senior Watson  
spot if you perform badly for like a  
couple of contests and you drop down  
yeah exactly right so it's like

it's I think the top 10 of the  
leaderboard have it uh which they're  
going to change now to make it a bit  
more restrictive because that's that's  
expanded a bit too much

um but yeah if you every time you do  
poorly on a contest your ranking Falls



and if you fall out of that 10 you lose  
it so there have been people who have  
who have lost it so far  
um so yeah there's like an incentive  
it's one of the most brilliant incentive  
structures I've seen because it's  
there's a motivation to get there  
they want this selection of like the top  
people to be able to put on these  
contests to know that there's someone  
taking it really seriously but there's  
also this incentive to make sure that  
person doesn't just say yeah I'll do it  
but kind of [ \_\_ ] off  
um there's because you know you could  
lose points and you want to be able to  
keep that role to do it in the future so  
uh yeah it works like it works really  
nicely and uh I think it's like  
in the whole mix of like pure contests  
versus pure private audits versus bug  
boundaries whatever it's like the mix  
that I think is at least for me feels  
feels like a nice a nice combo and  
I think I think does a lot for them of  
like retaining really top people taking  
it really seriously  
hmm yeah I can definitely feel that you  
need that Adrenaline Rush of that you  
know you find that critical finding you

have to get that that really keeps keeps  
you going honestly it's the best feeling  
ever I know it's I I catch myself on  
these private audits now where I I just  
did one uh yeah I can show this so I  
just did an audit for sound uh which is  
the like music nft protocol and  
vectorize.if is the the dev who's like  
incredible and I've learned a ton from  
his Twitter and and stuff he's put out  
uh so I was like all right I'm excited  
to work on this but like I'm scared like  
this is this is going to be like very  
incredible code and it was like spotless  
like so well tested so well written like  
the first days I was like I've got like  
a semi-bull [ \_\_ ] medium finding that's  
it like what am I gonna do  
um and then finally I found one very big  
thing which was like a a very critical  
issue and I'm like messaging them like  
I'm so excited because I'm like I'm used  
to finding it and being like a big  
celebration but instead it's just like  
hey you three people who worked on this  
like there's one thing you need to fix  
uh and so it's  
yeah it's a  
it's a weird mindset difference the like  
contest excitement versus private

audience versus like all the way the  
other end of the spectrum bug bounties  
where it's like  
the most extreme adrenaline Spike  
so I'm still still kind of feeling out  
like what feels feels best for me in  
that range  
nice and how do you compare to uh spam  
it do you do have you gotten much orders  
from spare bit  
yeah I did I did a one with spear bit in  
the fall and I'm doing one right now  
actually for for sabler  
um  
I yeah I really like it I I consider  
that the same as as most private audits  
I do I prefer to do them through spear  
bit honestly  
um because I like the work they do to  
like first off select great clients get  
to work with new interesting people  
which I told you like my favorite thing  
is like collaborate with different  
people  
um and like they deal with a lot of  
logistics that are not my favorite part  
um  
so yeah I consider that kind of like a  
similar but better version of of private  
audits yeah because private audits

you're you're mostly just by yourself

and spare but you know you can

collaborate with other people so

although I've been making an effort

recently to say like

on

I don't know there's a weird thing where

like there's no need to work for

yourself by yourself on private audience

um and I think there's like

there's a big middle ground in what

protocols would spend that's more than

like a higher one person somewhat

inexpensively but less than like a huge

audit firm they can get like a lot of

quality so like there have been a few uh

actually the way things are shaken out

we haven't actually done one together

yet but like there have been a few

people that we've talked to like trust

and I have talked to about doing uh

audits the two of us

um there have been a few where I've like

put together a team of three people and

I think like that's probably going to be

more of a trend going forward

um my like big picture thought on this

is like one of the coolest things that

these contest firms have done is to make

these leaderboards public right so like

all of a sudden we're two years ago if  
you wanted to make sure you were getting  
a good audit you needed to go to a big  
firm you had no other choice now all of  
a sudden it's like you know the people  
who are getting results in contests  
um and so it makes it possible to go  
hire those people directly and then a  
lot of that hiring is individual but I  
don't think there's a need to be so I  
think there's probably going to be a bit  
of a trend towards like teams of top  
wardens teaming up  
either as a firm or just like on a  
one-off audit here and there and saying  
like

I mean looking at the optimism thing as  
an example

they were audited by

um who was it I guess first trail of  
bits or first open Zeppelin then trail  
of bits then then signifying you guys  
um

and then I think again by trail of bits  
but just not invariance whatever they  
had five audits from like big amazing  
firms they caught important things and  
they went into this this Sherlock  
contest being like No One's Gonna find  
anything like we are amazing devs they

clearly are everything's super well  
tested it's been audited by the best  
firms like there's nothing left here  
um and  
I think like it's a testament to the  
contest model how much it was found but  
also I feel like okay like trust and I  
taking it really seriously I think we  
ended up with two highs and four or five  
mediums  
um and so I think there's something  
there that's like  
there's a pretty inexpensive price you  
could pay for  
two top people from these leaderboards  
to take a few extra weeks that may  
surface things just because you're  
getting more eyeballs who are taking  
this seriously from different  
perspectives so I think like  
I think the roles of all these different  
things are probably going to change a  
lot I think we're at an interesting time  
with this where uh  
yeah teams is is something that's like a  
recurring theme for me of what where  
things might go but I'm not sure exactly  
how that unfolds yeah that's really  
interesting I think I recently saw yearn  
or another big protocol post on Twitter

they were taking on like five also  
Junior Auditors and they they were  
mostly people from code Arena that they  
decided to uh you know like a sort of  
Team yeah uh private order on did you  
see that  
I didn't see it but yeah it makes sense  
to me I mean it's such a  
what what code Arena has done and I  
guess like that's that's grown Beyond  
them now but like what they started is  
just incredible I mean  
there I know for myself there's zero  
chance I'd be doing this without them  
um and I think that's probably true for  
the vast majority of people like the the  
pathway of being able to like get in the  
arena I guess quickly uh and have a  
community that's doing it and learn from  
other people and see audit reports in  
public and like it's just  
it's an incredible thing that that  
exists for this space and I can't  
imagine like if I was at a firm hiring  
it's like of course I'm going to look to  
that like I get to see people's actual  
work from the past few months and like  
what they were able to find and like see  
how their brain works like it's uh yeah  
there's no other kind of hiring that

you'd be able to do that  
yeah 100 I definitely wouldn't be doing  
this if it wasn't for all the contests  
and uh yet for hiring yeah I found order  
firms they they're pretty much  
um really valuing that order contest  
experience like if you got high findings  
you're high on the leaderboard then you  
know you've got a pretty good chance if  
you want if your goal is sort of get  
into an order Fair  
yeah I really I mean and I don't blame  
them right like I'm thinking about in my  
past doing a lot of hiring  
and if I got to if I got to see oh you  
did this exact role publicly for a year  
and I can see your exact work product  
and read what you uh what you worked on  
and see exactly how it went and see how  
it compares to other people it's like  
yeah I'd want to hire based on that that  
would be great  
yeah  
and you mentioned the optimum contest  
can you go into a bit more detail on  
that you work with trust was that that  
pretty much the same  
collaboration process you mentioned  
previously about creating a um a disco  
Channel and uh going through that



yeah exactly right so

Jack told us Jack was the founder of  
Sherlock and mentioned like hey optimism  
wants to do this contest we're choosing  
two seniors like we need people who are  
going to like take this really seriously  
um so I was talking to him a bit about  
it and I was like and I think he had  
talked to trust directly and I was like  
I think rather than us doing it separate  
if your ultimate goal because he was  
really like  
optimism thinks we're not going to find  
anything I need to make sure we're going  
to find something like let's like  
whatever I was like if the goal is find  
something then we're more likely to find  
something working together than working  
separate and trust and I have found this  
this uh big bounty in December so we  
like knew we liked working together and  
we're like all right let's let's like do  
this as a pair why not  
um so we started our uh operation break  
optimism Discord server and yeah it was  
the exact same process so so first  
couple days we were kind of on our own  
separately reading through it just  
dumping everything that we thought of  
and separate channels and then for that

one was a little more like I think we we  
had live calls maybe three times over  
the two weeks to just like brainstorm  
ideas talk through the things and make  
sure that things we were shutting down  
were actually like should be closed  
doors  
um  
and yeah just like play around with like  
well where should we focus with the time  
we have on this uh and really like  
I don't at least for me I don't know  
about trust I have not that's the  
hardest I've worked on a contest I like  
really made the most of that two weeks  
every way that I could uh which and it  
blows my mind I mean this is a biggest  
Testament to the contest model is like  
there were a lot of things that were  
like oh yeah I could have found that  
whatever the other high founding finding  
that we didn't get so there were three  
highs and we found two of them the other  
one was the best finding of the contest  
by far much better than either of the  
ones we found like absolutely brilliant  
and it was exactly in the code that we  
had stared at for ages and  
we'd talked at that idea from like four  
different angles and never put the

pieces together and it was like it was humbling to see that and just be like that is absolutely brilliant and we totally missed it while staring directly at it like it's that's why I think the contest model is so good that like if we did this audit privately we would have found two highs and five mediums and been like we crushed it look at this and there still would have been something that could have messed them up live in production like a big big problem um and so I just think yeah like it's it's incredible uh and like shout out to uh he1m I guess is his name uh for finding that it's like that was the best finding in the contest by far it was it was brilliant

so when you go through that order process list trust you go through the code first and you you sort of make notes on the code and all that at what point do you actually turn those notes into a specific thread in the Discord or do you sort of follow up and try to understand it a bit more before you say this is a potential thread

um I I guess I'm asking is how closely do you collaborate on the initial pass sort of stage

I think the ideal is to be as Loose as possible with it and then shut them down quickly if as things go but it's sometimes difficult because it's uh it can be embarrassing to put too many things that aren't right so I find like with trust we know each other well enough where like we were dumping a lot in there and it was quick to just be like he'd put something and be like no that doesn't make sense for this reason God I'd put something he'd be like no I know I already explored that so like I don't know I try to think of it like if I was sitting in the room next to someone how What Would I bring up out loud and it's not like I'm going to just like dictate everything I'm doing and every tiny thing that comes to mind but anything that I know is acting weird or anything that I think might be worth exploring or anything that I think is a problem but I'm not totally sure like I think the idea is to be very loose with it and try to get as close as possible to the place of like we're one big brain where ideas are flowing between it not like we're two separate people who are uh making sure

that everything they say is polished for  
the other person I think I think that's  
that's ideal the reality like I trust  
and I have worked together a bunch and  
like know each other well so I'm not  
like  
in that environment we're both very fast  
to share a lot so like everything that  
was a slight idea was being shared right  
now I'm doing a spirit audit with people  
I've never worked with  
I'm being a little more cautious with  
like all right I don't want to fill this  
with dumb ideas uh I I should do some  
thinking first but I think that's like  
mostly out of  
like  
respect for them and like insecurity of  
like I don't want to look stupid and  
that really the idea for finding stuff  
is like just be one big brain  
yeah that's a pretty interesting point  
um yeah I also sort of find myself doing  
that just if I'm working with people I  
don't know very well I sort of hold back  
until I'm pretty more sure of the thing  
I can bring me up as well especially  
like it can feel kind of bad if it's  
like there's like four things in a row  
you put and they're like in two seconds

like no that doesn't make sense for this  
but also they just saved you a ton of  
time like it's really great  
um it's I think it's like it's one of  
the Testaments or like positives of I  
think like your setup now or like the  
like audit firm model of like you're  
working with the same people over and  
over you eventually are like  
they know my ability they're not going  
to be judging me by this one question I  
asked or there's one thing that I got  
wrong or the thing I missed  
um  
and that like  
even if it's wrong maybe it Sparks an  
idea I think with this stuff like you're  
trying to find the the One path that  
does something weird out of all the  
possibilities that are normal  
having more communication and like more  
weirdness is is just  
generally good like I think especially  
especially for like bug Bounty stuff  
where you're like you're trying to find  
the one weird thing uh I can't share the  
details of what the thing the trust and  
I found I told you a bit before the  
before we were recording but  
um

the like

we had an inkling of a direction of  
something that could go wrong  
and so the whole hunt was like how can  
we make that thing go wrong and it ended  
up taking like chaining like three or  
four different slightly off things  
together and there's just no way that  
that would have happened with or maybe  
what if someone could have found it but  
the thing we found had been live for  
over three years and hadn't been bound  
and was a critical vulnerability so like  
it was difficult to find but it was only  
possible because you had two different  
people saying like I see things this way  
and see this and I see things this way  
and they happen to fit together and some  
of those things seemed stupid when they  
were first brought up and I just like I  
think

I think worrying about that just gets in  
your way

yeah really good point

so is that um is there anything else you  
can share about that immunified Bounty  
or is that pretty much all you can share  
at this point yeah I think all I'm  
allowed to say is it was a critical in a  
top 10 biggest protocols on immunify

um

and that by September we will be able to  
share more information

nice nice

so you do a bit of everything

I take it uh like a bit of private

audits a spare bed a Sherlock and unify

all sorts of stuff

um do most of your work come from any of

those sources or is it just a mixed bag

it's kind of been in phases like I for

sure the fall was a lot of Sherlock as I

like worked up to the senior Watson

stuff

um this year just because I think I

think I default to saying yes a little

too easily and so I've ended up

in a place where I scheduled myself out

with private Audits and some spear bit

and some like Sherlock senior watts and

stuff

pretty far out

and I just kind of had the realization

of like I don't actually

I don't know if I want to be scheduled

that far out I

the rush I get from the bug Bounty stuff

is much better than anything else and I

might be biased from this one big one

but the dollars per hour has been quite



a bit better on average than anything

else

and so

I think I may kind of like scale back on

taking on all the other stuff a little

bit and try to focus more on bug

bounties for a little although I've

talked to a number of people who are

like yeah I've said that like 50 times

and then cool private audits come in and

it's like I want to work on that one so

I'll say yes and I want to do that so

I'm not sure where things will go but

that's my intention is to probably do

more bug bounties and then just a few of

either spear bit private or Sherlock

contests that are like the most

interesting to me

hmm nice so what is your day-to-day look

like how many hours a day do you work

that kind of stuff or like the split

between study and private Audits and

bounty hunting

yeah I'm uh I may not be a good model

because I'm like uh

it's it revolves around having two very

young kids uh it's not like my ideal

work work setup but basically I I find

like too long of a stretch of this and I

um

I stopped being a shark and so I usually will do like like six hours maybe like 9 30 to 3 30 as like a main bulk of the day um and then usually like two or three night or maybe maybe like one or two nights a week I get hooked on something and spend another like five hours after the kids go to bed and so yeah I probably I probably do like seven or eight five or six hour chunks a week and that's like best for my brain to be able to like stay focused on it that varies from like I I used to try to like organize my schedule like I'll do an audit and then I'll do study or I'll learn something after whatever and I find like once I'm on the thread with an audit I basically don't want to let go of it until my brain is like wants to shut off so it doesn't work as well for me to like try to have this like nice balanced schedule um I tend to just be like immersed in an individual audit that I want to get to the bottom of and when that's done maybe like take a few days or take a week of like learning time or more relaxed days or building something or just something that's like kind of a

different different area of the brain

um

so yeah still pretty normal working

hours I guess yeah totally I've done

I've had into so many things like I

don't know especially like starting the

the company in the past like at the

beginning was like oh I'm gonna like

work really weird hours and I was like

doing the digital Nomad thing in like

2013 2014. I'm gonna live all these

places and like work weird hours

whatever and then slowly all these

things were like I'd like I moved to

Austin where I live now it came for two

months and I was like living in one

place is actually kind of nice like who

knew all right I'm gonna try this out

and then as I was starting the company I

was like oh yeah we'll get an office

we'll try it I'm not really going to go

and I'm like an office is kind of nice

like look at that and then like oh wow

working nine to five is like really fun

like that it fits my schedule so nicely

like slowly all these things that I like

broke all thought I broke all these

molds and I was like no they're at least

for me they all seem to work well I'm

like cutting slowly moved back to all

that stuff

foreign

that's interesting coming full circle

again

yeah yeah totally

yeah you posted uh I think a couple of  
months back you wanted to be top 10 on

them unifying that was on your goals is

that still going to be one of your goals

this year

so I

spent the second half of December

focusing a lot on immunify

uh

was in love like

oh this is so much more fun than the

contest more fun than private audits

like this is what I'm going to focus on

I think that was when I posted it was

right after that

um

I proceeded to have not touched immunify

from that until now not once uh part of

the reason for that was that the

negotiation process for this uh large

Bounty was uh was pretty frustrating in

a lot of ways and

um

kind of felt

um

I don't want to say too much but it made  
me question whether uh that was  
worthwhile as a priority

um

and especially I don't know I find like  
it's not like that many hours but having  
like arguments as a part of your job is  
a very different part of the brain from  
auditing

um and it just took me out of the Zone a  
lot to have like something lingering  
and so I

yeah I got frustrated with it and I kind  
of dropped it

now we'll see I see like I'm unified  
taking seriously some of these changes  
to

um

improve the experience for for white  
hats

um and so I'm like excited to see what  
they do there and and hopeful about that  
and uh yeah I may I may get back to it  
but I I definitely went into the air

being like forget everything else I'm  
gonna go all in on this and have done  
the exact opposite so we'll see if uh if  
the goal actually happens or not

well you know doing a bit of everything  
keeps things interesting yeah I think

for all this stuff like

I don't know there's there's ways in  
which goals are nice and they like keep  
you focused on something and keep you  
motivated and there's ways in which like  
the you that set the goal doesn't know  
what the you at the time actually wants  
and like there's a lot of wisdom I think  
in like

trusting things as they come up and  
letting that guide a little more than  
like what I decided on January 1st or  
whatever whatever so we'll see but I I  
am pulled to get back to it now so so uh  
May resurface

nice nice

well it's been a pleasure chatting with  
you as act and it's very encouraging  
that you've got kids you know I just  
recently had a newborn and  
um yeah I said you're still working and  
fine I'm kind of like on four hours of  
sleep at the moment so I'm sort of  
hoping that my energy levels was okay  
during this interview

yeah I and I I

the little sleep audit brain is like  
it's real I can feel the difference of  
myself if I if we've got good sleep  
versus bad sleep but you are you will

probably soon experience there's there  
is a there is quite a Joy about like  
Europe early baby sleeping on you doing  
an audit there's something magical in  
that in that moment where you're like up  
at three in the morning and but you're  
kind of weirdly alert and your brain's  
in the zone and they're asleep and uh  
yeah there's some there's some magic as  
all that stuff combines I I think you're  
in prison Street  
nice nice well it's been a pleasure man  
um thanks thanks for coming on to chat  
with me yeah great chat with you