

Transcript of Liam Krut of Reinforced Ventures

Hall T. Martin: [00:00:00] Well, hello, this is Hall Martin with Investment Connect. Today I'm here with Liam Krut, investor partner at Reinforced Ventures. Reinforced Ventures, invest in overlooked areas of deep tech and have a network of over 1700 experts to find, validate, and support the next wave of companies that will disrupt the current market leaders.

Liam, thank you for joining us.

Liam Krut: Thanks for having me help. Really appreciate being on your show.

Hall T. Martin: Great. So where are you calling from today?

Liam Krut: Calling from Pittsburgh, pa weather is slightly cloudy. I think it was like maybe 50 degrees, last night, and it was, it's probably like 65 right now, or 70. So my ideal weather, love this time of year.

Hall T. Martin: Great. So let's start off with your background. Tell us more about what you did before.

Liam Krut: Yeah, happy to. So my background was kind of a wide array of things, but. Luckily, I feel like the things that I did in research stages were, are things, you know, being commercialized now. So it's been very helpful from like a technical due diligence standpoint.

I first studied economics at GR City [00:01:00] College and paired that with a number of biotech internships. across things like bioinformatics and, um, viral vector cores, as well as like in vitro drug testing and 3D printing of bio tissues, those sorts of things. after that, I started two companies. The first was a mRNA Therapeutics company, was a topical application followed by a blockchain startup.

when that fell through, worked in data science for a bit, went to Carnegie Mellon University to study computational biology, and then, spent some more time in data science. Did about a year of outsourced private equity due diligence. so we did, I think 43 or 44 transactions. So it's a very, iterative series of like, Here's a company that's about to get acquired, what technical risks are there?

And then, two to four weeks later, you move on to the next one. So really great learning experience. , on the side was working with, my now partner, you [00:02:00] gutridge on syndicated deals on AngelList and, After we were doing that for a while, we still didn't hate each other and decided to get married or rather start a fund together.

, I don't know, which is more of a serious commitment, could ask my wife. But, , we've been doing that for a little over two years now yeah, essentially we're investing in overlooked areas of deep tech. So kind of looking where the pendulum hasn't swung and finding platform opportunities that maybe aren't buzzwords.

Or not really trendy things yet, but things that we expect to be over the course of the next 18 to 24 months.

Hall T. Martin: Great. Let's, uh, talk about starting a VC fund in the deep tech space. what is your investment thesis in, uh, in detail?

Liam Krut: Sure. Happy to. So, most venture capital firms have some predictions about the future, right?

They expect that green energy is going to be big, or nuclear energy is going to be big. And a lot of these predictions can be in [00:03:00] incorrect. They can be based on people's belief systems or biases, or they can be an oversimplification of a very complicated world that we live in, or, they could be disrupted by a Black swan event, um, which this decade seems to be just chock full of, it seems.

for us, we're, we're not trying to predict the future. We don't have a set of criteria for here's what we expect things to look like. , life's too complicated for that. So instead we're applying the constraints based approach rather than trying to predict what the future is. We try to predict what it's not going to be, and then that allows us to be open to looking everywhere else.

So we have about 20 to 30 different mental models that. We'll utilize for, finding deals that are either in industries that are fragmenting or industries that are centralizing, finding deals that are complimentary, kind of the picks and shovel approach to [00:04:00] things that are currently a buzz trend.

But we look at the trends and we try to find like, what are the things that aren't trending yet, but likely to be in the future? So there's different local constraints that will apply to each of the companies that we invest in. But the three big

global constraints that we apply are, first of all, the founder has to be irreplaceably competent.

So no matter who they are or where they're from, if this person dies, the company should die with them. Right? If, if they get hit by a bus, there's no contingency plan. , oftentimes we're inventing, we're investing in the inventor. Of a totally new field of study and that knowledge that they have in their head.

, it's not patentable yet, , meaning it can't be reduced and simplified. So they do have the patents, but there's still a lot of knowledge in there that, just no one else knows yet. Second, these are platform plays, so. That word gets thrown around a lot today, but for us, a platform means you have five to 10 [00:05:00] product lines across multiple industries.

So even the biotech companies that we invest in, they'll often have, a therapeutic application and then maybe like a drug delivery application. And then they might have an application outside of biotech altogether in either automotive or manufacturing. But we're really looking for a wide breadth where.

these aren't companies we're hoping to in three to five years. These are very long-term plays that we're hoping disrupt not just one, but maybe two or even three separate industries with multiple product lines around that core technology. And then third, you know, as I stated before, these are overlooked opportunities.

So when people are investing in battery startups, I mean, I got so many pitch decks about, you know, we're making batteries 5% or 10% better. Winstead invested in the one clutch startup that, is going to be needed for all the drones, cars, , power tools that that battery startup is using. So it's [00:06:00] really, you know, looking where the pendulum hasn't swung and trying to find those things that aren't buzzwords or aren't trendy yet, which is difficult because if it's an overlooked opportunity, how do you know where to look?

Hall T. Martin: And so what are the potential returns for those in the deep tech space? What are you seeing out there?

Liam Krut: Certainly. So there's a lot of technical risk a lot of times you're investing in companies that they're still figuring out some of the engineering details. we invested in one company in Space Tech. had designed a new engine design and. Made sense. We went through our technical due diligence with one

of the top, hypersonic fluid dynamics engineers in the world, but still, like, it wasn't proven whether the tech would work or not.

And we made that investment about six months ago, and it was just proven two weeks ago, during a phone call at 8:30 PM So there's a lot of risk here. we have over 1700 experts that we rely on to help us [00:07:00] with that risk. And so far it's worked out exceedingly well. but these companies that we're investing in, you know, we're expecting to see returns, where, you know, exit valuations could be anywhere between, 500 to a billion dollars for an acquisition.

to some of these, you know, platform plays that have applications across multiple industries, are likely to exit for multiple billions of dollars if and when they make it to those stages. So this is very much a high risk, high return sort of environment. And because we're getting in at the earliest stages, generally pre round, napkin stages, I like to call it often.

We're investing before, you know, the company's been incorporated. , we're getting in very early, so we're investing at maybe a five, a six, or a \$10 million. Valuation and we're expecting these companies to be operating for 10 years and to exit at, you know, one or two or 3 billion.

Hall T. Martin: Well, great.

Well, aside from the technical risk inherited in these [00:08:00] startups, what are the other challenges that you face in this domain?

Liam Krut: That's a great question, and honestly, the technical risk probably isn't the biggest risk for us. Every strategy has a weak point, and probably the weak point for us is on the business, on the operating side, because we're investing in the founders of the field, that takes away a lot of risk from the competition and makes it easy to create a moat if you're the only person in the world who actually knows how to do what you're building.

But a lot of these people are PhDs, they're postdocs. They haven't operated a business before. They might not have sales skills, and so there's a lot of analysis that we have to do around the personalities to understand, is this someone who can learn how to operate a business? Is this someone with leadership skills?

Is this someone who can be charming? Really it's questions around, are they resilient? Are they able to learn new skills or are they a one trick pony and are they someone who's just looking to [00:09:00] get their science project funded?

Or do they really wanna be owning and operating this company over the next 10 to 15 years?

Hall T. Martin: Well, great. And so what are the differences between your Deep Tech fund and other deep tech funds? What's the primary difference?

Liam Krut: I think the primary difference is that other deep tech funds have a prediction, uh, speculation of what the future will be. For us, we're completely agnostic to it. And you see this in the hedge fund industry and public markets where, managers such as, Graham, Warren Buffet to a certain extent, , George Soros will take a, you know, agnostic.

I don't know what the future will be. But, you know, I can set up my risk in a way to anticipate tail end outlier black swan events that are both positive and negative. term that was popularized by Naop and we have a similar approach in Deep Tech where we don't know what the next big technologies are, but we know how to place our risks so that we can.

Have a higher [00:10:00] probability of achieving and closing those outlier companies that are going to disrupt the next decade. And it's a pretty narrow window. I mean, markets are really bad right now. we expect they'll continue to bad for at least the next 12 months. And so the decks being reshuffled and the companies that.

Were big before the 2008 crash. Weren't after that, right? ones that were, the big companies after oh eight were fairly overlooked and weird things like ride sharing or Airbnb, things like that. And we expect it'll be the same thing again, where right now the deck's being reshuffled and no one knows what the big players are gonna be.

And I'm not smart enough to know what the big players are gonna be. But we can set up on our portfolio in a way that. We're more likely to hit those big players, because they're doing fairly overlooked things at the moment. They're gonna impact multiple industries.

Hall T. Martin: Great. Well, so what is one thing about your fund that you did not expect?

Liam Krut: A great question. One thing that we did not expect, [00:11:00] I think it's, are you true to the name Reinforced Ventures? I. I'm just thrilled by how helpful the people in our network have been at reinforcing our portfolio companies. So, pre-investment, you know, as I mentioned before, we have all

these experts, almost 2000 of them at this point, who will help us find companies in overlooked areas of deep tech.

they'll help us due diligence those companies. So we'll always pull in an outside expert with that. And really, you know, these are people who are executives at tech companies. If they have one of their top employees leave, they come to us and they tell us about that. Or they're researchers or professors at a top tier university.

And those people are also telling us about these cool companies that aren't, blockchain or generative ai and helping us, Make the introduction, giving us the context on the founder, on their personality, what it's been [00:12:00] like for them, working with them over the past six months. And then post-investment.

, I mean, these are the people who are making introductions to new customers, sitting on advisory boards, helping with key talent hires. And so while my partner and I are, fairly good generalists and we do get the late night and the weekend phone calls where people need help from us, It's often a much better use of time that I can find and happen to have the right person who's maybe a, a water pump engineer or a, ML perceptions engineer who can help these portfolio companies in much more specific in actionable ways than I can.

Hall T. Martin: So what advice would you give to someone entering the deep tech space, either startup or investor?

Liam Krut: Yeah. So on, on the startup side, I would say a couple things. First of all, One of the surprisingly defining traits about successful deep tech founders is they tend to be world class, not just at one thing, but at two or three different things.

[00:13:00] So I'll see founders who are amazing at maybe robotics, right? And they're like, I took this specific robot arm, or, dog, robot, or whatever. I made it five or 10% better. But while it's an impressive technical feat, it might not be expansive enough to have a huge commercial impact. There are other founders who just in some shape or form are world class or two or three things, maybe that's , you know, machine learning, robotics and, you know, some other third category, I don't know, fluid dynamics.

Right? and they can take those three seemingly unrelated things. And they're like, Hey, I found the intersection between these two or three areas, and the product I made from that is a thousand times better than anything that's ever existed before. And that difference between being world class at one thing and

making your product 10% better versus world class at two or three [00:14:00] things and making it a hundred or a thousand times better, that's just been an absolute defining characteristic for the companies that we've seen succeed.

Additionally, , I've been seeing more single founder companies and I actually think that's a good thing. So a lot of these areas are so technical and complicated that if you have the charm and the salesmanship and the technical skills to build and scale this company up, don't be afraid to do it on your own.

really like if the two neurons aren't connected, the idea can't form, you know, and sometimes things in deep tech are so technical that unless you actually sync up the brains between two people, there's gonna be a lot of missed stuff. And so the people who move the fastest and who are able to iterate the most often tend to be single founders.

And with a lot of the new, , support tech that we're seeing for, you know, customer relationship management. And, email and web tools and chat, g p t and whatnot. I'm expecting single founders will be more [00:15:00] common because a lot of that legwork and sweat that need to be done by multiple people can be handled by one person.

And then you can have all those ideas just flowing in one brain and the person's able to execute more quickly than hire, you know, a vice president of sales and a vice president of engineering, during their seed or Series A around regarding investors in the deep tech space. I would say it's important to find good co-investors for the later stage.

A lot of this stuff is very financially heavy. A lot of these companies are gonna have very large series A and series B rounds, so having warm connections to the layer stage ones that you can, do a nice warm handoff for your best portfolio companies to those VCs is an incredible value add. I'm honestly not seeing that enough yet.

a number of other funds out there, like Omni Lab Ventures for instance, have been building communities of deep tech VCs. Uh, the Cantos people have been doing this as well, and I think that's been [00:16:00] very important. , the other thing I would say is, I think deep tech investors need to be clearer on how to handle hardware risk.

So, you know, we saw a lot of vertically integrated hardware startups grow up through the, the 2010s. , you know, with the most recent mark correction, it's been harder for them to bring on further investments. And so a lot of those

companies have created, and right now there's kind of this, um, opaque period where.

A lot of deep tech investors aren't sure how to evaluate or measure the risk around hardware heavy companies, right? They have high fixed costs. They need lots of hardware and software engineers. There's a lot of, customer handholding rentals or, deployment issues with onsite. And you look at that, you're like, well, why not invest in software only companies?

And it's like, well, the. Reason is because, you know, the products are also [00:17:00] sticky, but at the same time, a lot of people have gotten burned on hardware heavy companies. So what's the right answer? How much hardware risk is the right amount of risk? I'm still struggling and thinking through that myself.

it's kind of a company thing. We're seeing a lot of horizontal integration where you maybe have like a breakout of hardware components. So like, one you might have, The torque limiters for robot arm, , that's now applicable across multiple industries like space medical tech and manufacturing warehousing, right?

So rather than being a full stacked robot arm with the software and everything else, it's just one hardware component of that robot arm. But now you're working across five to 10 industries.

Hall T. Martin: Okay. Well my next question is, what online information source do you find most helpful in your work?

Liam Krut: That's great question. I honestly think it's probably Google meets, meeting with entrepreneurs, meeting with scientists, meeting with investors.

a lot of [00:18:00] venture capital is gossip and while I very much disliked gossip in high school, . It's kind of the gold of this trade, and there's a lot of stuff that isn't written down yet that is just hearsay and what people are talking about, but it hasn't been codified yet, and that's how you can move quicker than other firms.

Just knowing and meeting as many people as possible and widening your network to see those weird things that maybe no one else has had a chance to look at.

Hall T. Martin: Well, great. so if you could start a business tomorrow in the deep tech space, what would that business be?

Liam Krut: Sure. No, and I, I appreciate the question. , part of how I get better as a VC is I try to think of overlooked opportunities and things people haven't done. It's really hard.

and so I, listed a number of these examples in previous conversations. And I think after going through them, they all mention like, which I would actually do, but a [00:19:00] couple that, I haven't seen anyone do yet, or relatively few people or. You know that we haven't invested in. one would be using generative AI for model organisms.

So a lot of gen AI is still overlooked in the biotech space, but being able to develop new mice or monkeys that can more closely mimic certain human diseases, or even for organoid production. Using generative ai, I think would be an absolutely huge area. the other thing, so like linker molecules have been used for ProTax and different things, right?

So you have these small molecules that can take that protein and that protein link them together, and it's really like a clever way to induce functionality in side cells, I guess outside of cells as well, inside a human body. I think that linker molecules , are still fairly overlooked for gene therapy and antiviral therapies.

So if you know someone were to create a [00:20:00] deep learning model for generating new linkers for gene therapy or antivirals, that's another thing I'd be interested in. Still looking for the \$10 blood panels. So yet there are no fail, but someone needs to do it. , I recently looked at what it would be to get my blood work done, just for longevity purposes.

Luckily, I don't have any health conditions yet, and um, it was like 250 to \$700. And it's like, just kind of inconvenient. I wish I could get a \$10 blood panel once a month, you know, just like some sort of longitudinal data on my health and how that changes seasonally, especially being in Pittsburgh.

and then the other, this is a bit out there, but the other thing that I think is going to be big sooner rather than later is, anti computer virus software for humans. So, you know, we've just started having like social engineering [00:21:00] around. Hacking, right? Where someone tries to mimic your grandmother, right?

And like people are starting to use generative AI for hacking phones, hacking bank accounts. you also see us with pornography, right? Where people are generating pornography nowadays that is highly addictive. Um, can also suggest ideas to people to. Hurt themselves and do detrimental things or, you know, for certain monetization purposes.

And a lot of this can be subliminal. So having, like a software suite of tools, they can help you identify when someone's trying to manipulate you or, subvert you with false information. I know it sounds a little weird, but I've just heard some gossip from people about the types of behavior modification that hackers are doing nowadays.

And it's not going after your as 2 56 encryption, right? It's going after the person who actually has the password. And I think there's [00:22:00] a lot there. So like monitoring of, your state, how you're acting, even if there was like a. May, this is 10 years out, I don't know, but , like there's one company we're investing in called aum.

They are able to, monitor your brainwave state, right? So if you are in a more, suggestive state where someone can. Have influence over you, right? Whether that's a domestic abuse situation or online ads or pornography or whatever. And you can have your device actually tell you like, Hey, like normally you wouldn't be susceptible to this, but like someone's trying to pull the wool over your eyes.

I think that's gonna be a market someday and it's not today. Another thing that I've seen a couple people do, , but we haven't placed any bets yet, would be very low orbital, , autonomy. So if you think of like your hardware stack and your software stack, there's also like your earth stack for autonomy, right?

I've mentioned this a ton of times, but it's [00:23:00] just something I'm very excited about. So on your earth stack you have like sub. Terrainian robots, right? So like robots that check sewer lines or go in caves or submarine robots that have autonomous functionality, right? And there's a number of cool players in that space.

They have like terrainian autonomy, right? So like on-road autonomy and off-road autonomy, they have like, You know, like the immediate air above that. So like drones, right? And then you get to airplanes and then it just kinda like jumps up to Leo, Mio and Geo right, which are satellites and satellites have been around for a long time.

But there's this area in between the stratosphere, very low earth orbital where you can get better image quality, you can have much higher communication resolution and. There are issues around, drag in the atmosphere. There are issues around, propellant and fuel source, but a number of companies working on this that I think are very [00:24:00] interesting.

Where could you take the satellite constellations that we use at, you know, much higher altitudes, bring them close to earth. For, you know, better energy, use better data quality, and you know, have a fleet that lasts longer than 10 years. Right? Like most satellites today, you know, they have, I don't know, like 20 to 40 kilograms of xenon.

Once they run outta their propellant, they're kind of done, right? You decommission it and you know, they last maybe eight to 10 years. And so if you had a satellite constellation that could be closer to earth. , provide better data but also is longer lasting and has like actual autonomy with like either a replenishable or reusable fuel source, whether that's solar or, atmosphere based propellant.

I think there's a huge market there and I don't know who's gonna win out there yet. Now, regarding which of these areas I would start a company in, , I would probably go with the small molecule linkers for gene therapy or antivirals. So,

Hall T. Martin: Those sound like great opportunities and , looks like the future's quite bright there [00:25:00] in what we can do in the last few minutes that we have here today.

What else should we cover that we haven't?

Liam Krut: So I think other thing that would be helpful is to me discuss like company formation, because that's normally the stage that we're working at with founders who number them, haven't started companies before. , and so I just have a couple things to say there this will be particular to deep tech companies and founders who are often working in labs or in a larger company.

So oftentimes the coolest things that people work on, , aren't the things that they were expecting to work on. Uh, you look at a lot of scientists, right, there's the serendipity of. Opportunities, and we see that with founders as well. , they're not just taking a tool that they're in love with and trying to make it a bit better, but they have some pain point that they've stumbled on some problem that truly bothers them, in which case, you know, the stick is much better motivation than the carrot.

And through [00:26:00] that, they solved that little problem for themselves. And I would just encourage people to pursue that as far as they can. And, Expect to see a wider horizon of opportunities open up with that. We've seen companies who have had one particular problem in bioinformatics that they're trying to solve, but you know, they had the courage and the curiosity to see things broaden out to a wider range of opportunities across financial markets and web development and autonomy, all within one little problem that they were trying to solve for themselves in bioinformatics.

So with that, also recommend that people pull a team together of people that they know. it's been a really cool strength where founders often already know who they wanna co-found a company with because they've been working in the same lab with a person for a few years. usually if you've done a few projects with someone and you know you work together well, you know, you can argue, well, that could be a good person to be a co-founder.

And then once you start that, , I would recommend [00:27:00] including the PI as an advisor because the laboratory that you're in, Is going to continue to produce intellectual property, they're gonna continue to produce postdocs and continue to be a great source of talent for you. So maintain those relationships and don't burn those bridges.

And then as far as attracting capital from early stage venture funds, it's difficult in this market, but the two things I'll say are like, getting letters of intent, having customer discovery interviews with your target customer is incredibly beneficial and a great way to kind of determine that early level of risk.

The other thing I'll state is that it's important to, in this market, be able to show that, , The money investor invest will make more money. So a lot of our deep tech companies, yeah, it's very technical. Yeah, it's very research oriented. But the pitch they're making that is most effective is, look, I can only onboard one or two customers right now, but I have a wait list of five to 10 [00:28:00] customers and if you give me money, I will be able to make more money cuz I can service more customers.

Right. And that's a lot more compelling than, Oh, you know, we need to increase our runway. Or, oh, we can't work with what we currently have. We need to hire more people, or, acquire more tools or whatever. But being able to show that you can bring on more customers and that there's strong demand for what you have, is an incredibly powerful, investor pitch even in this market.

Hall T. Martin: Well, it's been a fascinating interview, so how best for listeners to get back in touch with you?

Liam Krut: Sure. So probably the best way is through LinkedIn. you can reach out to me, I think it's just slash William Crut. So my full name, K r u t. yeah, please include a message, um, include what your company is and you know, include how your irreplaceable, how it's a platform play, and why it's an overlooked area that you're tackling.

Hall T. Martin: We'll put those contact details in the show note. Want to thank you for joining us today, and hope to have you back for a follow up [00:29:00] soon.

Liam Krut: Great. Thank you, Hal. Have a good day