Narrator :

In a world captivated by criticism and negative clickbait headlines, it's easy to overlook the scope and power of technologies propelling us forward. At Tech Optimist, we delve into the vibrant intersection of technology and entrepreneurship, shining a light on innovators who are building a better future. As members of the most active venture capital firm in the United States, our unique vantage point offers us insights into the real-world impact of technology. Join us as we explore, celebrate, and contribute to the stories of those creating tomorrow.

Mike Collins:

Welcome to the fifth episode of the Tech Optimist podcast. Starting this podcast, I very much took on a "let's ship it and improve" approach in episode five. I think we keep getting better and better, so we have some very exciting guests today. Welcome to the show.

We have three blocks for you today. In block one, I have Adam Oliner, co-founder and CEO of Graft. It's an AV portfolio company that's really got an incredible background in AI and a focus on solving real, practical business problems for companies large and small. I think you'll enjoy his perspective.

In block two, I chat with Adrian Corless. He is the CEO of CarbonCapture, a company that's doing amazing work in pulling carbon from the atmosphere. Obviously, it's a huge issue for us. There's a great business opportunity there. At Tech Optimist, we believe that problems are solved by entrepreneurs in technology. Carbon in the atmosphere is an issue, and I think the most practical way that that's going to get solved is innovators like CarbonCapture. I hope you tune in and learn a little bit more about their work.

Finally, in block three, I talk to one of our principals, Sophia, and we talk about women in AI and in VC as a whole. She's done some incredible writing and speaking on this topic, and I think you'll enjoy our conversation.

As a reminder, the Tech Optimist podcast is for informational purposes only. It is not personalized financial advice, and it is not an offer to buy or sell securities. For additional important details, please see the text description accompanying this episode.

Okay. Let's get into block one with Adam, owner, co-founder and CEO of Graft.

How are you doing today, and where does this find you?

Adam Oliner:

I'm doing fine. I'm in San Francisco proper. How about you?

Mike Collins:

I'm in Southern New Hampshire, about 45 minutes north of Boston, and why did I start a venture capital firm in Southern New Hampshire? That's because that's where I lived and I was the founder.

Adam Oliner:

Proximity to Boston at least gives you some proximity to some great universities, which may be influenced the type of venture capital that you got into.

Mike Collins:

Yeah. I grew up in the Midwest. I went to Dartmouth out here and just fell in love with the area. My wife is from the Boston area. Yes, I can definitely rationalize. We're close to Boston. We have offices now in Menlo and New York and all around, so it works to have our back office here. Yeah, the truth of the matter is this is where I lived when I started the business. Yeah, that's how it goes.

Adam Oliner:

I grew up in Connecticut, so not too far from you. We used to rent. Just a group of friends and I would rent a place up in Killington, Vermont, every summer just for a week and enjoy the green mountains and everything up there. It's lovely. I could do without the insects, but it's a really beautiful area.

Mike Collins:

From about now through Thanksgiving is fantastic up here in New England. Great. Well, tell our audience a little bit about your fantastic, super interesting company and the genesis story behind it.

Adam Oliner:

Yeah. Absolutely. I'm CEO and founder of this company called Graft. The origin story of the company came during my time as head of machine learning at Slack. We had a small team, very smart people, but not very many of us. The company had huge amounts of data and lots of ambitions for what they wanted to do with it, so things that would make the product better like driving engagement and offering new capabilities to people, help them find things in old conversations, that sort of thing, but also to run better business. Are there ways that we can improve the efficiency of our operations or identify opportunities for better customer experience and things like that? They wanted to do a lot of things, but we didn't have very many people. It was like how do we accomplish these various AI ambitions given the resources that we have?

We started to look around at what the top AI companies at the time were doing, so Google Meta, Amazon, and I was so surprised to discover that they were all doing the same thing and that what they were doing was different from what everyone else was doing at the time. This was maybe about four or four and a half years ago. They were all training these really massive models and then using it across the breadth of use cases. They weren't just doing it for predictive analytics or search or generative. They were doing it across the board and, moreover, they had all built the same infrastructure around those models to actually make them useful in production because, by themselves, they're generic, they don't have any of the production properties that you need and so on. You have to build a bunch of stuff around it.

Amazon spent $300 million building out that infrastructure. Meta had a team of 250 or so engineers who were building it out, but what was surprising to me, in addition to the fact that they had all converged around this approach to doing AI across all their use cases, was that they built the same infrastructure to do it. They had discovered collectively this recipe for a new approach to AI. This is again before we had a term for foundation models and everything like that. The world had not woken up to this yet, but we noticed that they had, so we said, "Well, can we do this at Slack?" We built a version of this, shipped a bunch of features that were based on it. I can talk details there, but, basically, the short version is they were really impactful. They worked really well, much better than the older approaches to doing it, and we were able to ship a lot more features more quickly. It was better quality, higher velocity, like what's not to love?

This made me wonder, instead of having five companies that were doing AI that way at the time in production, "What about the other million?" I started to think about what the barriers to entry for those companies were. The three big ones historically had been data, infrastructure, and expertise. It used to be that you needed just a huge amount of really nicely curated data that's labeled properly. Entire PhD theses were written about "how do you pick the right examples to label and how do you know if it's labeled right" and all those other difficult stuff. Especially if you worked with unstructured data, you just needed piles of it, which is why only those big companies were doing it historically.

With these foundation models, these big pre-trained models, they mitigated that data barrier to entry in a pretty important way. Now, you can teach them new concepts with a dozen examples instead of 10,000 or whatever and for various other reasons, too, like the fact that they can work with unstructured data and other things. That data barrier to entry was reduced substantially, and that left infrastructure and expertise.

If there's a way that we can bring this foundation model-based, modern-AI approach to companies and remove the infrastructure and expertise barriers, then we've done it. We have made AI accessible to what we call the 99%.

Mike Collins:

Yeah. That really was to just get something done much more efficiently.

Adam Oliner:

Yeah. The path that everyone has to walk to get to modern AI is to build exactly this infrastructure, the infrastructure that we ended up building at Graft and packaging as a managed service, and then the question is, well, who can that be used or who can use this? So then we also built interfaces on top like a UI and a chat interface, APIs and so on that would make it accessible to folks not necessarily who don't know anything about data or technology. That's not really what we're thinking about. We're more thinking you don't need to be an AI expert. That's especially important because, even if you were a machine learning expert five years ago, the world is very different now and a lot of those skills don't really translate. You don't hear people having conversations about bias-variance trade-off and these other concepts that were absolutely central to conversations around machine learning solutions because the way we do it is just different now.

We built Graft and removed these three barriers to entry, and where we are in the journey is now we're starting to bring it to not just companies that you would maybe think about when you think about the ones that would be using AI, but all of the ones that maybe you don't think about, too, that are part of that 99%.

Mike Collins:

Yep. Yep. Where are you in just the funding cycle? The business is not that old and you've made really a lot of progress. Give us just a little sense of where you are as a company.

Adam Oliner:

Yeah. We've been very fortunate to have some fantastic investors around the table. We started off by raising a pre-seed a couple of years ago that was led by GV with NEA and then a bunch of angels including Anthony Goldbloom, co-founder of Kaggle, and some other really fantastic folks.

Mike Collins:

It's an amazing group, yeah, amazing.

Adam Oliner:

Yeah. We're very lucky to have an initial check written by them, and then, last March, we raised $10 million in a pre-seed that was led by Radical with GV buying in the rest and then followed that up with a smaller, mini round immediately afterward that Alumni Ventures and a handful of others participated in. We've raised about 15 and a half so far. We're seed stage and are marching our way, building the case toward our series A, and that's where we are now.

Mike Collins:

Yeah. Excellent. Talk to me about context. This world is moving very fast even since when you founded the business. What are the wins that you're really trying to catch in your sails right now?

Adam Oliner:

Yeah. It's certainly a noisy time, and I think, for some people, that is challenging if they don't have strong theses around the direction that it's headed. There's the classic Gretzky quote about "skate where the puck is going". We have been historically very good at predicting where the puck is going to go.

Before foundation models had a name, I quit my job and started a company that was based around trying to operationalize those in real-world use cases, and that's been really beneficial to us because among those theses are there are going to be hundreds or thousands of these foundation models and there's not going to be winner-take-all. If you are starting your AI journey by trying to decide which one foundation model should I be hitching my boat to... Hitching my boat? Hitching my trailer to? I don't know what the metaphor is actually, hitching my future in my company to, I think you've already asked the wrong question. Really, the question should be how do I advance my business without having to make that choice, retaining the flexibility?

That's one example of this and, similarly, this notion that actually foundation models by themselves are not enough, that you need surrounding infrastructure, that you need accessible interfaces, these are things that we said from the outset were absolutely critical to getting real value. People gradually have been waking up to this. We're still ahead of them though. For example, when ChatGPT first came out, people started to say, "Hey, it looks like this thing is making stuff up. Somebody should think of some way to ground it in the data that we have," and so people started to talk about RAG solutions and things like that, which we had already built by the time that people started talking about it.

There are other things that they're going to start to realize and that some folks are starting to wake up to, which is that, actually, data is not a great grounding. Most data is not complete or correct or current or clean. It's a mess in the real world even for really simple things. If you go to a big company and you search for what's the guest WiFi password, you're going to get 12 different documents because it changes over time and it's nobody's job to delete the old ones or update them or whatever. That's a silly example, but this extends to all of the data. People write down lots of stuff.

Mike Collins:

We were doing a similar project with just our employee handbook, and it's like, as you point out, the data is not clean at all kind of thing.

Adam Oliner:

Something really critical that we built at Graft is also ways of incorporating knowledge, information that's in people's heads like "how do you get it from human beings" and include that, bringing us closer to grounding in reality as opposed to grounding in data. Excuse me. Examples of things like that where we've just been very good at knowing the foundation model is not enough. You're going to have to at least ground it in data, but the data is not going to be enough, so you're going to also have to bring in expertise and then thinking about the interfaces to deliver that value, so what are the systems of engagement that we build on top of all of this stuff?

That's been good for us in the sense that we've been right historically about the direction things were going, and that's been useful because we had a big head start. It's been difficult for buyers though. I think we've talked with a lot of companies, hundreds over the years. A lot of them are in a position of trying to make bets and hitching their careers to it. They need to be right. It's a daunting proposition if you're not someone like me who thinks about this all the time and really believes strongly about "this is the direction" and making this big bet.

For a lot of folks, it's just very hard, and this manifests in interesting ways. We'll talk to companies and ask, "Who else are you considering as you approach this problem?" and it'll be such a hodgepodge of companies and solutions. They don't have very much in common. It's not like these five companies all in a particular category because they just really don't even know how to buy for these solutions. Do they buy

picks and shovels and hire a bunch of engineers to build it themselves? Do they buy a more generic data science platform and figure out how to accommodate it to their needs and things?

I think, for buyers, it's been a challenging period, and a lot of them are either experimenting or in a holding pattern while they wait to see what other people do, so that's not been a great situation when you're trying to sell something. You have to convince them that this will solve your problem today and you can save millions of dollars and years of time.

Mike Collins:

Yeah, and I think the idea of AI as a service is how we try to think about it even within our own firm, which is what's the use case? What's the problem? Where can we pick off something where we can really elevate our people by taking some information, intensive drudgery out of their lives and really finding a partner, I think, that can help you on that journey thing. Instead of buying a product, what we try to do is buy a relationship with people that we trust and want to work with and help us figure stuff out together kind of thing.

Adam Oliner:

Yeah. I think that that's smart for a few reasons. One of which is, as you mentioned, the industry is changing so quickly not in unpredictable ways, but it is changing quickly. What that means is, any product that you buy, if the product is static, it will be stale very quickly. Even if you really are just buying your product and using just the product, the team that's behind it needs to really have their head screwed on straight. Otherwise, that product is going to become stagnant very, very quickly and there'll be some new thing that you have to migrate to. Instead, you're trying to figure out who really has their finger on the pulse of these things, who's going to make sure that this is always using the latest, greatest technologies and using them because they will have the best impact on our business? It's just important to have those kinds of relationships

Mike Collins:

Just to bring it to life for our customers, our audience, if you will, maybe just an example of a generic customer of yours and how you start working with them, and what's the relationship like? How are you helping them become more successful?

Adam Oliner:

Yeah. I mean, in a very generic way, the journey is connect Graft to your data sources, build some useful things in the platform, and then deliver that value through APIs or chat or whatever appropriate interfaces there are. We lean in with our customers because we want to see them successful with the product, and so we help them onboard their data, build the initial things and make sure that they see the value from the first set of things that they want to do with it.

Beyond that, they can go in and customize things and optimize them, extend them, build new solutions. They have access to the platform. They can do all that stuff themselves, but we really like to make sure that they see the outcomes that they wanted to see when they set off on this journey, because I think a lot of folks are seeing in the market products that amount to toys where it'll perform some sleight of hand, a nice card trick or something, and it looks pretty cool. Then you go to try to use it to solve real problems and it's disappointing. You realize that, actually, you need a lot more than that.

I think that has left a bad taste in a lot of people's mouths, and so we try to make sure that, when we bring someone into the platform, we ensure that they get the outcomes that they want and they realize like, "Okay. No. This is the whole thing. I don't need to also buy five other products or hire a bunch of other people to try to get this value. This delivers and also I can then use this as a jumping-off point for all these other initiatives."

Mike Collins:

Adam, if our community could help you, if have an ask, what would it be?

Adam Oliner:

We love to talk to folks who have real important, urgent business needs. I'm not even talking about folks who already think that they want to solve the problem with AI because that's not always the right thing. Increasingly, it's a good idea because it proves to be incredibly versatile and powerful, but, really, I just want to talk to people who are like, "I have these teams and they're doing a huge amount. They're inundated with data. They're doing a huge amount of work trying to solve problems X, Y, and Z with that data. They could really use some help. I would love for them to be more efficient," or, "We're building this product. We want to add these capabilities to it, but we don't have the backing infrastructure or expertise to add them."

Whether or not they know for sure it's an AI-related problem, as long as there's some data and there's an urgent, important business need that they're trying to solve, we would just love to talk to them because, if nothing else, I will try to point them in the right direction to help solve their problem, whether that's Graft or not, and so I'm inviting the conversations because I would like to be helpful to people. We also think our product will probably help a lot of them.

To give you a couple of concrete examples of this, we talked with a manufacturing company, for instance, whose technicians have piles of manuals and part databases and historical ticket systems of all the problems they've experienced before and how they were resolved, conversations in Slack and so on. You have this data scattered everywhere. When something breaks on a factory floor, they spend 24 hours trying to figure out what it is and how to fix it. They told us that, if we could reduce that by 1%, it would save them a million dollars a year. We were like, "We can absolutely help with this problem. Let's have that conversation."

It's a good example of something where it's driven by a business need like, "I want to reduce the time to resolution on these issues because it's costing me a huge amount of money for being so slow." Let's start there and then we can figure out whether AI, let alone Graft, is the right solution to that problem.

Mike Collins:

So come to you with their business problems.

Adam Oliner:

Yeah. Exactly. Come to me with a real problem that you want to solve, that you feel like you don't necessarily know how.

Mike Collins:

Yeah. Well, we can help. I'm sure, among our audience out there, there are people that can relate to these kinds of issues. Yeah, it's worth at least a 20-minute conversation, so I encourage people to reach out to you. Final question, Adam, what's your favorite personal productivity hack? What have you learned over the years that just helps you get more done in a given day?

Adam Oliner:

This will sound a little perverse given the prompt, but try to do less. One of the things I try to do, ever since I became CEO, I've been less successful at this, but I used to very regularly take a walk every day. There are podcasts that I listen to because I'm a big podcast person. Not all of them are work related, because sometimes the most important thing for me to do is go on a hike or just go take a walk for an

hour. The human brain is an amazing instrument and it benefits from rest, but it also is working all the time.

I learned this as far back as grad school trying to solve some really intractable challenge or question. Sometimes, the way that I would crack it is I would go away for the weekend, go off into the mountains and go camping. I would just be staring at a lake or something like that and be like, "Oh, I have a great idea," and I would go back and be so much more productive. The times when I would really get in a rut was when I didn't take those breaks, when I didn't do anything except the work. I was just much more productive when I worked until it was time to not work and then made sure that I didn't for a while.

Mike Collins:

No. I mean, I can relate in that we have CEO dinners where a bunch of founders and CEOs get together. Thinking about someone else's problem for a while is actually so helpful to solve your own problems time and time again. It's a break. It's orthogonal. Yeah, it just re-frames things a lot of times, and it's just serving others. It's not only good karma, the right thing to do, but I actually think it actually helps you in your own productivity and problem-solving as well. It's just getting your mind thinking about it in an upside-down way or just turning it off for a while. So true. So true.

Adam Oliner:

Yeah, because there's definitely a difference, too, between busyness and productivity. I think a lot of folks are like, "How much doing can I fit into a day?" when it's often much more effective to take that pause and say, "Actually, there are only these two things that are really important for me to accomplish today." I'm just going to set everything else aside, focus on those two things, and do them better as a result. That's really important.

Mike Collins:

Yeah, and I think it's actually the promise that products like Grafts, too, for an entire organization which is, in the manufacturing example, if we can free up people from "where's that manual again" kind of thing and, "Oh, this is the old one?" We can just move us all to higher level thinking and more breaks and more-

Adam Oliner:

Yeah, I think that's a really good point. A lot of the work that keeps people busy, that feels like it's piled up is exactly the kind of work that a human doesn't have to put a lot of cognitive effort into which can, therefore, probably be automated to some extent with AI. That isn't the work that we should be spending our time doing, not least of which because there's technologies that's going to do it for us pretty soon.

Mike Collins:

Yeah, and life is too short. Excellent.

Adam Oliner:

Life is too short.

Mike Collins:

Absolutely. Yeah. Adam, really nice having a chat with you. Good luck, continued success. Again, a call to our community, reach out to Adam with your business problem.

Adam Oliner:

Yeah. I'll solve all your problems. Thanks so much, Mike. Appreciate it.

Mike Collins:

If you have a big budget. Okay. All right. Appreciate it. Thanks.

Adam Oliner:

Thanks a lot. Take care.

Mike Collins:

Bye.

Adam Oliner:

Bye-bye.

Sophia Zhao:

Hi, everyone. I'd like to take a quick break and tell you a bit about Alumni Ventures and our AI fund. Alumni Ventures offer smart, simple and accessible venture portfolios for individual investors. We build diversified portfolios with low minimums, co-investing alongside established lead investors. It's a strategy that has mobilized over $1.3 billion from our community of more than 10,000 investors.

With our AI fund, you will have the opportunity to invest in startups focused on investment in AI, including areas such as machine learning, natural language models, speech recognition, machine vision and more. AI has the potential to revolutionize multi-billion-dollar sectors such as healthcare, education and transportation by improving efficiency, accuracy and productivity while also potentially solving complex global challenges like climate change and disease outbreaks. If you're interested in a portfolio of companies focused on revolutionary AI investments, visit us at av.vc.

Mike Collins:

Okay. Next up, block two, we have Adrian Corless, CEO of CarbonCapture.

So nice to meet you. I'd like to start out. Where does this find you today?

Adrian Corless:

You got me in the Arts District in Downtown Los Angeles.

Mike Collins:

Awesome. Awesome. Tell the audience a little bit about your business and its genesis story. We always love to hear how these things get started.

Adrian Corless:

Yeah. This is a fun one. I wasn't there on day one. I joined a little bit later. CarbonCapture came out of an incubator called Idealab. Bill Gross is a prolific, serial, actually, parallel entrepreneur of-

Mike Collins:

A legend, yeah.

Adrian Corless:

... 150 unique companies. In the last part of his career, he's really shifted focus towards solving bigger problems around climate. Going back to Davos, I think, it was 2018, he was coming back from Davos, he and Marc Benioff were sharing places or they were in the same vicinity on the plane. They were having a debate about what is the biggest, most existential problem that we need to be solving at this time, and it really became a debate around is it really about the oceans or is it really about the atmosphere? I think Bill is a convincing guy. He won the day, and they agreed that, yeah, they really needed to be focused on really dealing with the amount of carbon that's in the atmosphere. At that time, there were already-

Mike Collins:

They're somewhat all related, too.

Adrian Corless:

There is an interface there which is really important to note, but going back to that, 2018, there were still at that point only a handful of direct air capture companies. I happened to have run one of them. I was the CEO of Carbon Engineering for a number of years up in Canada. Back then, they're really in, I would say, DAC 1.0. A few companies, they were sponsored by billionaires like Bill Gates or Murray Edwards or the Bronfmans, but there was really no clarity about what a business would look like around direct air capture.

Around 2018, and I think after the IPCC Report came out and said, "There is no way to net-zero except through DAC or through engineered carbon removal," and the size of that opportunity was defined, capital started to flow. Bill and Marc each put some money in. Like Bill does, he just puts a small team together and just starts to look for some white space like what is missing in this industry that could be served by some new technology, a different way to think about the business. He did that for a couple of years. They raised six or $7 million in seed rounds.

I think, around mid-2021, it was apparent that the tailwinds for direct air capture that access to capital were there and the technology platform that had been developed was coming together. He reached out to me because I'd had this background already running carbon engineering. There wasn't that many of ex-CEOs that had DAC experience, and so he reached out to me. I was running a different startup at the time up in Canada. He said, "Hey, would you be open to this?" and I said, "Yes," because I had been paying attention to what was going on, and this opportunity was exactly what I wanted to get back into. He said, "Well, would you move to California?" and I said, "Well, give me an hour." I told my wife and I said, "This is something that's important. This is something I want to do." I got a note back right away saying, literally, "Go for it," so we lifted up our roots slowly over the last year or two and I made my way down to California.

That's how I ended up here, again, taking over from this company. It was an early stage startup. We only had probably maybe five or six people located up in Pasadena, and so we just went to work. There, we immediately went to market, raised $35 million in an A round. At that time, it just gave us the dry powder we needed to build the business. I think, since then, we've now in total raised about 90 million so far. We just closed an extension to our A round, which has a different flavor to it as well. We've really now shifted gears away from pure, I would say, VCs and family offices to more of a focus on strategics. We've closed this last round to include Amazon, Aramco Ventures, and Siemens Financial as well. This is an indication of where we're heading next in terms of execution on the commercial side of the business.

Mike Collins:

For our audience, tell them a little bit about the state of technology and where are you in the figuring it out, how do we make this work, how do we make this work at scale? What's the state of your company in the industry today?

Adrian Corless:

Okay. I mean, I would say that there's lots of different ways you can think about carbon removal. You can think about sinking carbon into the atmosphere. You can think about soil amendments and biochar, and you can think about biological approaches for removal. Specifically, when you get into engineered solutions, that subset gets a lot smaller. Direct air capture dominates the engineered carbon removal side of this. The reason it's considered engineering is that you're using machines. It's really something that's easy to measure and verify and, depending on where the CO_2 is going, and typically you're talking about putting it into geological formations. It's [inaudible 00:34:19] of that as well. There's a lot of reasons why people really like engineered solutions.

Direct air capture particularly is really talking about machines that are stripping CO_2 out of the atmosphere, so tackling that 430 PPMs, concentrating it and getting it out of the atmosphere and into somewhere permanent. That's the basic premise of what DAC or direct air capture is. Within that, there are a couple of different approaches that have been deployed. Carbon engineering took a very process heavy approach, so using liquid contactors and basically an acid-based reaction, reacting the CO_2 in the atmosphere with potassium hydroxide, forming carbonates and, effectively, thinking about then the rest of the system is how do you get carbonates to break down into their very stable molecules and get pure CO_2 for sequestration?

That was that approach. It's a series of really clever process steps, but it doesn't really work at anything but very large scale. We're taking a different approach where we're focused on material science. We're looking at solid sorbents, amines, MOFs, things like that or hybrids of the two that have a really high affinity for CO_2 that we can structure, basically put them into filters inside our machines, pass air over them, load them up and then, in the second step, heat them up, remove the CO_2 and then repeat. That idea of a cyclic process has the benefits of really a much, much simpler process and there's really only one piece of equipment. The challenges obviously are that it has a different approach in terms of scale, but the big advantages around this is that we can think in very much a modular way thinking about a relatively modest building block that we can build lots of and deploy at scale.

Mike Collins:

Yeah, so it's like a data center, right?

Adrian Corless:

Yeah, that's a really good way to look at it.

Mike Collins:

You can rack-them-up kind of thing?

Adrian Corless:

That's right, and as you're building out your capacity and better stuff is available, you put the better stuff in. I think the nice thing about thinking about sorbents as being the engine and the amount of investment that's going into material science right now, there are probably now over a hundred unique programs in universities and corporate labs and our labs as well to develop next-generation sorbents that are really tackling things like increased capacity, better kinetics, better durability, those sorts of things that are ultimately pathways to drive the cost of direct air capture and carbon removal down over time.

The nice thing again is the approach we're taking is one where we're defining the interfaces of those materials as we're putting into the machines. As better materials are available, we incorporate them and, as those better materials are available, we can also upgrade what we've already deployed. The sorbents themselves don't last as long as the machines do, so there's always this opportunity to think about

technology improving over time. I kind of think about it. The best analogy would be software where we've got a machine and improvements and upgrades over time in the core software or the sorbents allows that machine just to do more work over time.

There's a couple of reasons why that modularity we think is going to ultimately win the day. Also, we know for a fact, in terms of what we've seen over the last two years from where we started to the materials we're testing in our labs right now, the rate of advancement is so fast. I'll guarantee it's not stopping, and we're still in the infancy of the efforts that are going to go towards materials developed specifically for direct air capture.

Mike Collins:

How are you thinking about the business model? Are you going to be a consumables company? Are you going to be CarbonCapture as service? Have you thought about different ways to play it?

Adrian Corless:

Yeah. I think it's a great question. There's two ways we look at our business. The first is that CarbonCapture itself is a technology company that's developing these machines. We are also developing and putting in place the capacity to manufacture them and sell them to developers of projects. From that perspective, we're a tech OEM, and that is the long-term growth plan for the organization. The challenge is, now, there isn't a network or a group of developers that are ready or that have the experience to do direct air capture themselves. On the other hand, we also have this really unique point in time where we've got things like the Inflation Reduction Act and the 45Q that offer up this $180 a ton for direct air capture plus sequestration at the same time that a growing number of voluntary credit buyers, the large tech companies, are willing to pay six to $800 a ton for the early stages of direct air capture.

We've got this other opportunity right now, which isn't going to last forever, but there is a really lucrative opportunity for developers over the next, say, decade or so that will help get the business going. Also, it's a great opportunity for us to have a position in play in that other part of the business, which is actually to go and generate removal credits and be customer-facing, be at the top of the revenue stack, which again you couldn't do as an OEM. Right now, we are playing both sides of this business, but in the long run, I think, when we start to think about how do you get from millions of tons to billions of tons, I think there's going to be enough developers out there that I think, if we stuck to being a tech OEM, we're going to be probably the best, but that's the best value we can add to this industry.

Mike Collins:

Yeah. Again, it seems to me, with technology, so often there's the fork in the road which is we invent a new technology and there's unintended negative consequences or externalities, and there is always this pullback. There's always this point where society says, "We've created this problem. We need to go backwards." The truth of the matter is, the problems we've created in our environment, we're not going to go back to 1810. The problems that get created, including carbon, we need technology solutions. We are not going to get there by reusing, saving those kinds of things. We are going to have to. There's not enough time. The problem is too big, and we need to be pulling, like you said, billions of tons out of the atmosphere. It's companies like yours that give us some semblance of hope that that's in our lifetime. Yeah.

Adrian Corless:

Well, and what I'd say Mike, too, is that, you're right, this is a math problem, this is an issue of we need to somehow, one way or another and probably in dozens of different ways, deal with 40 billion tons of atmosphere that's going up the atmosphere every year, and probably, three quarters of that, we can just quit putting up there, but probably 10 you can't. It's that last 10 which actually... You can think about it as

this horrific climate problem or you could think about it as this really incredible new industry that you have no choice. It has to emerge. It's going to be an industry that's going to be of the order of magnitude of today's energy industry, the oil and gas industry. Because of that, this is a soft landing for, I think, the people that are going to be most affected by a transition in the energy economy.

I think, from that perspective, and we're seeing it already I think even in the nature of how investments are starting to happen in this space, that this is, I think, being now recognized as just a once-in-a-generation opportunity to be at the forefront of a nascent industry. It's hard to argue that it will not grow to be the size it needs to be to solve the problem.

Mike Collins:

Yeah. Couldn't agree more. How can our community help?

Adrian Corless:

When I think about the different roles that people can play in helping us get that first project to life, it's going to be certainly, on the off-take side, we have a lot of our existing partners that are interested in thinking very strategically about how do they support the off-take requirements to have a project that can be funded. Second, there are again a lot of partners that are interested in various parts of the business, and part of it could be partners like Aramco Ventures who are very thoughtful around how do they start to participate in a carbon management industry, Siemens who's thinking again about what role can they play in the industrialization of a new industry. We've got Amazon who's thinking again about they have this supply chain and they have this platform that is a really unique opportunity for them to think about deploying and really democratizing the distribution of credits through their retail platforms.

These are all things that are at play, but there's a thousand others I'm sure that are represented within your community that could also help us in both a technology front, on an off-take front, on an energy front. I mean, I think that this idea of unintended consequences of bringing forward a technology like this is that it is going to have to also be done in addition to all the others and meeting all the other demands for renewables. I think strategic partnerships around energy are going to be a huge part of our success as well, so I think those are all, any of the communities.

Mike Collins:

Big strategic partnerships to help you really with this pilot and subsequent rollout.

Adrian Corless:

Yeah, and I think people that have specifically gone through that journey of doing first-of-a-kind in a new technology field. It's not a cookie cutter doing another solar project. We need and we're always looking for help and partnerships or people that can think very creatively around ways to put those projects together, the right partnerships, and the ways to motivate people in a way which is a little bit different, but is a little bit future-looking compared to just a simple transactional relationship.

Mike Collins:

That's fantastic. What's your favorite piece of content that's standing out on a lighter note, that you've consumed recently that you've really enjoyed?

Adrian Corless:

Oh, I have to say I'm really hooked on Audible.

Mike Collins:

Yeah. Me, too.

Adrian Corless:

I think, right now, I was able to listen... Anyway, the Art of the Impossible is something I'm listening to right now. It's just really about changing the way you're approaching problems and, surprisingly, there's no simple thing. Literally, it's a laundry list of things you need to do to hack your brain and get it thinking in certain ways. I'm not there yet, but I think it's fascinating reading.

Mike Collins:

Yeah. I get teased by my wife, that she doesn't, because I sometimes brag I read 50 books a year, I read five books a year and I listen to 45 while I'm exercising or commuting, but I think it counts. Yeah, I mean, Audible is fantastic.

Adrian Corless:

Excellent. Yeah, and let me also say, Mike, it's probably maybe apparent because we're doing this podcast, I really had also appreciated the process of working with Alumni in getting this last round done as well, too. Your team is incredible and was really engaging and engaged, but also you guys made your decisions quickly, and we really appreciate being able to partner with you guys.

Mike Collins:

Well, we think there's you can do well and do good, that those are, and your company is a great example of that, and again I encourage our huge community to check you guys out and, if you can and if it's a fit, reach out. We do better together than any of us can do on our own. Adrian, keep up the good work. We'll talk again soon. Appreciate it.

Adrian Corless:

Mike, I appreciate the time.

Mike Collins:

All right. Have a good one.

Adrian Corless:

Bye now.

Mike Collins:

Bye.

Matt Caspari:

Hey, everyone, just taking a quick break so I can tell you about the Deep Tech Fund from Alumni Ventures. AV is one of the only VC firms focused on making venture capital accessible to individual investors like you. In fact, AV is one of the most active and best performing VCs in the IS, and we co-invest alongside renowned lead investors. With our Deep Tech Fund, you'll have the opportunity to invest in innovative solutions to major technical and scientific challenges which can have a hugely positive effect on society, companies that have the potential to redefine industries and create a more sustainable future and deliver significant financial returns. If you're interested, visit us at av.vc/funds/deeptech. Now back to the show.

Mike Collins:

Okay, last up in section three, here's my conversation with Sophia Zhao, where we discuss women in AI and, more broadly, women kicking ass in a variety of sectors. Enjoy.

Sophia, hi. How are you doing today? Let's jump right into this. Introduce yourself to our audience.

Sophia Zhao:

Sure. Hi, everyone. My name is Sophia. I am a senior principal on the AI and Women's Fund. My background is in startups and banking where I've always worked with CXOs and founders on capital raising, capital advisory, go-to-market strategies and operation. I'm an alumna of EVC and Yale School of Management and, in the past five years, I've been more so focused on the exciting world of Web3, with the current year focused on AI. I love being plugged into different accelerators, hackathons, and demo days, and I volunteer as judge and mentor. I'm very, very happy to be here.

Mike Collins:

What's your favorite thing about Venture Capital?

Sophia Zhao:

Well, that would relate back to my parents. My parents are immigrants. They immigrated to Canada, and I watched them create everything from very little or nothing, and that really made me have a lot of respect and awe for founders and entrepreneurs. In my early careers, I've always worked with CXOs and founders. I want to help more people, and I'm very interested in Venture capital because I will be in a very privileged position to help a portfolio of founders to help them change the world in a way.

Mike Collins:

Yeah. Sophia, some of your content, some of your webinars, some of your blogs have got huge uptake, being quoted by major publications. Tell us a little bit more. I mean, you hit a chord on some stuff. What's that all about? What's been the cause of that? Tell us more.

Sophia Zhao:

Yeah, for sure, it's really exciting times because I am looking to back amazing AI founders, looking to back amazing women leaders. In our recent publication, the angle that we're focused on is women in AI, and that seemed to be a very interesting topic resonating with our community as well as the greater community because it hits two important things. One is AI, which is all over the news right now. It's got a lot of breathless coverage. It exploded since November 2022 when ChatGPT burst into the world, and also women founders. I mean, there's a lot of advocacy to feature, to acknowledge, to encourage more women professional in the field of AI, in deep tech, to be recognized, to encourage more people to come into the industry.

In terms of content, we produce webinars, we produce blogs. I'm super thrilled about our blog, which we're turning into a mini-series of women in AI. We invite women researchers, founders, VCs from everywhere to share their unique perspective about AI, their personal experiences and what's going to happen in 2024. I'm very happy about the response and looking forward to network and invite more women to contribute to this important topic.

Mike Collins:

Yeah. I mean, my observation as well was that there's been a little bit of coverage in the AI world that has been identifying "here's the difference makers in the AI space" and it lists all men, and just factually, that is, in 2024, just blatantly inaccurate, that if you're looking at the senior positions, we back these

companies. We write checks. We're a very active VC firm, as you know. The prevalence of women in positions of senior management, CTOs, they're all over the place. To write what I would call a Main Street article about the space and not be talking to women, to me, is just not doing your job. I mean, that's crazy land to me. I don't know what you feel.

Sophia Zhao:

Absolutely. I mean, I think it's great that we have an AI fund set up now at Alumni Ventures. I mean, I think, as a VC, we're not starting from zero. We've invested over 200 million in 357 startups that were founded, co-founded or led by women. From an industry staff perspective, we are investing at a higher rate than the VC market. We are especially strong with female-only founded companies as well. I'm super proud about these stats, but we can certainly do more with our community support, which is also why we're launching a women's fund. I think one misconception about backing women leaders is that, oh, you're backing FemTech, you're backing a lifestyle company, which I would strongly argue that's not true.

I think it makes sense that, okay, lifestyle and FemTech started by woman is sensible because we understand the pain point, but there are lots of other women founders punching ceilings in gaming, in science. We invest in Carry1st, which is a gaming and payment deal in Africa. Lucy Hoffman, she's the founder, and they're tackling an enormous opportunity as the leading mobile company publisher. We co-invested with a16z into that round. We're thinking about how is AI impacting or what sectors is AI impacting? We're thinking about healthcare. We invest in Synteny, which is a tech-bio platform powered by AI. It helps decoding the signal of immune repertoire so we can discover disease a lot faster. The co-founder and CEO, Lilly Wollman, she has a PhD in computational biology. She's a superstar. We fought our way into this oversubscribed round. These are just two examples of amazing women founders not in FemTech, not in lifestyle.

Mike Collins:

Yeah. No. I just interviewed two days ago one of the co-founders of Nanopath who met her co-founder in the PhD program at Dartmouth and tackling hard problems, deep science. Yeah, there's still some education to be done on the kinds of companies that these amazing founders are starting. Hopefully, we can make a dent in that. Put on your prediction hat. For 2024, what do you see out there right now? Again, you're at the cutting edge of entrepreneurs and startups. What are predictions, what are areas that you're super excited about, Sophia, right now?

Sophia Zhao:

Yeah. Well, I've been consuming a lot of AI trend reports from different sources. For our community, if you're listening, I highly recommend looking at the video published by IBM. There's also an SAP report. There's a ton of resources out there educating everyone about the potentials of AI and what's going to happen next.

For me, I feel that this is a year where the AI buzz gets a little bit more demystified. It's not going to be, oh, AI is taking over our jobs. AI is going to completely change the way or revolutionize certain things. I think, now, we're getting a grip on what AI really can do. For instance, AI could be add-on, could be an enhancer in a current business model. If you look at Grammarly, when ChatGPT came out, our team was joking, "Oh, what's going to happen to Grammarly?" Now, if you go to the Grammarly website, they have a gen AI tool that enables you to write better. You see organizations are integrating AI to make their products better.

I think another trend I am excited for is we're seeing the LLMs, the large language models. We're going to see more smaller language models that are more cost and resource efficient. It takes a ton of money and resource to run a big one. I was just speaking with a University of Cambridge team. They're building this incremental text-to-speech system that actually can run on your device, on your phone, and they're

speaking with gaming publishers. I think we're going to see a little bit more manageable-sized systems that are more portable and more cost and resource efficient.

Another trend I'm thinking about is more of a multimodal type of model. It's basically a model that's capable of processing information from different modalities, so think images, videos, text. If you look at Google's multimodal model, Gemini, now, when they receive a photo of a cookie, it could generate a written recipe and vice versa. That's pretty cool. I'm excited about that, and then lastly is more on regulation fund. I think there's a lot of uncertainty of, okay, who owns the IP? How are people going to be sued? Data security? Data privacy? We had a webinar on Treasure Trove of AI. If you haven't seen it, I encourage you to tune into that webinar where we invited some of our law firm friends to share their perspective. I'm not going to spill any beans from there, but I think there'll be a little bit more clarity on the regulation front as well.

Mike Collins:

Yeah. I mean, I go to first principles on all these enabling technologies, too, where I still want to see a team that is using AI to solve a problem that is an order of magnitude better than what you can do. To me, it's AI language models, software technology. At the end of the day though, you have to identify a pain point, a group of customers and something that is now made possible because of this technology that you couldn't do before. I'm seeing some exciting startups really in vertical slices where they're saying, like you said, Grammarly has been in the business of helping people with their writing. I think we're going to see existing companies using it to do what they do, just better and more efficiently, and then I think you're going to see, you know what, until we had this technology, this problem required thousands of people or the data was just too much to be timely in its solution, so, yeah, I think we're going to see a whole class of niche verticals where very small teams with this technology can do amazing work.

I think there's also a scale thing that I feel that we're going to see teams that are in order of magnitude smaller accomplish really amazing stuff. Again, and I've seen this through my career where it seems like, every decade, what you can accomplish is like one-tenth the team size and one-tenth the money. I think this is the kind of technology that's going to enable many, many more of these kinds of micro teams taking on actually relatively large problems. I think all of that is exciting.

Tell me a little bit more because, again, you're involved in a bunch of different projects. Tell me more about the AV Women's Fund that you're working on with Laura and some of that team as well.

Sophia Zhao:

Yeah. We're just kicking off our fund, and we are building our networks. We are plugging into different communities. I think our not-so-secret sauce in terms of building our community is going back to our roots, the Alumni Network, building awareness of our fund, amplifying a brand, reaching out to more people. That's great for getting access to founders, supporters, investors, so we're prioritizing community building right now while also researching and producing educational and interesting content to engage with our community and also educate them on the opportunities.

I think I'm personally excited that it's an all-women team with diverse backgrounds and ethnicity. There's a lot of diversity in our team. I think having a team that is so diverse contribute to creativity, and we can really build on top of each other, really support each other. In terms of a focus, I think there's really no limit. I would hope that anyone looking to join our women's fund as a supporter or investor to maybe focus more on, hey, we are backing amazing teams, amazing founders, and they just happened to be a woman. That's all. Yeah.

Mike Collins:

Yeah. I know you're a reader. What are you reading right now?

Sophia Zhao:

Thank you, Mike. I am reading this book called Good Inside by Dr. Becky Kennedy.

Mike Collins:

Oh, wow, you're putting a plug in. Yeah, so you got it right there. I have not read it. Tell me about it. Yeah.

Sophia Zhao:

Well, I just started reading this book. I'm a mother of a nine-month and it's my first time being a parent, so I've been researching good books so I could be educated on how to be a parent, what are the best practices that people are advocating, just to get more perspectives in. I think, looking back to how I grew up, I think every generation is different. I think our generation is so blessed with this abundance of information and new ways of thinking and best practices. I'm a nerd. I like to learn.

Mike Collins:

Excellent. I think you're also... One of the things is you're into croissants, of all things. Is that true? I didn't know that about you.

Sophia Zhao:

Yeah. I'm a croissant snob in a way. I'm very particular about my croissant. As a VC, we evaluate deals. We have a scorecard. We think through every criteria in a prudent way, trying to balance gut feeling with objectivity, and we have our IC. When it comes to croissant, I don't have a vigorous evaluation process or criteria like that, but I think, if anyone's looking to put on a croissant critic hat, I would say look for croissant that's got a beautiful honeycomb structure. You cut it in half and you see if they have a beautiful honeycomb. The honeycomb appears that way because you have a lot of butter and a lot of layers when you're making croissant. When the butter in the layers gets baked, they expand and fill the croissant with that structure. When you smell it, it should be very buttery with a hint of acidity, and it should be a little flaky. When you see a croissant that's flat, it might be made out of margarine. That is not a good croissant from a good butter, good process perspective. Yeah.

Mike Collins:

Do you make them yourself? Are you just a consumer or are you a creator as well?

Sophia Zhao:

During pandemic, I took on the hobby very seriously. I made my own croissant at home. Now, I'm too busy.

Mike Collins:

I'm sure because you have a nine-month-old. Yes.

Sophia Zhao:

Yeah.

Mike Collins:

Great. It was great chatting with you today, Sophia. Keep up the great work and keep producing that great content. Keep doing those amazing deals, and we'll talk soon.

Sophia Zhao:

Great. Thank you very much for having me. It's a pleasure. Thank you, Mike.

Mike Collins:

All right. Have a good one. See you soon.

Sophia Zhao:

Okay. See you.

Laura Rippy:

Hey, everyone, taking a quick break to share more about the Women's Fund from Alumni Ventures, AV is one of the only VC firms focused on making venture capital accessible to individual accredited investors like you. In fact, AV is one of the most active and best-performing VCs in the US, and we co-invest alongside renowned lead investors. With the Alumni Ventures Women's Fund, you'll have the opportunity to help us invest in fiery female founders.

PitchBook reports female-led startups are more capital efficient and exit faster, yet only receive 15% of all venture capital dollars. We see this as a great opportunity, and we're starting from a position of strength. Alumni Ventures has already invested in over 350 startups founded, co-founded or led by women, so join us in the Alumni Ventures Women's Fund to put your investing capital to back a diversified portfolio of female-led, high-velocity startups as they change the world. Visit av.vc/funds/womens to learn more. Now, back to the show.

Mike Collins:

Thanks for listening to this week's show. If you like it, please subscribe. Please share it. Have a great week, and we'll see you next week. Thanks.

Narrator :

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