

**BIG EARTH  
HACKATHON  
WILDLAND FIRE CHALLENGE**

Santa Clara County  
**FireSafe  
COUNCIL**

Stanford  
University

**Interview with  
Derek Fong**

Seth Schalet

Derek Fong

**Seth Schalet:**

Well thank you very much Derek, for agreeing to to join me today on this Zoom cast because I wanted to introduce the public, not just to you, but tell the story about the Big Earth Wildfire Hackathon and the work that you've been doing for many years, at Stanford. So hopefully it'll be a good collaborative back and forth dialogue. I've got about a half a dozen questions. Why don't we get going? I happen to be speaking with Derek Fong. Derek is the Senior Research Engineer and Lecturer at Stanford University.

Derek, you and I have probably known each other, oh, maybe two years now. I, I first reached out to you you do these wonderful series of based events. You call it the I, I think you call it the Zoom based. Wildfire seminar series. Yeah, you do principally for your students.

**Derek Fong:**

Yeah I guess I would say it's it's for the students, but also aim to reach out to the community and you're an example of why we We went from what we thought was going to be zoom and web based because we thought we were still in the heart of the pandemic or coming out of the pandemic that that was safer and easier and yet what I learned was that People like you, people that are interested in wildfires would like to be part of the dialogue that this seminar series is aimed at focusing on.

So we decided to keep it virtual. So the last couple of years, you know, it's safer to come out of the pandemic and was a convenient way to convene people, not just at Stanford, but to bring people from the local and even broader community and bring in speakers from around the world, we've. Had speakers from Europe as well as Canada.

So without that, we probably couldn't, we couldn't afford to bring in a speaker from Europe or Canada. So we've used technology well, and through this seminar series, I've met fine people like you and others. So that's why we did it. And it's, we sort of were fortunate. That it came from that.

**Seth Schalet:**

I came across it and what really impressed me was that, as you were saying, the breadth of kind of the breadth of the speakers in the breadth of topics that you were able to cover. And indeed, many of them were international or not here in California, but from other parts. And, you know, from the comfort of my chair, I was able to educate myself and learn and and we've become friends and and since then kind of here we are.

So, you know, you're here principally today, obviously, to tell the story of the Big Earth wildfire hackathon and I believe this year it starts April 3rd

**Derek Fong:**

April 5th, April 5th. Friday, April 5th or nominally April 1st if the students are taking the class companion class associated with it, but the event itself is officially kicked off April 5th with you being our keynote speaker on Friday, April 5th, and it's going to run for eight weeks and we'll culminate and finish with a project expo on Friday may 31st.

**Seth Schalet:**

Great. Perfect. I wanted to make sure that I got that down. And I'm very grateful for the opportunity in the keynote, because I think there's an opportunity, you know, had attended the poster event last year and got a chance to meet many of your teams and students. And I think for those that are interested in climate change.

Large the wildfire space is really. To coin a pun, heating up. Yeah. And when I say heating up, right, it's really recognized now that wildfire really cuts across the climate change spectrum, right? It's a spoke in the wheel of the greater climate change challenge, but if you kind of dial in from my perspective and look at the spoke, it has everything from carbon emissions, to black carbon to pm 2.5, which obviously we now know is quite toxic for health and various facets that I think students that have an interest that Also, perhaps have a Zen and a passion for technology. There's a broad breadth of applications that in my time at the Firesafe Council, I've really seen come to market or or at least come to early stage pilot testing that using machine learning and artificial intelligence.

And various other tools to really capture the full spectrum. So I hope at least in my keynote to convey that, you know, we're grateful for the students that want to engage in this space. And if you're looking for a career and a pathway into climate change, the you know, the vehicle of wildfire, I think presents an opportunity to broadly pursue that engagement.

So I'm glad to keynote and I want to thank you for the invitation and glad you accept it. Yeah, indeed. And you know, before we really dig in, let's start with this opportunity, you know, tell our readers and our listeners a bit about your background, right? Who is Derek Fong? How did you wind up on this podcast with me today?

But talk about your career. How you wound up at Stanford, and that's probably a good place for us to kick off.

**Derek Fong:**

Sure, thanks for asking, and I'll try not to prove long winded giving you a life story, but I'll start sort of in the big picture. I'm trained as an oceanographer. I'm a physical oceanographer. I remember my aunt and uncle asking, what is physical oceanography?

It's the motions of the ocean. So that's really my background in fluid mechanics. Although I would say going back bigger picture my life is coming full circle. I entered Stanford as an undergrad in the 1980s and I thought I was going to do sports medicine. And I went to a

seminar in 1988. By Stephen Schneider you know, Stephen Schneider won the Nobel Peace Prize.

He gave a lecture on global warming. And I don't know if your readers or the audience of this, you know, it depends on how old they are. In the 1980s, global warming and climate change were not a hot topic. And yet, his seminar just made an impact on me. I was trying to find my way. As an undergraduate I still was interested in sports medicine at Stanford to do a biological degree.

You actually had to take a whole year of chemistry, which honestly was not my favorite. I did okay in it, but it wasn't my favorite. I've heard. And, but that seminar made me realize I was really interested in our planet. And even though I didn't go on to study climate change or global warming, it made me start rethinking how could I use, I think, my strengths, which I In math and science to improve the world.

And that was through the lens of water. And so without going into my water career, I was trained as a physical oceanographer at MIT woods, oceanographic. Came back to Stanford in 1998 as a postdoc and I love Stanford. So figured out a way to keep myself there over the years as as a teacher, love lecturing, that's probably my greatest passion being in front of the students and interacting with them doing classical scientific research.

A lot of administrative serving of accreditation, but really have a passion behind that of. How can we help our planet? How can we understand our planet? So I, I like it for the intellectual exercise, but I think I'm also an applied scientist. I don't want to understand the world and the planet just because it's cool and equations, which it is, and I have a lot of colleagues not to criticize their motivations, but it's not just an intellectual exercise for me.

How can I understand our planet, whether it's ocean processes or now wildfires? To improve, I guess, our relationship with it. And so that's the big picture around 2018. I can't say that the big earth hackathon is entirely known. It is mine now. I was approached by a colleague who also is a fluid mechanics person.

Who's now an emeritus professor, Margo Gerritsen, he and the executive director at the time of ICME, the Institute of Computational Mathematics and Engineering at Stanford, we see the small little seed fund from David Wallerstein and Tencent staying here. Can you guys think of how to incorporate Big Earth data to solve problems and Margo came to me.

It was actually maybe really came to us just sort of a side conversation. She says. Derek, what do you think? Do you think, you know, do you know much about hackathons, you know, and how we could do these things? And I said, really, I don't. I know what they're about. At the time. Had you participated in one? I had not participated in one.

I knew about them. In fact, again, a lot of the stuff that I'm talking about today, I'm leaning. I'm standing on the shoulders of many people that come before me. And I think it's if I'm given any credit, it's the mill to disseminate little pieces. I've picked up to make the Big Earth hackathon what it is and to give credit where it's due.

There is a student led event, and I think it's gone on probably since the mid 2010s or maybe even earlier than that. I don't know the incarnation of it. There's something called tree hacks at Stanford. It's a hackathon event that is hosted entirely by students. They go out and get sponsorships from private industry and they bring in on the order of, I don't know, 500 to a thousand students around the U.S. to spend a caffeine laden four day Three or four day weekend. So it's, it's usually presidency weekend. So starting on Friday night, ending on Monday, a caffeine laden event to come up with hacks in either the hardware or software

space, and as you might imagine, for those of your audience that aren't hackers, the idea of a hackathon is in a very short amount of time, can you come up with an innovative creation?

The typical one for a hackathon, which there's nothing wrong with it, is operable come up with the next. For the Apple app store or the Google play store, or maybe if you're a mechanical engineer, come up with a hardware hack, which could then be the next Kickstarter project. And many times that's what happens.

These students spend a four day weekend and they come up with something that could jumpstart their career, or at least be a side business. Anyway, sort of a diversion to explain that, but that's what I knew about hackathons and they were gracious enough and I said, Hey, can I observe behind the scenes what goes on?

And I saw what they were doing. And I said, wow, this is pretty great. Not that I wanted to replicate that, but I saw a potential there that if you could have something fun. Free food, caffeine, maybe some prizes. Maybe you could inspire the creativity of students. And so my angle with Margo and Karen was whether or not we could harness that amazing intellectual capital at Stanford, the Stanford students, And put them to work to solve planetary problems that they were previously unaware of.

And so we did that in 2018. It was a, I guess the beta test was in 2018. We called it the Big Earth Hackathon. I went out and just talked to people. What kind of big earth data do we have? So we were thinking really more from the data vantage point. And coming online, right? The 2010s, new satellite imagery.

One of the main ones being planet. It was called planet data. Now it's called planet. Company that has their constellation of satellites collecting real time satellite imagery of remarkable resolution. Another company, gosh I'm escaping the Satellogic. They had their own sort of spectrometry satellites.

So what could you use with that kind of data that was just newly available to solve planetary problems? We did that over a caffeinated three day weekend. There's a through line here. Yeah, yeah, there's a through line here and it's caffeine. It is caffeine. We, we, we, that's where we started. That's our roots, caffeine.

And I love my coffee. But anyway, I, I can dive into that a little bit, but it was, it was really successful. They had a lot of fun. I would have to say, to be honest, I had a lot of naysayers. Derek, I don't know why you're doing this. Students are going to have a lot of fun, but the projects will just sort of die after the weekend.

And that seemed like a reasonable critique. We didn't have funding. I think in the ideal world, we'd have funding that would allow students to continue with the projects. We didn't. So, but I said, hey, Let's just give it a shot, right? We had a generous donor. Let's give it a try and see what happens. Long story short, I thought it was pretty darn good.

We had over a hundred something students sign up. There was a Tristian over the weekend and Tristian means not that they, people fell off. But of course to come to a deliverable project over 38 hours, it's no small feat. But in the end, I think 30 something of those hundred something students were part of teams that delivered projects.

That's great. Some of them were really remarkable. I'll highlight. The poster child, which was our grand prize winning team. There was a team of two students, both undergrads, who used a combination of GIS data, GIS know how, and planet data to come up with a model that looked at the Rohingya refugee crisis at the time.

And they looked at satellite images, looked at deforestation trends, and they were able to, in a matter of really 24 hours of coding, come up with a program that could track trends in migration. Of refugee camps and deforestation. Cool, right? Not always cool, as they use in Hollywood, this idea had legs.

Caught the attention of faculty at Stanford and a number of departments, medicine, humanities, just around the start of the pandemic. This little model is they didn't get all the money. This little model was incorporated into a 20, I'm sorry, a 10 million United Nations grant, looking at human plight and how you can use technology, right.

To understand human problems.

**Seth Schalet:**

So, you know, that's amazing really, right. To think that, you know, at the end of the day you're contributing and supporting students that, right. You know, ultimately, you don't know where things end up, right?

**Derek Fong:**

You don't. So that's, that's the, that's the risk. Will the students come?

And what will they come up with? So, the good news is, I've done now, gosh, five of these. They come, and they do some things that I would never imagine. And that's the idea. So I, back up, I think I forgot to give one little blurb, which I think is really important. Sure. The vision of Big Earth Hackathon is to bring really smart Stanford students with no preconceived notions of problems that are of interest to the world, maybe faculty, industry, government officials, and have them innovate. So they're not encumbered by historical understanding.

**Seth Schalet:**

I mean, that's an interesting approach. I think that's because I've been involved or part of other hackathons. And, you know, you come to iterate on an idea. It's already kind of pre prescribed, you know, we want to get at this solution or tackle this problem, but you're really asking your students to come in kind of with the, you know, a tabula rasa, a blank slate, and really get that spark of innovation and creativity, you know, in the spur of the moment.

**Derek Fong:**

That's right. So that's, that is, you, you have general spoken generally about what the aim is. Blank mind, but incredibly smart blind mind, right? Be creative and think outside the box. And in fact, I have something in my scorecard for the judges. Maybe there is no box, right? It's just something funny about it.

Maybe there is no box. So think outside the box, but maybe there is no box and be that creative. I'm not gonna spend too much time on the history. Fast forward after that, I thought, wow, that was really cool. I'm an oceanographer. I think the next one, if we can do one, should be on water. We did one on water.

One thing I decided was, like, that while it was successful, I found, I thought students were rushing. Right? Of course they're rushing, right? Ours was only a three day as opposed to a four day event. They had basically 32 hours or something to do something. What if you gave students more time? And I knew that carried a risk, a known risk, or I shouldn't say a risk, a known cost.

I'm not going to see 120 students working on things because they've got classes, they've got other activities. But what if I aimed at quality over quantity? And Margo and I, at the time, she said, OK, you're leading this, Derek, you're directing it, your call. I'll go with it. I think there is a risk, but you're right.

It might. reap benefits. And so the idea was, okay, what if we made it an eight week way to make it a quarter long event at Stanford? Stanford's a 10 week quarter. We won't make it quite 10 weeks because we want this to wrap up before finals week. We'll get less people signing up for the event. But maybe we'll end up with one more mature products.

That's the ultimate goal, but that would be based on hopefully not only just having more mature products, the more mature products will be the result of students having more time to think about the problems at hand. We did it, it worked, it worked. We had, you know, less, we still had the same number of students almost signed up at the time.

Maybe a little bit less, maybe 80 or 90, but the projects that came up, came out of it were mature. And I won't, I won't go through all the projects, but again, many of those projects had legs. They were utility. So the Kodaga Center, which is Stanford state of the art water treatment research facility.

They had a dashboard that was developed for that. They still use. So things like that came from from the project. Someone did just get sort of a kickstarter project that was then funded. Another project became part of a Department of Energy proposal through a faculty member at the law school that funded three PhDs.

So, you know, the example, another example of how the results didn't have to just end at the end of the hackathon.

**Seth Schalet:**

Yeah, and, you know, I'm glad you brought that up because I didn't really kind of think in that, in that format before, but, you know, having attended last year's hackathon, right, I think the opportunity to iterate over time, right, because most of the hackathons that either attended judged in, right, they are over a weekend, a couple of days, It's kind of the Big Bang Theory, you know, in here, you give the chance of the students to, you know, iterate on their idea, think it through, maybe pivot, come up with those aha moments that, you know, often, you know, don't emerge in a 24, 72 kind of hour environment, right?

So I think that's really interesting. And they get to cross pollinate across the Stanford ecosystem. Which, you know, I'm sure there's a lot of advantages to that so, so, you know, I think that's really interesting. And I think, you know, what you were able to cover in that arc really was the bit of the history of the wildfire challenge and how it got started and, and how many you did.

And so, you know, let's, let's dial in a little bit more specific because. You know, we're now talking about wildfire.

**Derek Fong:**

Absolutely. And, and I was about to get to it. I'm sorry I took too long on the water and lake earth data. Sorry about that.

**Seth Schalet:**

Great, great minds think alike. Right. And, and, and, you know, so, so why wildfire? Right. Why, why did you choose this topic? And how do you see wildfire in your view fitting in, you know, into climate change writ large and, and why, why the focus on wildland fires specifically?

**Derek Fong:**

Well I'll just say I was naive or not naive. At least I was aware after those two successful hackathons, question is what's the next topic.

Yeah. Water is still relevant, but. We thought about food and energy. This is right before Margot retired. We said, this is 2018, 2019. So we had seen, as Californians, big events, right? Fire in Santa Rosa. Just the fires, the intense fires in California in 2017 and 2018 were in the back of our minds. And we said, what about wildfires?

We don't know much about it. We're fluid mechanics and oceanographers, but fires have to be important. It's sort of funny. We're sitting at Koopa Cafe and said, You know, before we decide, let's both do homework over the next week and meet again. Let's talk to people, see if people agree that this is a relevant topic.

We didn't have to come back a week later. I made a few emails, I made a few phone calls. People were like, Please do a hackathon on wildfires. There is such a need.

**Seth Schalet:**

So, I mean, it's interesting, right? Because happenstance, I don't want to say luck because that's not the appropriate word, but, you know, that was really the first exposure to what we, we now kind of call the megafires here in California, right?

**Derek Fong:**

Yeah, the cluster of megafires, absolutely.

**Seth Schalet:**

The lightning complex fires, the LNU and the other complex fires that hit that year. Really kept it top of mind, right? So it was omnipresent. And I think perhaps right that timing of that really could be a genesis of why wildfire to some degree, right?

**Derek Fong:**

Absolutely. For me, like I said, I came in. I'm not a fire guy. I'm an oceanographer. The joke for a couple of years. I was like, I'm a fish out of water, right? But I just but I saw this was Yeah, I saw this was an important problem. And the more I talk to try to frame what I needed to make this a successful event, the more I realized that this is a problem that really needs a lot of attention.

You ask the question, is it related to climate change? Absolutely. And it doesn't mean that flooding and sea level rise aren't important climate change issues, but this is a local one and a very complicated one. And I guess one thing I didn't mention. That has always been in the back of my mind for the Big Earth Hackathon is planet problems aren't just engineering and science problems.

I mean, I'm an engineering scientist. Yeah. So no lack of respect for my brethren, but there are a lot of planetary problems that go beyond basic science or basic earth science. They require insights from law, education, medicine, social sciences. And as I dug deeper into the wildland fire problem, it became clear to me that it was the poster child for a planetary problem, right? Because, in fact, I'm teaching a class right now on wildfire policy related to wildfires. We aren't

going to engineer and science ourselves out of climate change, let alone the wildfire problem. The wildfire problem is, yes, it's due to climate change. Climate change has increase the frequency and intensity of these wildfire events, not just in California, right around the world, right, Chile, Canada and Maui's, you know, another state.

But now we got it. Greece. It goes Portugal. Australia knows it knows no boundary. It knows no boundaries. And yet I would argue that if we only solve the science and engineering problem, we're not going to solve the wildfire problem because it involves social sciences, namely human behavior, politics, issues of injustice and inequities in our society.

There's a, you mentioned PM 2.5. There are medical issues associated with it. There are policy issues associated with it. So why wildfires? Because it has all the elements of what I originally envisioned with Margo. As a planet problem, a planet problem that doesn't need the traditional research grant to solve this scientific problem or an engineered solution.

It requires an all hands on deck approach. And the reason why I'm passionate and why this is actually going to be the fourth wildland fire challenge this year. We haven't gone back to water, we haven't gone to energy and food, and those are by all means important. Wildfires are at the forefront and it's such a complicated, multifaceted problem that we need all hands on deck.

So the more creative solutions I get each year, we can start making little dents into this problem that needs a solution yesterday.

**Seth Schalet:**

Boy, I'd like to bottle that answer because, you know, in some respects, that's kind of what drew me to my interest in wildfire, right? I don't have a background in fluid mechanics.

I never served in the fire service. I grew up mostly on the East Coast where I can't ever remember. Well, I certainly was never evacuated. We certainly, in my time there, never had a smoke day. We never had orange skies. You know, I moved to California 27 years ago, and I've seen the arc of change.

Right? And, and for me, you know, you really hit on something that, that resonates with me, because why, why I'm interested, because wildfire really sits at the intersection of all these other issues, and, you know, wildfire, like most, if not all climate issues, there's no single silver bullet that if we just did this, presto, problem solved.

**Derek Fong:**

Yes, yes.

**Seth Schalet:**

It is such an interlocking challenge across so many issues, as you said, from policy to social and economic justice. To biodiversity to construction housing and planning, right? It crosses every imaginable sector. And I hope that's one of the things that I want to try to instill when I talk to your students is.

You know, just because you're doing this in the hackathon, step back and understand wildfire broadly, because there is a place for you to engage. You don't have to be a machine learning C++ developer, right? You could bring your thoughts and ideas into so many areas where they're needed. Right. It can, it can provide such an engaging career.

So, you know, I, I think that's, you know, fantastic and we can spend, you know, another episode just talking about this challenge in general. So I can talk about all day, honestly. Yeah.

Yeah. Me too. But you know, I have to work and I know classes tend to. So, so let me just ask you this and we touched on it, but you know, what do you, what do you hope for your students to get out of it and, and, and take away from this year's hackathon?

You know, why should they consider participating if they hear about it, see it, whether it's on social media, whether they pick it up some other way, why should they engage?

**Derek Fong:**

I think for two reasons. One, you know, if they've been in California, I mean, we've been blessed the last couple years, honestly, you know, but if they're, they're watching the news, they'll be aware that wildfires are a hot topic.

No pun intended. But I, I'm guessing most people, because they probably came from the same vantage point as me, I'm a native Californian. There were wildfires when I grew up in the Bay Area, I mean, in the Sierras. I love backpacking, camping. It's like, oh bummer, we can't go backpacking or the air is horrible.

But I think without being exposed to it, you don't understand how complicated a problem this is and how you can contribute, whether you're an engineer, a scientist, a social scientist, a medical student. The list goes on. And so I hope that students participating would realize that planetary problems such as this one require an intersection between the humanities and science and engineering.

And I think that that's really the sell of why this is important from an educational perspective. I think this hackathon and actually offered as a companion class students don't have to take the class, but they can take a class for credit to get some units and credit in participating. Whether they participate.

As an extracurricular as or as a class, this is a unique opportunity to do something practical. Most of our classes at Stanford, I think, you know, I teach classes, so I'm not going to bad mouth the stuff I teach. We teach students basic skills, basic understandings, theories that will equip them well in their careers, right, their foundational work.

But rarely, there are a few other exceptions, rarely do they really do something hands on. They rarely do, they really get their hands dirty. Do something that is a firsthand practical significance

**Seth Schalet:**

In an applied way, right? In an applied way.

**Derek Fong:**

In an applied way. And so what I do know, having done this enough. If students take this class or participate, they will end up contributing something to the world. And it's, it's not hyperbole. Typical projects really have an impact from the soccer, whether they have legs and continue or not. Sure. Students can really come up with an innovation that is meaningful to see that the classes they took, the little smattering class and background that they have, they're different backgrounds, whether they're an engineering student or a social science student or a law student, they actually have the skills right now, when they take the class to make a meaningful impact on the world. And so this is what we call project based learning. We're trying to do that more at Stanford. But rarely do students do much project based learning. But this is project based learning. And not only is it a project, right? These are real projects.

These are not intellectual exercises. These are real, tangible problems that I'm hoping they will come up with meaningful solutions or prototypes of solutions. And so I think that's rewarding. The students that have participated told me that. Very flattering, right? Maybe the best class they took at Stanford because it was not a typical class.

**Seth Schalet:**

And I think what's unique that I've seen about the way that you've approached it, and you just touched on it, right? It's, the students are interdisciplinary, right? They come maybe from a legal background. They're not just, just coders developing, you know, a Python or C++ system, right? And they come from those different backgrounds that, from my experience, right? Managing staff, managing teams, digging in on projects. Right. That's where you get that creative spark, because, you know, those that don't come from that discipline have the perspective of looking from a different lens, and can often help drive those that have the deeper systems knowledge to say, I didn't think of it in that way, or I didn't Wow, I didn't picture it like that.

So it's really I think that creativity that when I came and saw the various projects that were proposed in the posters last year, you know, it was really amazing. And I had brought my then 18 year old, 17 year old. Who now is about to finish his first year in physics at, at RPI, Rensselaer Polytechnic Institute, and on the ride home, he said, Dad, I had no idea that there were so many different things related to wildfire, right?

I just thought it was, you know, these large fires and forest management and firefighters and, you know, You know, it really opened his eyes to kind of the depth of what you're, you're able to bring, which, which kind of maybe is a good segue into the next topic. So, you know, in looking at this year's hackathon, I noticed that you've got a real broad array of, you know, focuses or project areas, right?

Kind of a big, big suite of things that, that people can and teams and students can dink into just share with me a little bit of the thinking about about that. How did you come up with some of those focus areas or or challenges as you call them? And because it's quite comprehensive.

**Derek Fong:**

Well, thank you. That's very flattering, both to hear your son's feedback and also that you think it's comprehensive.

So, yeah, if you look at our website. I've described the challenge is having three focus areas, although I would argue I didn't need to say them. I think it goes without saying wildfires covers a huge space, but I wanted to maybe inspire students to think about what would categorize potential solutions to this huge problem of wildfire.

So one obvious mitigation. How do we reduce the risk of wildfires? Or if there's a fire, how do we Mitigate or reduce the risk or loss of human life, even if a fire is happening. So that's an obvious one. I think the obvious one for engineers or scientists, like, can we predict? Can we predict when or where wildfires might or might not happen?

Can we analyze data? I said the roots of the Big Earth Hackathon was in Big Earth data and many of the projects coming from this will work with data. And yet I've opened my eyes and ears. Honestly, I've grown a lot. I was an oceanographer now because I guess I guess I'm now really a wildfire scientist or practitioner, but it's not just an engineering and science problem, right?

There are equity and fairness issues. And so I highlight equity and fairness as one of the three pillars or focus areas because you can't have mitigation without really thinking about it. How fires disproportionately affect different populations and in different ways.

**Seth Schalet:**

Absolutely. And let me just add to that.

And this isn't necessarily a planned plug for Stanford's research, but you know, the interdisciplinary team that the Bill Wayne Center has in Stanford has, Stanford, broadly speaking, has done some of the most interesting research about those inequities lately. How wildfire smoke affects communities of color differently than it does other communities.

The lack of adequate health care to address you know, immediate issues on high smoke days and high heat days. So I do want to give a shout out because I try to take in as much of the research that Stanford publishes, and you really dialed in on on all facets, but particularly the inequities surrounding wildfire smoke, of which we're just really scratching the surface of what they are in terms of how they're developing.

So kind of a quick plug for for the very, very worthwhile.

**Derek Fong:**

Yeah. Yeah, I just, I think because I think it's important to give that plug because not to plug the Stanford scientists, but the equity and fairness issue is something most people aren't aware of. Not for lack of trying. It's just people aren't aware of them.

So we need to publicize and inform people that these aren't again, simple issues related to wildfires. Wildfires are not simple themselves. But when you start thinking about the interactions with the human sphere, it gets, it gets ten layers more complicated.

**Seth Schalet:**

Yeah, no, absolutely. So so, Derek, as we look toe kind of wrap up our talk here today.

What else should the listeners or readers when we transcribe this know about this year's contest? Can they participate? Can they attend any of the activities? Share a little bit of light on those people that may be listening or reading that that aren't in the Stanford ecosystem or community.

**Derek Fong:**

So the big shout out I'll give or ask is. If you have a project idea, send it my way. So recording or not, it's [dfong@stanford.edu](mailto:dfong@stanford.edu). I post potential projects onto the website for our students. Those are projects that students might adopt, might not adopt, or create from an amalgamation of them, their own. So, I always believe in crowdsourcing, because I don't know all the relevant problems out there.

I try to talk to as many people as possible, and if someone can bring forward a tangible project that they think is important, they may have the data or some insights to bring into play, please. Bring my attention to it. Second way to participate. If you end up offering a project and a student team likes it and actually adopts and pursues it.

I hope your reader or audience will consider being a mentor for that team or at least a stakeholder that can provide feedback over the course of eight weeks of whether they are on track to addressing the right thing, or are they taking a detour and actually missed the point. And then finally, these are public events.

We have a couple public events. Your keynote address on Friday, April 5th, it'll be published on Stanford Events. It's at 2pm, I believe, the keynote address. Yeah. That's open to the public. The location is to be determined. Almost ironed out, but it'll be, it'll be there. So those are public events. So you want to hear Seth speak by all means a more tangible way to really experience what Seth talked about, come to our project expo.

Students stand by a poster highlighting what they did over the course of the quarter. That's on Friday, May 31st in the afternoon. That will again be open to public. It'll be advertised on Stanford events. Seth can probably provide extra details in the newsletter, et cetera, as we get closer. But those are the ways to, if you really are interested in just seeing what the students do, come to the events.

But if you are in the wildfire space yourself, I would love to hear from you and how maybe students can actually help you out because we've got some remarkably talented students at Stanford and we just got to expose them to the problems and then turn them loose.

**Seth Schalet:**

Well, look, I appreciate that. And maybe lastly, you know, are there, are there opportunities for philanthropic or corporate support or, or way out?

**Derek Fong:**

Thank you for asking. Absolutely. So this is very much a grassroots effort that honestly I put on my back to try to keep going. If we had more money, I think this could be bigger. So any small contribution to our cause, and if you've liked what you've heard from me and want to learn more and think it's worthwhile no contributions is too small, but we definitely need a financial help to keep this thing afloat.

It's remarkably expensive to even put something less together, but I think it's worthwhile. And I think the return on investment. Is huge, and I I'm hoping that this will grow in the years I'm trying to get the Stanford administration to see the value. They do see it, but I'm hoping we can get some out external partners to really make this a reality and something we can perpetuate long into the future.

**Seth Schalet:**

Well, certainly, you know, I could speak for the board of the Santa Clara County FireSafe Council. We're happy to be involved. And if we could help bring some of those collaborations and funding partnerships together, we want to do that because, you know, obviously, Stanford is in our backyard. But more importantly it's the reason why we exist as an organization, too.

So Derek Fong, I want to thank you very much for your time this afternoon. I, myself, look forward to seeing you on April 5th. And, of course, we'll talk beforehand, and, and thank you for making yourself available today. Really appreciate it.

**Derek Fong:**

Well, thank you for the opportunity, and it's great collaborating with you, and I appreciate our friendship that we've developed.

To many more years.

**Seth Schalet:**

You got it.