Ashwyn Sam:
I used to think that talent and hard work alone can take me anywhere, but I quickly realized that's not true. I knew there were people in my life that made huge sacrifices for me to be where I am today. So having that support group was very important to me. The biggest blessings in my life have been the people in my life, and so that's how I realized the value of it, and that's what I want to give to the people around me. I am Ashwyn Sam. I'm a member of the 2020 cohort and a fourth-year PhD student in the aeronautics and astronautics department. I imagine a world where people treat others with the same compassion and empathy they have for themselves.

Taylor Goss:
Welcome to the Imagine A World podcast from Knight-Hennessy Scholars. We are here to give you a glimpse into the Knight-Hennessy scholar community of graduate students spanning all seven Stanford schools, including business, education, engineering, humanities, law, medicine, and sustainability. In each episode, we talk with scholars about the world they imagine and what they're doing to bring it to life.

Willie Thompson:
Today, we're speaking with Ashwyn Sam, a PhD candidate in aeronautics and astronautics. During our conversation, you'll hear Ashwyn's immigration story, falling in love with physics, simulating paint chips flying through space, reminiscing about Spider-Man 2, and so much more.

Hey, what's up y'all? Welcome to another episode of the Imagine A World podcast. I'm your co-host, Willie Thompson. I'm a member of the 2022 cohort and a second-year MBA student. Hopefully doing a third year at the ed school at the time of this recording. And I'm joined by my illustrious co-host, Taylor Goss, who is doing a joint degree between music and the policy school. And man, you're graduating this year, which is crazy.

Taylor Goss:
Yeah.

Willie Thompson:
And today, as you heard, we have Ashwyn on. So Ashwyn, what's up? How's it going? How you doing today?

Ashwyn Sam:
What's up, Willie? Thanks for having me. I'm really happy to be here. Thank you guys for giving me this opportunity. It's really cool.

Willie Thompson:
We're excited to have you. I will just note the obvious here and maybe the not so obvious in that we've done, to my knowledge, seven episodes up until now.

Taylor Goss:
Yes.

Willie Thompson:
And Taylor, I'm pretty sure this is the first engineer we've had on the podcast.

Taylor Goss:
We have an expanding library and you have the distinction of being our first engineer.

Ashwyn Sam:
Wow. I don't know if I'm ready for that honor. I think you guys could have found better engineers.

Taylor Goss:
We can end this right now. We don't have to do this. I'm very excited to fill that little gap in our library. But also, the fact that you're here specifically Ashwyn, I remember coming to Knight-Hennessy and you being one of the first people that I met, you had been around for a little bit, or at least were there when I entered and seemed to be sort of the older wiser guard in Knight-Hennessy. I don't know if you know this, but you light up a room when you walk into a buddy. I believe that.

Ashwyn Sam:
Thank you. Thank you. This is big words coming from Taylor, because Taylor actually does light up the room when he walks in. Everyone knows Taylor and everyone loves being around him and listening to him talk.

Taylor Goss:
And I carry a flashlight.

Willie Thompson:
He wants with sprinklers,

Ashwyn Sam:
The room's brighter when he walks in.

Taylor Goss:
That's very sweet of you to say.

Willie Thompson:
Well, look, we've got so much to talk about, but let's start with the place where we always begin our conversation, and that is your origin story. And before we talk about the world you imagine, let's talk about the world you're born into and have experienced thus far. Where are you from and what was your journey here?

Ashwyn Sam:
That question is asked to most people, where is home? It's usually a straightforward question. To me, it's not very straightforward because I was born in India and I grew up there for the first 13 years, which is half of my life. So in many ways that's home. But if we define home as where your heart is, I guess I have to go with where my family is, which is in Tennessee because my family and I, we moved to Tennessee when I was 13, and then I've been in America since then. I did my high school and undergrad
in Tennessee and then moved to California for grad school. So where is home? I don't know. Sometimes I say Tennessee, sometimes I say India, but that's the way it happened.

Willie Thompson:
So Tennessee, India. Where were you born in India?

Ashwyn Sam:
I was born in a place called Kerala, India. That's where my mom is from. But I grew up in a different part of India called Chennai in Tamil Nadu.

Willie Thompson:
Wait, is it Aditya from Chennai?

Ashwyn Sam:
He is. He is.

Willie Thompson:
What are the odds of having-

Taylor Goss:
That's crazy. Yeah, we just had Aditya last week.

Ashwyn Sam:
I think there are many Knight-Hennessy Scholars from Chennai, actually.

Willie Thompson:
Who would've thought? And then Tennessee, where in Tennessee.

Ashwyn Sam:
Yeah, in Chattanooga, Tennessee.

Willie Thompson:
Chattanooga.

Ashwyn Sam:
Shout out if anyone's listening.

Willie Thompson:
So let's take that bit by bit because we're currently sitting in Denning House and is this on Aparna?

Taylor Goss:
This is Denali.
Willie Thompson:

Denali. I always get the conference mixed up. But walk us through those three phases of life. So how do you get from India to the US? How do you get from Chattanooga specifically? And then how do you get from Chattanooga to Palo Alto?

Ashwyn Sam:

That touches on a long story and it's a good way you ask because those are the three biggest phases of my life. I was born in India and my dad had a business in India, but due to many reasons, we hit financial struggles and his businesses failed again for various reasons. And so we hit some financial troubles and we needed a way to, I guess find means to living a better life. And we had a really good life in India, actually. We were a decent middle class family, but then my dad had an American visa. He had access to come to America and work here.

So he jumped on that opportunity and he came in 2008 and build up enough money to apply for visas for the rest of the family to come over. So me, my mom, my brother, we came over three years later in 2011. And the reason he came to Chattanooga is because we had some distant relatives in Chattanooga, Tennessee. So it made sense for my dad to go there to be around people he knew. Yeah, that's how we ended up in Tennessee. And then I did all my high school and undergrad in Tennessee. And when it came time to apply for grad school, Stanford was top of my list. And the decision was easy once Knight-Hennessy became a reality, and that's how I ended up in Palo Alto.

Taylor Goss:

Imagine a world statement makes a lot of sense given what I know about you as a person and the way you carry yourself in the world, this focus on compassion and empathy, where do you think that that began your life from? Where did this compassion, empathy, radiate? Was it your family? Where did it come from?

Ashwyn Sam:

It came from the people in my life. When you guys asked me to think about an imagine a world statement, many things came to mind. I could have taken this down a professional route of talking about my research and what I do at Stanford. But when I think about my future, at least the things that come to mind aren't my professional goals. It is things like my family, things I want to do in life, becoming a good father or a good husband, things of that nature. And those values were instilled because of the people in my life.

There were many things that happened in my life that because of the way things turned out, which I'm happy to get into more details about in a bit, but I realized that I can't be where I'm at today if not for the people in my life and the sacrifices they made. I used to think that talent and hard work alone can take me anywhere. But I quickly realized that's not true. There were people in my life that made huge sacrifices for me to be where I am today. So having that support group was very important to me. The biggest blessings in my life have been the people in my life. And so that's how I realized the value of it, and that's what I want to give to the people around me.

Willie Thompson:

That's beautiful. And you started teeing this up a little bit earlier, and I'll take a little bit of the liberty to maybe combine a couple of ideas that are swirling around in my head. When you were growing up in Tennessee and growing up around family and loved ones, what were the moments where you realized that talent and hard work weren't enough? What are some of the sacrifices that helped you make it to
college, for example? I'd love to just hear you share more about what it looks like to have people sacrifice so that you can have opportunities to display the brilliance and the hard work that you have within you.

Ashwyn Sam:
So in order to talk about my path to college, I have to start all the way in 2011 when I came to America.

Willie Thompson:
We're going to wind way back, wind way back.

Ashwyn Sam:
Wind way back for 13 years. My dad, he brought us here on a business visa and he had a convenience store in Tennessee. To those of you who might not be familiar with how the visa system in America works, if you have a family member who can sponsor a green card for you to come to America, that's what I think is the least resistance path to getting a green card. You apply for it many, many years ago, and then somebody sponsored you to come, if not your family, then at work or something like that. But we didn't have any of that. So the other opportunity to build yourself up to a green card in America is to start a local business and to show that you're a productive member of the American economy. So my dad did that by starting a local convenience store, which by the way is another reason why many immigrants have convenience stores or gas stations and things like that because it's a cheap business to start up.

And he worked at this place, but there wasn't enough of a profit to show that we could apply for a green card. So I don't know all the technicalities behind this, so some of this could be wrong, but my understanding is that in order to apply for the green card, you have to show that you're making X amount of money and that you're providing jobs and salaries to other people in your community. So my dad had employees even though he couldn't afford to keep them, but he had them because it shows that the store is doing well in order for us to apply for the green card and whatnot. But even despite all of that, we still ended up not having enough money because when we applied for the green card, we got rejected. We got multiple rejections actually.

Now we're in 2013, it's two years now. We thought we build up enough to apply for the green card, but we applied and we got rejected. So the next best thing you can do is to apply for a Visa extension. So he applied for the Visa extension as well, and guess what? That also got rejected. At this point, we have only a little bit of time left on our visa and every door has closed. So we're now asking ourselves, what do we do? Well, there's really nothing you can do. So we decide to pack our bags and head back home to India. But as my dad is sitting in his store one day not really knowing what the future held, a guy walks into the store with a gun and holds my dad at gunpoint and drags him by the shirt collar. And this was kind of a monumental moment in my own life because I don't know, unfortunately or fortunately, I can't decide. This was all captured on video and I got to see this on video.

And here is your dad, who for a boy growing up in many ways is this hero figure that you look up to for everything. And in that moment, I realized how human my dad was because I've never seen him beg for his life being dragged by his shirt collar. He gets dragged into the back closet where it's dark, there's no light. The guy with the gun has my dad get on his knees and holds the gun to the back of his head. And basically my dad's thinking, this is it. This is the end of his life. Thankfully, he only pistol whipped him, knocked him out, went back outside, took all the money he could grab and left. Now, while this was the most traumatic event that's happened in my family's history, this was also in many ways a huge blessing in disguise.
Because what happened was when the news about this started circling in our local community, somebody contacted my dad and asked, "Hey, have you heard of this thing called the U Visa?" My dad was like, "No, what is that?" And he said, they explained to him the U visa is this very niche visa, which if my understanding is correct, only like 100 people in the country get it. It's very rare. So no one knows about it. It's a visa that is set aside for immigrants or victims of abuse or crime to help the police capture whoever the perpetrator was, et cetera. So now here we are with the new beam of hope. New door has opened for us that we did not expect. So we immediately apply for that visa and we get it. And that is how we were able to remain in this country like we were able to keep getting visa extensions up until two years ago when we finally got our green card. That's my path to immigration.

Now, the reason I'm saying all of this is to answer your question, Willie about my path to college is because by the time I applied to college in 2015, I was unaware or ignorant about how my immigration status affects my applications to college. I had all my eggs put into Georgia Tech because I really wanted to go to Georgia Tech as a school that's close to where I am. I wanted to study math and physics, and Georgia Tech is good for those things. I wanted to remain close to family. So somewhere within an hour and a half radius. Under those search conditions, Georgia Tech was the best option. So I wanted to go there. I applied, I got in. I also applied to some local state schools nearby like University of Tennessee, and I got into these schools and I even had scholarships, but it was only months later when there was a proposed bill of how much you are expected to pay. When that came in, I realized, wait, oh my gosh, all these proposed scholarships, they got rescinded. I no longer was able to afford to go to these schools. That was very shocking to all of us because I was just naive. I didn't know that my immigration status would affect me because technically the Georgia Board of Education, Tennessee Board of Education saw my U Visa as just me being equivalent to an international student, and therefore I wasn't eligible for any federal aid, any loans, any scholarships that came from tax dollars. And I didn't prepare myself for this moment.

At this point, it's way past deadlines for private schools, et cetera. So yeah, I was like, "Oh man, what do I do?" And it was really sad because all my other classmates were going to all these really good schools, but not to brag or put them down, but I had better scores and better admission opportunities, and they didn't. And I couldn't go to school anywhere for financial reasons. My parents definitely can't afford out-of-state tuition without any loans to go to any of these schools. So it's the summer after high school, and I still don't know where I'm going to go to college.

Willie Thompson:
That's crazy.

Taylor Goss:
I know. I can't imagine how stressful that must've been.

Ashwyn Sam:
Yeah, it was one of the lowest points of my life. I even considered maybe packing my bags and going back to India, maybe studying there, maybe taking a gap year or something. But I gave up hope, but my parents didn't. They would just get in their car every weekend and go drive to some university somewhere. I remember they went to Kentucky. They would go to different parts of Tennessee without any objective in mind, without a plan. They would just get in the car, just go there, drive to the school, just knock on the door of some international student office or something and just explain their story and hope something good will come out of it.
Well, as you can imagine, they kept getting rejected every time because legally they can't just use tax dollars for me. So everybody kept saying, no, no, no. And I remember I used to join them on some of these trips in the beginning, but I lost hope. So I just stopped going with them and they just kept going. I was like, "You guys are foolish for this. This isn't going to lead to anything. You're wasting your time." But they didn't lose hope.

Taylor Goss:
I'm so glad they didn't listen.

Ashwyn Sam:
They didn't listen to me. They showed perseverance. I guess maybe that's another part of this immigrant mentality that my dad has. I don't like taking shots in the dark. To me, that's inefficient. That's kind of dumb. But to him, it's like, what are you going to lose? Just take your shot. Just attempt it and see what happens. Anyway, they drive to a local community college down the street, which I had already looked into it, and at that community college for out-of-state tuition, it would've cost me $20,000 or something, which I don't think anybody should pay that much money to go to a community college. That kind of defeats the purpose of a community college. But my parents went there, they knocked on the door, and there was a lady there who listened to their story and took a chance on me.

She said, "Okay, listen, if you can apply for this honors fellowship at our school, which technically has already passed a deadline, but she was like, we'll make an exception. If you can get in, we'll try to move private donor money around to be able to offset his tuition. We can't use tax dollars, but we can use donor money."

Willie Thompson:
Wow.

Ashwyn Sam:
So she was willing to create a custom scholarship for me to go to that college.

Willie Thompson:
Shout out to Amanda Bennett.

Ashwyn Sam:
Oh, you know the name?

Willie Thompson:
Oh, yeah, bro. We do our research over here. We have their receipts.

Ashwyn Sam:
Oh wow. Okay. These guys are prepared. Yes, shout out Amanda. And that's what they do. So they come back home and they tell me about it. I'm like, "Okay, I guess." I was holding back on excitement. But I apply within two hours I get an email saying, "You've been accepted."
That's crazy.

Ashwyn Sam:
And we go meet with them. And yeah, they're able to waive my out-of-state tuition. And at that point, I still needed to pay in-state tuition, but it was a reasonable amount. I remember I took two jobs for those years working. My dad was working extra hours to help pay for the tuition. And then right after that, well, it's a two-year college. It's community college. So in my head I'm thinking, what do I do after? Well, Amanda and that college, Chattanooga State Community College on behalf of people like me, they went to the University of Tennessee Chattanooga and said, "Hey, here's what we did for Ashwyn. Can you guys do something similar where you help him offset the out-of-State tuition to give him in-state tuition and help him out with some scholarships by maybe using donor money?" And that's what they did. So shout out to Dr. Linda Frost at the University of Tennessee Chattanooga, who also listened to my story and took a chance on people like me and made it possible for us to afford school.

So that's how I ended up at University of Tennessee Chattanooga. It wasn't a matter of choice. It's not like I wanted to, I mean, I'm so glad I went there, but that's the only school I could go to. And I ended up studying mechanical engineering and mathematics at that school. And all the opportunities I've had were presented because of that. So that's what I mean when I say, when I think about my story, I guess technically I'm the subject of my story, but I don't feel like the hero of my story in any way. The movers and shakers-

Willie Thompson:
Just got chills.

Taylor Goss:
That's a bar.

Ashwyn Sam:
The movers and shakers of my story were other people. The analogy I think of is there's these doors in front of me that they're locked. And other people had keys to unlock this, whether it's through their citizenship or whether it's they had money growing up, other people had keys to unlock these doors, but I had a demolition crew. I had crew to just tear these walls down, knock open the doors for me.

Willie Thompson:
You're a HGTV thing, man.

Ashwyn Sam:
So I was very privileged. And that's why when I think about a world, I want a world like that for everybody where other people are helping you out. They're compassionate. They understand your situation, showing you empathy, things like that. So that's my path to my education. How I ended up in college.

Willie Thompson:
I mean, honestly, we can't hit the pod now if you want. As soon it-

Taylor Goss:
I know. It's hard to know what to say. I mean, Willie and I, as the listeners know, have been sitting here fairly quiet for the past while because we're in stunned silence. It's a really incredible story, man. And it says a lot about you and your perception of your life with how much you center others. It's clear from your story how much they really were influential and impactful in your life and allowed you to do the things you want to do, the things you're passionate about. But I think it takes a real clarity of purpose and life mission to do the work of explaining your story this way.

Willie Thompson:
And just a real quick follow up on that. You mentioned being accepted to all these colleges and it feels good use of the college to get scholarships. How were you feeling in the turn of going to Chattanooga State, considering the options you had? What was your mindset at in terms of the opportunity that was before you and how to take best advantage of it?

Ashwyn Sam:
If I'm being completely honest, it was a huge knock on my pride. I was prideful. I was like, "I got into Georgia Tech. Here I am." Which is a good school, I've gotten to other good schools too. But here I am going to a community college. There was a level of my pride, but I am really thankful for it because I think I needed to be humbled.

Taylor Goss:
Don't we all.

Ashwyn Sam:
There were a lot of life lessons I learned. Sure, my education might not have been technically as good as it would've been if I went to Georgia Tech, but my education for life, I think in many ways was seriously enhanced because even at the community college, I was going to school with people that are 60 years old because they'd never finished college and they're coming back from retirement or whatever. The kinds of lessons you learn from people like that were very valuable, and I'm really thankful for that. But to answer your question, I didn't really have much thought because I didn't have a choice. Education was not a choice for me. I knew it's something I've always wanted, maybe even needed. And so it was the only door ahead of me, so I had to take it.

Willie Thompson:
Yeah, for sure. And community colleges are really untapped resources in a number of ways when it comes to the United States. And even hearing you talk about in other settings how much exposure you had to professors and the kind of research you could do, and opportunities you could take advantage of by being at a smaller school initially, as opposed to being at Georgia Tech, which huge school, lots of people probably all try to get into some sort of opportunity when it comes to research and their majors. And it's really healthy for us to hear that perspective when it comes to the opportunities that at least folks who attend higher education in America have when it comes to schooling.

Taylor Goss:
So often the discussion on higher education can focus on places like Stanford and Ivy plus universities as sort of this silver bullet answer, but it's a larger system in places like public state schools and community colleges have a huge part to play as your story makes extremely clear.
Ashwyn Sam:
For sure.

Taylor Goss:
You've described this crucible of opportunity in which your life was forged.

Willie Thompson:
Okay. The second bar, man. All right.

Taylor Goss:
Given those opportunities, how did that lead you toward engineering and toward ex-place exploration and climate research, this sort of unique blend of your academic career?

Ashwyn Sam:
So my academic journey has been, I think, independent of these, well, in some ways, in some ways. I actually have this date written down March 26, 2013. That's the day I decided I wanted to be a physicist.

Taylor Goss:
I'm just seeing the script for the biopic unraveling in front of us.

Ashwyn Sam:
I wrote it down.

Willie Thompson:
Do you think he wrote it like an equation?

Taylor Goss:
Just beautiful minding equation.

Willie Thompson:
We'll get to your Christmas equations in a second.

Ashwyn Sam:
Christmas? Wait, wow, you guys really have done all the digging. Wow, I'm impressed. So growing up, my parents encouraged me to be a doctor like most Indian kids growing up. We had many engineers in the family, but no doctors. My dad was like, “You should think about that.” But I've always been better at physics and math than life sciences or any other subjects. And for a moment, I focused more on biology and chemistry, things like that, I guess thinking about med school. But I always did better in my physics and math classes. It was more natural to me.

Willie Thompson:
Do you have a sense as why that is?

Ashwyn Sam:
I don't know. I don't know. I mean, growing up in India, your education in math is very rigorous. So by the time I came to America, the things that I was learning in ninth grade where things that I learned in fifth grade in India, so there’s this advanced... Nothing about me, that's just the level of education for math in India.

Willie Thompson:
America’s cooked. Close it up.

Ashwyn Sam:
But I had a really, really passionate physics teacher in high school, and his passion was so contagious that I just couldn't ignore physics. I just really, really enjoyed that class. But one very interesting thing that happened in his education or my education in his class was he loved the TV show, the Big Bang Theory, and he would quote that TV show a lot, and he recommended that show to me, which in retrospect, maybe not a great idea for a teenager, but I actually checked out the show and I fell in love with it. Now, I don't like the show as much now, but back then I really liked it.

But there was a lot of physics concepts and jokes made in the show that I just wouldn't understand. So I would go to Google and be like, what is string theory? What is blah, blah, blah, blah, blah. And I would go on down this rabbit hole of learning about so many physics concepts about subatomic particles and quantum mechanics and string theory and all of these things. And I fell in love with this world and I was like, I want to one day be a scientist and be a physicist. But more specifically what happened was I was playing basketball in high school and I had an injury-

Willie Thompson:
Classic thing for you to be doing.

Ashwyn Sam:
Classic. I fell on the court and dislocated my shoulder. So for a while I couldn’t play any sports, which back then was taking up a lot of my time. I played basketball, ran track, but so much of my time was spent doing these activities. I’d never really focused on academics, but when I just-

Willie Thompson:
Such an athletic guy.

Ashwyn Sam:
No, I'm not. For those who don't know me, I'm not.

Willie Thompson:
I mean, I think you're in the court, brother.

Ashwyn Sam:
But during that time, I couldn’t move. So I was so bored that I just picked up a physics textbook and read it and I was like, oh my gosh-

Willie Thompson:
It's got to be pretty bored.

Ashwyn Sam:
I was so bored. I just started reading a physics textbook and I really liked it and I was like, you know what? Here's something I think I could be good at and I think I will really like this. It was March 26, 2013. I wrote the date down because that day I decided I wanted to be a scientist. And since then I haven't looked back. And here I am doing my PhD.

Willie Thompson:
Do you still have the thing that you wrote that date on?

Ashwyn Sam:
I do. I do. It was actually my Bible, and it's the Bible I still have. Yeah, it's still there. If you guys are interested, I'll show it to you sometime.

Willie Thompson:
Love to see it. It's going to end up in the Smithsonian someday. So when it comes to physics and getting a PhD, well, it's not PhD in physics, but you're pursuing a terminal degree in STEM, what drew you to aeronautics and astronautics as a field? Because I'm not going to front, I don't know the subdivisions of science when it comes to STEM and what's in what, but I know there's a general interest in physics and the topic like you mentioned, but then how does that go into a specific discipline for you and what led you to pursue that?

Ashwyn Sam:
Sure. Now, this is where I think the story connects with my story from earlier. Like I said, I wanted to study physics and math and be a physicist. I didn't care about engineering really at all in high school or really even early in my undergrad. But because I couldn't go to the schools I wanted to and because I started off at the community college, I foresaw myself having to take up private loans from banks, which I did end up doing. And those have really high interest rates. And the way I was thinking about it is with a physics degree, I'll have to eventually go to grad school and all of that. I won't have a job early enough to pay off these loans. So it became a practical question of I want to study physics and math, but I think it might make more sense to study engineering because I need to think about job prospects and how I'm going to pay off my loans.

And the engineering department at the schools, both the schools, UTC and Chattestate had more scholarships to give. So that's why I decided that I wasn't going to do physics anymore as a major, but decided to switch to engineering instead. So again, it wasn't a matter of me choosing to do that out of desire, but because I felt like I needed to. That also was a really hard switch for me to make because so much of my passion and identity was in studying physics and loving it a lot. And here I was switching that up, but I don't regret it because by the time I got to UTC, I got involved with the Rocket project with Dr. Trevor Elliott, also shout out to him. He made a huge impact in my life as well, which if we have time, I can get into that.

But aerospace engineering, which Stanford calls the aeronautics and astronautics, which is same thing, aerospace engineering, the reason I got into that is because it felt to me like the best combination of applications and engineering and also doing cool theoretical science like what I'm interested in. My research right now is very computational, very theoretical. I call myself a fake engineer because I
actually don't know how to build anything with my hands. I'm really bad at that. But I can would rather
do pencil, paper, math or code up something on a computer. But aerospace engineering felt like the
perfect marriage between the cool theoretical parts of physics and the applications. And I got to be
involved with the rocket team at UTC and we had lots of successes and competitions and things like
that. So that also propelled my motivation to go further into this field. So yeah, that's how I ended up in
aerospace engineering.

Willie Thompson:
To that point, I know you're in fourth year of the PhD. You're in dissertation time now, right?

Ashwyn Sam:
Oh gosh. No. Don't tell me that.

Willie Thompson:
In case you forgot.

Ashwyn Sam:
I mean I know my topic, I know what I'm going to be writing about, but I have nothing written.

Willie Thompson:
Okay. What's the topic if you want... I don't know if I'll understand it, but I'm curious.

Ashwyn Sam:
It's actually really easy to discuss it. So here's my pitch. There's a lot of debris in space. Okay?

Willie Thompson:
Really?

Ashwyn Sam:
Yeah. From meteors or from just satellite being blown up, there's just a lot of junk in space.

Taylor Goss:
Not like plastic bag junk, but like-

Ashwyn Sam:
Or even small paint chips coming off satellites or people like Elon putting cars up there. There's just a lot
of junk and space. And as you guys probably know, we're moving towards a space economy and we
can't just have... People back then didn't really care about putting junk up there because there's so
much of space, so you can just put a lot of junk up there. But now it's getting to a point-

Taylor Goss:
Classic human, might I say.

Willie Thompson:
Ashwyn Sam:
But now it's getting to a point where we need to start worrying about the junk up there because it's taking up too much space in space. For example, even a centimeter sized object, like a paint chip moving at 10 kilometers a second, which is standard velocities in those orbits, if it hits you like a centimeter, tiny fleck moving at 10 kilometers second is getting hit by 550 pound object moving at 60 miles an hour. It's like getting hit by a car. Imagine something so tiny and wrecking your whole million dollar whatever spacecraft up there.

So people are coming in with ways to map out the debris environment and avoid collisions and things like that. But there's no technology that exists today that can detect debris that's smaller than a centimeter. But like I said, even a centimeter sized object causes fatal damage. My research is looking into coming out with a new way, a diagnostic tool for detecting such debris and hopefully avoiding collisions with such debris. So that's orbital debris detection is my research. And the way I'm doing that is through studying something called solitons and plasmas. So fundamentally what I do is I build simulations for studying plasma physics with the goal of applying it to detecting debris in space.

Willie Thompson:
Ready to take you to Sand Hill Road right now and go fire up the VCs and get this idea funded. It sounds like a great start up idea.

Taylor Goss:
No kidding though. I mean, you're fantastic at explaining very high level concepts and we understand it not being aero-astro people. And I think that that's something you in general do very well, as is obvious to people listening to this. You're a very good storyteller.

Willie Thompson:
Very good.

Taylor Goss:
And you're very good at breaking down big concepts. So because of that, I think those are two skills of an educator essentially. So I think of you as an educator as well. I mean, for instance, you even have participated in making videos about math concepts like short little bite-sized videos.

Willie Thompson:
Yes. Merry Christmas every year. Merry Christmas. I can only figure out one of, by the way, I can only figure out one. It was a natural log thing-

Ashwyn Sam:
So you guys went through my Instagram?

Taylor Goss:
For the people listening, tell us more about that aspect of your life.
Yeah, okay. So like I said, I worked two jobs during college to pay for my tuition and whatnot. One of them was being a math tutor. So I've been teaching math or tutoring math for a very long time, and I really like that. I actually wanted to come do a PhD thinking I would want to be a professor one day and go teach. I decided I don't want to do that anymore, but that's a different story. But I've always enjoyed teaching. I love it. I'm very passionate about math and physics and things like this, and I love sharing that passion with others. That video that you're referring to is what I consider the most beautiful equation in math, and I wanted to explain to the world why I think it's so beautiful. So I made that video. And I have other things that when I really like something, I want to tell the world how awesome it is.

Taylor Goss:
We're going to put that video in the show notes so that people can go check it out.

Ashwyn Sam:
I don’t know, it's a little embarrassing because I was in high school back then, I think, and so I cringe a little bit looking at it today. But I mean, yeah, I guess if you guys want to, but I just get really passionate about different concepts and I love telling people about it.

Taylor Goss:
In Knight-Hennessy, we sort of have a tradition practice of storytelling, which is partly a little bit of a part of our leadership curriculum. You even participated in our storytelling events that we have throughout the year. How has Knight-Hennessy affected your storytelling ability and what has that part of the community been like for you?

Ashwyn Sam:
I think John Hennessy actually talks about this in his book about the importance of storytelling in leadership.

Taylor Goss:
We've read your book, John.

Ashwyn Sam:
That's an interesting thing. When you think about leadership, that's not one of the things that comes to mind at least traditionally. Before I came to Stanford, I wouldn't have thought of storytelling as a very important aspect of leadership, but now I realize it is very important. Telling your story or explaining things in a way that people can understand and appreciate it and also feel the same way about it that you're feeling, I think is an important skill. And by being a member of the Knight-Hennessy community, we've been given training to hone those kinds of skills that I've really appreciated. But my friends actually make fun of me for this. They say, "Ashwyn, every story you tell is like a TED Talk."

But I know they meant that maybe in a way to jab at me, but I'm okay with that. I think there's value in having your story said in ways that people want to listen to. But the biggest asset in becoming a better storyteller has been the other people in Knight-Hennessy because they're such excellent storytellers. Going back to Taylor, I mean, you also shared a story that night and I remember it was really good. So I'm able to listen to other people and notice things about people saying something that would grab my attention and I would try to mimic or try to do something similar in my own storytelling. But yeah, I'm
realizing as I get older, so much of life is not really what you know, but how you’re able to say what you know, and Knight-Hennessy has been awesome in helping me get better at that.

Taylor Goss:
Similar to what you said, I feel as if the storytelling work with Denning Lisa and just all the other formats we have opportunities to practice that muscle, provide something that I feel is really tangible and very easy to use in my day-to-day life, which feels like the most useful at this point in my life when it comes to leadership. Because you can hear people in leadership positions talk all about values and getting a good team together, but I think the ability to tell a story is something you can just do today, you can do tomorrow, things like that.

Ashwyn Sam:
I actually have a story bank on my notes app on phone where anytime somebody tells me a good story, I try to write it down.

Taylor Goss:
That's so cool. What was the most-

Ashwyn Sam:
I try to collect a story. I want to be a story collector.

Willie Thompson:
So also the collectors of Character and Marvel, which is hilarious. But what was the latest story you listened to that was great?

Ashwyn Sam:
I'm going to butcher-

Willie Thompson:
Whose was it? I guess, it could be-

Ashwyn Sam:
It was actually a story I heard on a podcast, This American Life.

Taylor Goss:
It's very meta, very meta podcast.

Ashwyn Sam:
I don't want to get too much into the details, I'm going to do a poor job at this, but it's a story about these kids in elementary school who drew up this cartoon character of envisioning, do you guys know Despicable Me, the minions from Despicable Me?

Willie Thompson:
Yeah. Ba, ba, ba.
Ashwyn Sam:
There's a character named Bob. And so this kid draws up a character called Bob's sister and what Bob's sister would look like. And this Bob's sister drawing became a huge thing in this class, and one day it goes missing and they held a funeral for it and all that. And it taught the kids about loss. And yeah, it's a great story. I recommend listening to it. I don't know the name of the episode-

Taylor Goss:
After you listen to our podcast.

Ashwyn Sam:
Obviously, but that I thought was a great story and I put it down in my bank. I was like, I want to remember that.

Willie Thompson:
That's a really cool, I'll actually be looking in for that story. So I do like that storytelling as a vehicle for how Knight-Hennessy has supported or helped you in a, I guess it's technically a personal endeavor, but I think it stretches to the professional, your ability to tell stories about your work. Well, before we get out into our final couple of questions here, I want to circle back to the day you celebrated almost 11 years ago of becoming an engineer and where that statement is right now, because that's in your Bible, which implies in my mind some adherence to a faith. And so could you share a little bit about your faith and just what your experience as a member of a faith has borne out in you over the years?

Ashwyn Sam:
Yeah, for sure. My faith is very important to me. I grew up in a Christian family, but in many ways that has not been super great either. I think I made my faith my own only later in life. But even if you listen closely to my Imagine It Well statement, that's just Jesus' words of love your neighbor as you love yourself, just reworded. So this idea of valuing the people in your life, I think stems a lot from my faith. I mean, I'm not saying that only a Christian can do that, obviously not, that's not what I'm saying. But for me, I think a lot of my love for the people around me stems from this idea of being created to do that. I believe that's what my purpose is to be a loving neighbor. So I try to act it out day-to-day.

I mean, I fail at it a lot, don't get me wrong. But that's what I strive to have in my life all the time, is to live out the calling, to be a good person to the people around you. So it shapes so much of the world that I see and the way I live. In fact, even going back to wanting to do physics, originally I thought I wanted to be a scientist so that I can one day prove that God exists using math. I realize now that's really dumb. I quickly realized that's just a really silly pursuit. But even dating back to the origins of me wanting to be a scientist was rooted in my faith.

Now I think about my physics and math education or my scientific education as not something that makes me want to prove God is obviously not, but rather studying the artistic nature of God's creation. So from the smallest of atoms to the largest of galaxies, I believe it was all woven through this design. And so now when I study about black holes or when I study about subatomic particles, it's like getting a small glimpse into an infinite wisdom of a creator. How beautiful symmetries exist, and it's like a painter. I'm realizing strokes of a painter, for instance. So now there is still a faith element to my education, but it's different. It's more of a curiosity of studying these things.

Willie Thompson:
Yeah, I think that's the third bar that's been dropped on this podcast. Might need to start-

Taylor Goss:
Bar heavy episode.

Willie Thompson:
A bar heavy episode. I'm also a Christian, and I think that there have been moments, even in my life as a percussionist where being in AP music theory and my professor being like, "How is a circle of fits a circle of fourths backwards or whatever," and being like, even a human couldn't have done this. I'm like, "Dang, right, man, that's crazy how that just works that way." So it's a really cool reflection. And yeah, also reminds me of just people I've spoken to, like Jean Wong, who's in my cohort, who she talks about physics in a very beautiful way too, and just how the universe is made up of only so many things. I don't know. Anyway, I'm getting on a tangent here, but it's really cool to hear you share about that.

Ashwyn Sam:
I actually will go as far as to say that I think God is a mathematician, and I think he designed it using math. So another thing that helps me once study math more, anyway.

Willie Thompson:
It's a really dumb reflection. Well, as we get ready to head out on this episode, this has been great, I want to... Actually, Taylor, do you want to start with advice or do we want to go improbable facts? Which way we go first?

Taylor Goss:
I just know that whatever your advice is going to be is going to be a banger. And so I think we should start out with improbable facts. So something that we do at the end of every episode is touch on your improbable facts that you supplied for your Knight-Hennessy application. Now everyone that's in Knight-Hennessy filled out the question, provide eight improbable facts about yourself. And we all struggle with what exactly that means, and we all struggle with choosing the right ones. It was the very last thing and maybe the most stressful thing I did with my application. What was that experience like for you, and would you share one or two of your improbable facts?

Ashwyn Sam:
Sure. I actually had a lot of fun... Go ahead.

Willie Thompson:
I'm just thinking about there are a lot that come to mind. Then again, what is Improbable, right? Because we putting bars on a podcast. I know you rap in your spare time from VBS back in the day. Also a fantastic dancer and choreographer. Folks don't know on Ashwyn's Instagram, bro, smoother than melted butter.

Ashwyn Sam:
Oh my gosh.

Willie Thompson:
I'm telling you, I don't even know if melted butter is smooth, but you know what I'm saying? It's one of those things because it's nearly liquid. That's how smooth.

Taylor Goss:
That's how I was telling you.

Ashwyn Sam:
You guys are too much.

Willie Thompson:
No, I'm serious. I'm serious. Everyone who's listening, go on Ashwyn's Instagram and look at, I think it's maybe the third or second most recent video as of this recording. He did a mashup of Way Too Sexy and One More Time for the Desi Boyz.

Ashwyn Sam:
Yeah, you know that song?

Willie Thompson:
Yeah, bro. I guess improbable fact, bro, I took a Bollywood dance class in Boston.

Ashwyn Sam:
What?

Willie Thompson:
I went to the Bolly. I'm into it, bro. Desi Boyz. Anyway, we can talk about after dude.

Ashwyn Sam:
Spring formal, let's do a Bungra dance.

Willie Thompson:
Doug, I have been deprived of all that

Taylor Goss:
I'll have to be the videographer.

Willie Thompson:
No, you got to be in it too. It's got to be-

Taylor Goss:
I'd do it. Okay.

Willie Thompson:
All right, cool. Great. Sorry. Anyway, we're going on a tangent, but yeah, sorry, improbable facts. Yes, there's a lot of stuff to choose from, but Ashwny's an improbable dude. All right, I'm done. Go for it.

Ashwny Sam:
I have fun with it. Well, and I first thought I was also like, oh man, what do I do? I don't know what to put. Also, real quickly, I only found out about Knight-Hennessy two weeks before the deadline.

Willie Thompson:
What?

Taylor Goss:
Yeah, nice.

Ashwny Sam:
That's a whole other story we don't have time to get into, but-

Taylor Goss:
Talk about making shots.

Ashwny Sam:
I literally had to put together the application really fast, which I think in many ways was a good thing because I didn't have time to think about, oh man, what do the admission people want to hear? I just put down my raw story as it is without too much editing. Improbable facts when I saw it, I was like, "Oh gosh, I don't really know what they want." But what I ended up doing was I basically put together a panel of my friends and I was like, "Yo, all right, listen, tell me what you guys think is improbable about me, and let's have fun with it." So I did. We had fun with it.

A lot of my improbable facts were things that my friends told me, things they knew about me. I'll share a couple. One of them was, this is actually kind of dumb, but growing up, one of my aunts believed that if you eat goat brains, it makes you smarter. I was fed goat brains growing up occasionally because they thought that it would make you smarter.

Taylor Goss:
You can't argue.

Ashwny Sam:
I don't know if it worked, but I was fed goat brains growing up occasionally. It wasn't like a regular diet thing, but occasionally because they believed it would make me smarter or whatever.

Willie Thompson:
Raw goat brains, fried goat brains, in a curry goat brain?

Ashwny Sam:
It was like in a curry, I believe.
Willie Thompson:
I’m just checking because wow, okay. All right.

Ashwny Sam:
Another improbable fact is that I love movies. This is something that I actually want the world to know about me. I love film. I've taken courses in movies and growing up-

Willie Thompson:
I'm in love with cinema.

Ashwny Sam:
I love cinema. And the first English movie I watched in theaters was Spider-Man 2 with Tobey Maguire. And my dad took me to that show, and I still remembered my emotions from that movie. One of my improbable facts is I've seen that movie without exaggerating over 100 times. My friends were like, "Yeah, only you would do that. That's crazy."

Willie Thompson:
That's so cool. Favorite scene from Spider-Man 2, or I guess Spider-Man 2, and then what's your favorite Spider-Man movie?

Ashwny Sam:
It's that movie. I would actually Go Spicy.

Taylor Goss:
Spider-Man is that one.

Willie Thompson:
I don't know. Spider-Man across the Spotify is great.

Ashwny Sam:
I think it's Go Spicy, that's my favorite superhero movie of all time. Spider-Man 2.

Willie Thompson:
Why?

Ashwny Sam:
For me, it was just a wow factor of seeing a Hollywood movie in theater. That itself is amazing, right? Two, seeing somebody swing like that from building to building in live action, to me that was mind blowing. Like the CGI, the music, the acting. I mean, as a young kid, I was just blown. I think I was in second grade or something, I don't remember, but I was just blown away. And moments like that has carried forward to this day of why I still love cinema. I'm very, very religious about watching movies and yeah, it started back then.

Taylor Goss:
Yeah. So you know what? Now I know why you study space and why you study renewable energy sources. You're looking for the power of the sun and the palm of your hand.

Ashwyn Sam:
Palm of your hand, yeah.

Willie Thompson:
That's good. That's so good. Watch the movie if you don't catch a reference.

Ashwyn Sam:
This is the origin story of Dr. Octopus.

Willie Thompson:
Homework. Go watch Spider-Man 2. The train and the ripping of the... It's crazy.

Ashwyn Sam:
Oh my gosh.

Willie Thompson:
Before we go into the advice for cage, what's the last good movie you watched? Film, sorry, cinema. I was thinking film, excuse me.

Ashwyn Sam:
Last film, yeah. I recently just watched a movie called The Holdovers. Great movie.

Willie Thompson:
Oh, I want to see it so bad.

Ashwyn Sam:
Yeah, it just came out, highly recommended.

Taylor Goss:
Yeah. Paul Giamatti.

Ashwyn Sam:
Yep. Great, great, great movie.

Taylor Goss:
Movie. Okay, so to round out our round of Knight-Hennessy application questions, would you have any advice musings for people who are thinking about applying to Knight Hennessy?

Willie Thompson:
I'm assuming one won't be start it two weeks before the deadline. I'm assuming that won't be.
Taylor Goss:
Maybe don't do that.

Ashwyn Sam:
Obviously don't start that late, but I think the wisdom from me starting that late still holds. I would still share that, which is don't try to be someone you're not. I didn't have the time to be someone I wasn't. I just had to be raw.

Taylor Goss:
Oh, wow. That's a great point. You didn't have the time.

Ashwyn Sam:
Yeah, I didn't have the time. I didn't have the luxury of sitting and thinking, what did the admissions people want to hear from me? I just had to put it down raw. So don't try to portray yourself as if you are someone they want to see. Be yourself. I know that's very cliche. Be yourself is very overused. But that's what worked for me because the other applications I applied to where I did have more time, I didn't get it. So obviously sample size n equals one. So who knows? I am extrapolating things I probably shouldn't be, but just put down your story as it is. You probably have something interesting to say, say it. And I will say consult the people. I had my friends help me out with discussing improbable facts, things like that. So don't do this alone and have fun with it too.

I actually found my Knight-Hennessy application to be quite introspective. I think I learned about myself through thinking about connecting the dots. I was like, wow. When I connected the dots, I realized people were always there. There was always people that were shaping my life. So discover something new by yourself too. Take it seriously. Don't let the act of writing the essay not be about trying to get the scholarship, but make it about you. Seriously think about connecting the dots for the sake of writing this essay, not for the sake of the scholarship, but for your own understanding of connecting the dots. Yeah, that's my advice.

Taylor Goss:
Beautifully said.

Willie Thompson:
That's great advice. I also know me thinking about so much after this podcast, I'm thinking about paint flex.

Ashwyn Sam:
One centimeter object.

Willie Thompson:
One centimeter objects in space that move gracefully, but it'll kill you.

Ashwyn Sam:
It will kill you.
Taylor Goss:
Like him. He moves gracefully, but he's a killer.

Willie Thompson:
He's a killer, but don't push him.

Ashwyn Sam:
You guys are great. This has been super fun, guys.

Willie Thompson:
It's been great having you. Just appreciate you just taking the time and being so open and vulnerable with your life story. And we're just really glad we could highlight your story for this episode of the pod.

Taylor Goss:
We mentioned a little bit about this at the top, but really you are one of the kindest people I know in the community.

Ashwyn Sam:
Thank you.

Taylor Goss:
And the value you put on other people's work in your life and other people's value is not just shown in the way that you talk about your life, but it's shown in the way that you walk through this community and you walk through your life as far as I see it. And you've brought a lot of light to my life, and our check-in sessions are always extremely mutually beneficial. And I smile whenever I walk into Denning House and see that you're there.

Ashwyn Sam:
Oh my gosh.

Taylor Goss:
So thank you for being here.

Ashwyn Sam:
Wow, thank you.

Taylor Goss:
And I'm glad that the people listening to this get to hear some representation of how much love you bring to any space that you're in.

Ashwyn Sam:
You guys are too kind. I really appreciate that. I really do. Thank you so much for that.
Thank you for joining us for this episode of Imagine A World where we hear from inspiring members of the KHS community who are making significant contributions in their respective fields, challenging the status quo, and pushing the boundaries of what is possible as they imagine the world they want to see.

Willie Thompson:
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