



Running up that Climate Hill with Economics with Dr. Devyani Singh

Nerdin' About Podcast Transcript, Season 3 Episode 10

Michael

Hey everyone welcome to Nerdin About I'm Space Michael. With me as always is someone who just made another lap around the sun, and that is newly discovered comet C2014, but also Dr. Kaylee Byers.

Kaylee

Oh, that comet is so much more impressive. I've barely gone anywhere, but thanks for lumping us together, Michael.

Michael

Well, absolutely, both bright, both with lots to look forward to in the future. So really excited to see what happens.

Kaylee

I hope that that comet has a sunnier outlook for the future than I do. I'm constantly trying to rally my good vibes. Today we're going to be talking about the future. We're going to be talking about climate, we're going to be talking about economy, and we're going to be trying to rally some of those good vibes. So today, we're joined by Dr. Devyani Singh. Devyani is a postdoctoral economist fellow working on energy and climate policy at the Environmental Defense Fund. Hello, Devyani, how are you?

Devyani

I'm good. Hi, Kaylee. And Michael, thanks for having me. It's been a while since I've seen your faces. Last was I don't even remember how many years ago now in person when we still had the Nerd Nite happening in the Fox Cabaret. I do miss that. I hope we can be back sometime.

Kaylee

I mean, this is like an update, lots has changed in the last three years. Devyani, your work is sort of in this confluence of environment and economics. Maybe, it makes sense for us to bring those things together now. But where did you get started? Were you really interested in one over the other? Or were you always excited about the two combined?

Devyani

I wasn't always interested in the economic side. I grew up in the Indian Himalayas, and my father was in the military. So, we moved a lot, but the family home in the Himalayas was really my only stable kind of home growing up. That's where I got my love for environment and nature. Back even in the 80s, I could see the impacts of climate change. So that's really what got me involved. So, where economics comes in is, sadly, in the 80s and 90s, when you were in India, and especially a woman, you didn't have a lot of choices open. I wanted to be a wildlife warden, kind of like a park ranger, and things like that, and I don't think at that time, that was a possibility being a woman in India. So really, it came down to those traditional three that all the Asian families talk about: doctor, engineer, or you get into business. I definitely didn't want to be a doctor. Well, I'm a different kind of doctor now, I didn't want to be an engineer. So, I'm like, okay, you know what, I'll do business, I'll do finance, I'll make tons of money. Then I'm going to open up Animal Shelter homes and NGOs and do what I want to do. So, I think that's kind of how I



got into the economic thing. I'm like, well, I have to be part of the rat race. I don't know if I should say rat race, given your interest and research.

Kaylee

Bang on. (Laughs)

Devyani

I came to the US, did my MBA in finance, and started working in corporate America, and I was really depressed. I was really not doing what I was passionate about, which was the environment. So, I quit, I went back, got a second master's, and ended up at UBC, which brought me to Vancouver for my PhD and here my supervisor, he was an economist, a forest economist. I had tried to forget over my second master's in environmental science, my relation to finance and economics, and he was like, you know, what, if you can use it for good. When I worked in corporate America, finance was all about making more money from another billion for a billionaire, and the cost of environments and people. At that point, it was all new to me this whole carbon finance, environmental finance, and environmental economics field. He's like, you can actually use that same stuff. Why forget the years I put into developing those skills but use them for the environment? That's when I got into this environment and economics. Now I do carbon finance on natural climate solutions, which we can talk about later. So that's really how it started with my love for the environment, ended up doing economics, or finance, which are very similar, then ended up combining the two, and now I'm an environmental economist.

Kaylee

I love this whole thing. It is such a better origin story than any of the superheroes that we have. I mean, I have to admit, I don't really know any of the origin stories, but I'm sure Michael does, and he would concur with me. You've worked at this intersection for a while on a number of different projects. So, can you tell us a little bit about what that work has looked like for you and what you have had success with? Or what's been a real challenge of it?

Devyani

Yeah, so I'm extremely interdisciplinary. I joke that none of the three or four chapters of my PhD were in the same discipline of science. The interdisciplinary part is the hard part, but I've worked on forest sustainability work with the First Nations, the Nuxalk Nation in Bella Coola, and the Great Bear Rainforest, that was fun during the PhD. I've done some work with clean cooking access in the Global South. I have done work on oil and gas emissions, methane emissions, and how to quantify them, detect them, and now I'm working on natural climate solutions. So, it's very interesting, because there's all these different fields, we make progress in certain things like clean cooking access. There's still over 2 billion people in the world that don't have it, but nobody is doubting that this is an access that's needed. Then you talk about a just transition, people agree that oil and gas emissions need to be reduced. We talk about that, and we need a just transition, but then you see the lack of political will to do anything about it. I think it can be frustrating working in the science policy interface, where you're literally doing science that informs policy, and then politicians are like "science says this and that", and you're like, great, they read it, they know what needs to be done, and then you see them go buy a pipeline. You declare a climate emergency, and go buy a pipeline, science and policy come across as conflicting sometimes.

Kaylee

I mean, one of the challenging things, and you're in this space, is politics isn't just based off of the science, right? There're so many other things that go into it. So, navigating that space of



what science informs, and then what economics informs, and what social structures inform, often ends up with something that looks a little bit different. Can you tell us about the clean cooking thing for folks who aren't familiar? Like, what does that mean to have a clean cooking environment?

Devyani

Yeah, and you know, before, frankly, I grew up seeing people cook on an open fire, which is basically a fire when we go camping, right? For me, it was nothing until I really got into it. There's about 2.7 billion people globally that still cook on an open fire every day. If you've been at a campfire for one night, you smell smoke the rest of the day, and you're in the open. Now imagine putting this fire in the little hut and being in there running this fire a few hours a day, it has major impacts on climate because of the emissions. It's actually very inefficient, right? Like in Vancouver, we see when we have wildfire season, we can barely breathe. Imagine that you're around inside that room. The black carbon, the soot that comes out has health impacts, I think over 3 million people die globally because of indoor cooking on open fire. You know, it has child mortality, it has effects on women rights, women education, because it's usually women in the global south. So global south is developing countries like India, others in Asia, there's countries in Africa, countries in Latin America. It's the women who go to collect wood, and they go into the forest alone, it can be anywhere up to seven hours a day. That's when a lot of attacks happen, animal and human attacks on them. Then obviously, forest sustainability, we might think that we are fighting all this clear cutting over here, but when you think about it, over 55% of all wood cut globally, gets used for cooking. So, it's had major impacts. It was very interesting to work in this. I worked with was eight villages in India, four of them were up in the Himalayas, and four were in more semi-arid, plain area. People say that if you move people to cleaner cooking, which we call improved cook stoves, they could still be biomass cook stoves or they could be things like LPG or electricity. In the Global South we hear we say we should move away from fossil fuel, but over there, the best thing they can do is get an LPG stove. It's 97% efficient. Given the fact there's 2 billion people in the world who are energy poor when it comes to electricity. In India, the power cuts happen all the time. If I get an electric stove, I won't be able to cook food for half the day. So, I was really looking at climate impacts of moving from cooking on what people could think of as renewable product, which is wood, to a fossil fuel product, which is LPG. That paper is out if anyone wants to read its "[The Environmental Payoffs of LPG cooking in India.](#)" It really shows the huge and major positive climate impacts to move from cooking on open fire to LPG.

Michael

These stories are so fascinating to me. Your talk at Nerd Nite was one of my favorites, because it was thinking about these really big global problems in very tangible ways. You're looking at solutions, because you're right there in the thick of it creating policy. So, I'm curious what you're doing now with the Environmental Defense Fund? What are those action items? What are those policy items that you're really looking at now?

Devyani

So, with the Environmental Defense Fund, I'm really leading a project, and it's in collaboration working with partners across different organizations, Indigenous people, governments, NGOs, just everybody. We're trying to create a handbook and a briefing note series on crediting natural climate solutions. So natural climate solutions can be anything that either reduces the emissions or pulls emissions out of the air. The simplest thing we all know about is the reduced emissions from deforestation and forest degradation, which is basically not cutting out old growth in BC, or replanting, forestation and reforestation on already cut land. So, for ease, I'll just stick to those



examples, because people understand it. A lot of people call these offsets, which, in a way, if you are buying it to offset your emissions, it is but I don't like that word, because it's gotten very negative in people's belief related to it. A lot of it is fair, because right now the credits, what we call a credit is one ton of carbon dioxide equivalent. That is one credit, and you can treat it like currency in a carbon market, like a financial market. So, let's say a credit is like \$1, that we are trading, but right now, we don't have high integrity credit. So, what that means is a ton that we are selling, or trading in the market might not be actually representing a ton in the off sequestered carbon, which creates issues. Natural climate solutions will be a part of all the companies and countries net zero goals, but what's sad is if you look at all the climate commitments and Net Zero commitments using offsetting, there's not enough land on this planet to grow that many trees. This is why people are very skeptical about offsetting, because people want to increase oil production, like we want to do in Canada, according to our net zero plan, and then offset it. Exactly where do you plan to offset it? So, there are initiatives like the SBTI, Science Based Targets Initiative, which says, you have to reduce your emissions, and then what you can't reduce gets offset, right? Because we can't have a zero emissions world. There will be emissions, from agriculture or from other things, but we can reduce emissions from fossil fuel, we can reduce emissions from I think 80 to 90% of the things we do, and that 10-15% that we can't reduce is what needs to be offset, not 100%. So, what this handbook is dealing with is all these concerns people have brought up about the integrity. What does integrity mean? Is the one ton actually one ton? You know, if I grow a tree here, how long does that carbon stay in there? If you cut it in 30 years, is it really permanent? If it stays for 100? Then we could say permanence. Was the forest actually going to be cut? Like, if I'm saying that, okay, I won't cut this tree, was it actually going to be cut or are you just claiming a credit? We were anyways going to protect it. So, there's those integrity issues. There are issues of equity that a lot of people speak about, you know, let's say there's a coal plant, and we all know, coal plants and things like this are always in marginalized communities where they create pollution and have health impacts. So, let's say there's a coal plant in Vancouver. Let's say in Kits, and Kits is suffering pollution, and this coal plant, to meet its net zero goals, now buys offsets down in Columbia and grows trees there. So, it has equity issues on both sides equity here, because technically that coal plant is now net zero, but the pollution and the health of the residents in Kits did not improve. Right? It has equity issues now in Colombia, did you just take away another land from Indigenous people? And now say it's protected, and you can't hunt and gather here or do whatever you've done for 1000s of years? That's the supply side of equity issues. Do we have good markets to trade this? Then where will the money come from? Who's going to put money? Will it be governments? Will it be individuals? Will it be corporations? How do we scale this finance for them to actually be successful? So, these are some of the issues and complexities where we're going to talk about in this briefing note series, and the handbook. So that people who want to get into this space, or anybody who wants to know anything, can know exactly how to do it, and what are these issues that they should be aware of as they create this? So, trying to address these concerns and make sure that it's a better place to actually mitigate climate change.

Michael

Yeah, I like how you brought about concern using the word offsetting, and you're creating a handbook for the language, and for you as a communicator you're thinking about this language as well, because people have feelings about it. Right? Another term that I think is being used and is a very hot issue right now is carbon taxes. We're looking at the gas prices, and in a lot of communities, especially in North America, they're talking about these carbon taxes, and wondering if they are still working? Do we still need them? I'd love to hear from you about what's going on with carbon taxes? Is that something still working in 2022?



Devyani

First of all, with climate emergencies, we don't have a silver bullet, we need to be doing everything. We need to be doing natural climate solutions, we need to be doing carbon tax, we need to be doing cap and trade, electrifying everything, getting clean energy, and we need to be doing everything we possibly can. So, when it comes to the carbon tax, they should be, and will be, and are effective if the price is right. Right now, our prices are too low to create any change. What happens with a carbon tax is basically we've been discounting and subsidizing oil and gas production for decades. Where they are not paying the true price of pollution, or, environmental or health damage, what we call externalities in economics. So, externalities have not been priced in. Now, if you really did put a price on externalities, oil and gas would not be even half as cheap as they are now even though solar is like the cheapest source right now. Oil and gas would be unaffordable. So, what's happening is we the public have been paying the externalities and subsidizing that externality price for oil and gas right now. Carbon tax is one way of trying to price that pollution in economic and financial terms, but it has to be the right price. If we're only putting in BC, we're up to 30, or 40, or even 50, I don't know the exact number right now in BC, dollars per ton, there's a lot of models that have shown that the price will actually be effective at 100 or more, because that's the true price of pollution. Although in BC, when we did enact a carbon tax, it has shown a reduction in transportation pollution. We have research out there, and I think even on the government website, it's there. When BC had introduced it as the first province in Canada, all the other provinces are like, "Oh, the economy in BC will suffer." But actually, the BC economy since the introduction of the carbon tax has not suffered at all, if anything, it did improve, and our emissions went down. So, in BC itself, we can say that it's working, but you know, a federal \$10 tax, I cannot say it's going to be very effective. Because \$10 per ton is nothing, right? It's not the true price of pollution. Oil and gas producers should be paying that price, it shouldn't be the public, because we've been footing that price for way too long. So, we do need carbon tax, we need a lot of other things if we really want to deal with this climate emergency and turn it around in the next decade or so.

Kaylee

That's definitely one of the concerns I have. You touched on this earlier is that we seem to be worried enough about climate change, but we put all of our climate eggs in one melting basket. The idea that carbon capture technology is just going to solve all the problems, right? This gets into the policies and what's actually done. In 2020, you ran in the BC provincial election for the Green Party, and in 2021, you ran in the federal election, and now you'll be running for city council this year. Can you take us on a little bit of that journey for you like the nerdy stuff that got you moving from the climate and economy space into this policies and practice space that you're now in?

Devyani

I've been doing a lot of science for policy, and so really working on those policy questions and trying to answer them, so that policy can be more effective, or have evidence based decision making. My first taste of it was when I was telling you about the paper that was published, we actually worked with the petroleum minister in India, to look at the climate impact of this big LPG access push they've done in India where they got clean cooking access, which is like basically an LPG connection to 80 million households in two or three years. That's like twice the population of Canada and in two to three years, they managed to get them LPG cooking access. That was really cool when I published this paper with an actual government official, and it directly affected policy. They wanted to know what were the climate impacts, because I created this model, and they gave me all the information, and we ran that. So that was very



interesting. I really wanted to continue doing a lot of that work. So, when we were talking earlier, and we were saying that, you do the science, and then there's the policy, and there's a disconnect. There are so many external forces when you make the policy social and other corporate interests that come in. But I also think, as scientists, we have not done a very good job, right? We end up publishing in these academic journals full of jargon, where you and I, as scientists, frankly, don't love reading them, either. They're very boring and annoying, and we do it because we have to. We really don't communicate well. It is part of our job to do as scientists, I feel that if we have a policy relevant scientific research and answers to get communicated to policymakers. We don't have scientists and our MLAs, or MPs are on city council, right? How do you expect them to be able to sit and read thousands of scientific papers and come out with five points that's the best available science on that issue? That's our job as scientists because we understand that, and we need to do better at communicating. I got into a lot of trying to get this across writing policy briefs, trying to speak with politicians and as part of that I emailed the Liberals, NDP and the Greens, when I was doing my PhD that I wanted to help them on policy stuff if they wanted any climate policy or Energy policy help. As a scientist, I was offering my help, because I'm not partisan, although to run, you have to choose a party, but I wasn't partisan, because at the end, I want evidence based decision making. But neither of the parties except the Greens replied, the Greens got in touch, because I was writing a letter to the federal government on some on the Saskatchewan methane emissions equivalence. She said, "You're an expert on this, can you help me on this?" I was like, wow, there's an elected MP and this party that really cares about what my scientific perspective has to say. It was in 2020. I actually only got my citizenship in March 2020. Literally, the week where the world shut down. I went for my citizenship oath, and that weekend the whole world shut down. I was like, wow, that's what happens when you become a Canadian citizen.

Kaylee

"N" equals one, seems to be the trend. (Laughs)

Devyani

Exactly. N equals one. That is it. Right? We know that's the scientific evidence we need. It was sometime in March, I got a BC Green campaign person email saying, "Have you ever thought about running for office? We're just going through your resume and how interested you are in seeing science and policy. As greens, we love evidence based decision making, and we would love to have you." I was like, "You know what, and I just became a citizen. I haven't even thought about this. I'll think about it, but right now, I just want to do science." Then the snap election gets called, and they call and they're like, "well, you have 24 hours, we need to select candidates do you want to run?" I was like, you know, we need more science in politics, and I was frustrated with government, and I wouldn't even say inaction because they make people think they've done something, but it's so little it would have been better if you didn't take any action. So, you can't even say an action, but just playing politics. Then I ran because I wanted to see climate action, and that's kind of what got me involved. Once I got into it, it became more than science. It became about representation. I had South Asian women messaging me and telling me that "for the first time we felt represented in politics, thank you for running." I had professors at UBC email me and say, "I know you'll do the right thing. Thanks for giving us hope and politics again." I had people on the street tell me "We've given up on politics, thank you for running. You've given us hope again." I'm not here to play political games. I want to get things done, it's an emergency. By the way, I just could not watch Don't Look Up. I saw it and I was just screaming in frustration, because I'm like, "Oh my God, that's me. That's literally how I feel." (Laughs)



Kaylee

I didn't find it to be a fun romp to be honest. Like, I thought it was well done. But the whole time I sat there thinking this is too real. I can't even laugh. I know, there are jokes.

Devyani

I was angry, I couldn't even laugh, I was just angry. So that's what got me into politics. Then, on Election Day, we actually did really well, in the provincial election, because my team was amazing. It was my friends who I recruited to help me, and we got 8, almost 18% of the vote, which is the highest of any green candidate in this riding in a three week election where we literally had \$1,000 to spend. I'm pretty sure my opponent spent thousands and thousands of dollars. A teeny campaign with no money and no volunteers, I think we did pretty good. That's when on election night, I got an email saying that they'd like to see me run federally next. I was like, "Well, I never thought about that." It happened like that, I never thought of the city and then I had Adrienne Carr, who I really respect and the work she's been doing. I got to know her during my federal campaign, because she and Elizabeth May were close. Elizabeth and Adrienne did a campaign launch event for me here. That's when I came to know at the municipal level, the real work you can do that you can see in the city, I can tackle actual issues. Before we started recording, I was saying as an MLA, I'm one voice in some 80. As an MP, I am one voice and like 300 and something, but as city councilor, and one voice in 10. If you actually look at our city council right now, there is no diversity. We need renters, who, as I bet, you know, as grad students, we were paying 100% of our stipend in rent. That's not affordable. Unless people have lived like that they don't understand when they're making decisions, what it really feels like to be in that person's position. So that's kind of what got me involved. So now it's science, but it's also not just climate science anymore. Now, its evidence based decision making across the board. It's just that someone's got to do it. Right?

Michael

Wonderful Devyani, this has been an amazing conversation. Thank you so much for taking the time to answer our questions. There are more questions coming at you from some more of your constituents? Would you like to hear from the nerd herd? (Music)

Michael

If you want to get on the nerd herd questions, we post them on our social media @NerdNiteYVR. We got a two-parter here for you, Devyani. The first one from Tara, "Do you have any advice for scientists considering running in future elections?"

Devyani

I think the advice is just get into it. I mean we get so comfortable not being in the public eye as scientists. I think a lot of people become scientists, because they don't want to deal with people. I think we just have to jump in. I can understand that if you want an academic traditional tenure track position, it might be hard to be the front of politics. People say that your bias, but frankly, what's the bias when you want to make this a planet that's worth living that's livable for future generations. I don't see any bias there.

Kaylee

Also, who isn't? Everybody brings their biases to science, everybody has biases, the most important thing is to recognize them, be able to think through them, and make sure that they don't impact your decisions in a negative way or in an inequitable way, and all that kind of stuff. Right?



Devyani

Exactly. You know, it's like my research, and my scientific results have nothing to do with my politics. Right? Like, my opinions and biases are not in my research, which is facts and results, it's devoid of that. But there is, like you said, inherent bias. If you didn't like rats, you wouldn't have spent years studying them. If I didn't like climate, I wouldn't have spent years studying it. If my partner doesn't like brains, she wouldn't become a neuroscientist, right? So that's the thing. There's an inherent bias, why we choose the field of science we do. So, the moment scientists say I'm unbiased, you're lying to yourself. Like you said, if you don't acknowledge that bias, then you aren't able to keep it separate from your science. In fact, acknowledging your bias is a good thing. There's a lot of trolls out there, especially if you're somebody who stands out like me, I check off almost every equity seeking group out there. You have a lot of trolls coming after you, but because I've faced so much racism, homophobia and sexism in my life I've become, I wouldn't say immune, it just doesn't bother me as much anymore. So, I've become thick skinned, which is good to be in politics, but at the same time, it's not good that I have had to actually deal with all of that to make me who I am today. So that is there. That is something you have to be aware of. You have to be aware of people who will be like, "but you're scientist, do your science. Why do you care about politics?" I say, reach out, and if you don't want to run, reach out to your local MPs, reach out to your local MLAs, set up meetings. Bring up the promises they made during elections, and ask them where they are on those promises, and what's the timeline to follow through. They have to meet you, they're your representative, and you're the constituents. So, email them, get in touch, it doesn't matter what party, they made you promises, make sure that they deliver on them. If there are things you didn't like, then set up a meeting and speak to them about this science. Call them, email them, if they think they're being harassed, they shouldn't feel that. They are your voice in government, they should be listening to you. And if they're not? Well, then you know who not to vote for next time. You are their constituents, and they are your representatives first. Once elected, they shouldn't be NDP or a Liberal or a Conservative or a Green. Once elected, they are the MLA or MP for that constituency, and they should be putting partisan politics aside.

Kaylee

Okay, follow up question, what should BC do? Or anywhere, but we're in BC, to encourage more scientists to get involved?

Devyani

I mean, there's two things, right? There's the government which should be hiring more scientists on staff. I really think we need a chief scientist of BC position. We have a public health officer, we need a chief scientist, who's looking at the best available science and translating that science for government. But those are like proper jobs, right? We should have more scientists, positions coming up in government. When we're talking about politics, I think all parties need to make it a space where scientists feel welcome and heard, and that their science will be listened to. So, I can say, personally, for the Greens. At the federal level, we have a shadow cabinet, which we have a lot of scientists on, apply to be there. I know the BC Greens, Sonia and Adam, they're very evidence based. The BC Greens now have what they call knowledge clusters, where if you want to give your ability and analysis, you can infer help, and be part of some policy decisions or formulating policies. So, I would say, just reach out to the parties. I would say reach out to all the parties or you know, the few that you care about. Just say that you want to be involved in it and say what your ability is. I think at the same time, the parties have to open that channel. I reached out to all and only the Greens got back to me, but I think there's a lot that politicians themselves have to do in listening to experts, right? The hard part being a



politician, people expect you to be an expert on everything, but they're not. When elected to office, I'm an expert on climate and energy policy, but I'm not an expert on other issues that face the city or my constituency. I do know how to reach out to experts and get their opinions. I think what government officials and politicians should be doing is keeping that channel or opening that communication channel, where scientists can feel comfortable to reach out and tell them that you know, based on my science, best available science, these are the top five things that we think you should do to tackle x-y-z issues.

Michael

Awesome. Thank you so much, Devyani. Yeah, this is an amazing conversation. Do you have time to nerd out some more with us?

Devyani

Yeah, sure. (Music)

Michael

If you want to get it on the nerd outs, we also post for them you can contact us on our socials @NerdNiteYVR? Devyani, you do so much. You're a scientist. You are out there running for elections. What else have you been nerding out about?

Devyani

Well, I don't know if I'm nerding out but when I'm not a scientist by day, and a politician by night and weekends. Every bit of time, well actually it overlaps on all these things is my puppy Zephyrus. He's 14 months old now. So, I'm nerding out just hanging out with him. He's a husky Australian Shepherd mix. He's quite an adorable guy. I can't say little anymore. He's become 70 pounds. He is bigger than any of his own siblings and potentially parents at this point. So, I don't know what's happening there. He has his own Instagram so if anyone wants to follow him, he's [@WestCoastPandaBoi](#). Very friendly, sweetheart, a great campaign buddy. I literally joke about how he probably gets more votes than I do because I've walked down the street with them. Half of my campaigning during the federal election was done at dog parks. I got most of my volunteers recruited at the dog park. So, he's a great camping buddy. I got him this little backpack that I put my election pamphlets in and then went door-to-door, giving those. He's got to own his keep, right? He can't just live in the house for free. He's got to work. So, he's doing what he can with his really cute, adorable face of walking the streets and dropping off leaflets.

Kaylee

How is he listening to the people? Is he also good at listening to the people?

Devyani

He is a very happy puppy. So, if you ignore him, he will try to jump on you and bark at you to play with him. But if you pet him, he will sit there very happily with his tongue out with this goofy face, and waggy tail. So, he's actually very good with people and dogs.

Kaylee

Well, you know what? That sounds almost exactly like how Michael will behave when you treat Michael poorly or well. Michael, what about you? What have you been nerding out about lately?



Michael

Well, I mean, you can treat me well by taking me to a movie because that's where my love stems from. Starting as a young child, I just loved going to the cinema, which is something I've sorely been missing these past couple of years. I saw a movie recently, [Everything Everywhere All At Once](#). Have either of you seen this movie?

Devyani

No, but I've been hearing about it, and I really want to watch it.

Michael

Yeah, go see it in the theatre. I went to the fancy theatre in Park Royal with reclining seats, a foot rest, two beers beside me, I mean absolute heaven. It's such great cinema. It's like sci-fi, Kung Fu action, little bit of Marvel superhero. It's all centered on a basic drama of a Chinese immigrant family. Michelle Yao is the main actor, it is so incredible. There's so much in this movie, it's really so chaotic. Basically, the main theme that it explores is the multiverse, which is a very big science concept, and I love how art can take these big science concepts and explore them a little bit. I've found recently in a lot of art, and this big science concept, which is a real concept, the multiverse, is being explored in art a lot. So just to clarify, when you hear words like this, the multiverse, there is actually two very distinct things. So, in cosmology, when they say multiverse, they mean, the physical place in the universe, beyond our perception, where another universe has been created. So, we are in one universe, elsewhere, where we can't see there might be another universe. So that's one way to think of the multiverse. But another more popular way that's being explored, which is more of the quantum physics way of explaining it, is the many worlds interpretation. Every time that you make a decision, a new branch of the universe is created, that creates another subset of the universe. So, there's just constantly new branches of things in physics where one proton goes this way, and one proton goes another way. Well, in the many worlds, it's gone in both directions, but we can only observe one of them. Theoretically, it also went in that other direction, as well. So that's the theme that I think a lot of stories have thought about, all interpretations are out there that we could be, and I find that so wonderful. Science is this process of understanding the world, and art helps us understand the emotions of that understanding. So, after the movie, I've been reading and listening to discussions on the themes, and I think this concept of the multiverse feels very real right now. Because for me, I've had a lot of time to think, to dream, maybe less so these days, but collectively, I think a lot of us have had time to think about those things that we are not. That maybe could be things we've lost, maybe things we could have done. A lot of people are changing careers, because they have time to think about these new places that those branches could go into. Right? So emotionally, there's a couple of ways to unpack this, and this is where philosophy comes in. In that every possibility is real, every possible outcome is realized in the infinite multiverse. Now, if that makes you feel sort of nihilistic, like, any decision you make doesn't matter. You know, that's a real emotion that I think is valid to bring into this because everything does matter, but it's the indecision that doesn't matter. So, for me, that's a very tangible way of thinking about it. That makes me really excited that even if something doesn't happen for me, it did happen somewhere, and I can mourn for it, but I can also be really excited for it as well. So, if I am going to mourn for something that didn't happen, I should also be really excited that there's the possibility that it could have happened as well.

Devyani

So, in one of those roles, we've dealt with climate emergencies.



Kaylee

Which decision do you think it was? One sloth fell off a cliff, and then there was no climate change?

Devyani

Oil and gas, industrial revolution never happened? No, no, we do like where we are. (Laughs)

Michael

Even the big problem of climate change is emotional, right? We think about what the world could be like, and it's really the anxiety, the in between zones is the problem. So really, where you want to be is in that sweet spot of whatever place we are in, is the universe that we are in, and there's no reason to really get anxiety about that. You just take the action that you're going to take, you're going to take that branch, and you're going to go and follow that branch and see where it leads. For me, I think, the universe is chaotic, that process that I've just described, it's chaotic, but in the end when you think about all of it, it brings me comfort. So, the moral of the movie is the universe is chaotic, but just be kind to others in that process, and most of all, be kind to yourself in that process, because it's a long road, and there's many different possibilities to think about. So that's what I've been thinking about, and nerding about. Kaylee, any existential crises for you to think about in the multiverse?

Kaylee

Constantly. Well, one thing that you talked about there was dealing with anxiety. I'm going to talk on a few things quickly, because Devyani was talking a lot about climate change. I want to share a book that I really liked. I read it this year, by Dr. Kimberly Nicholas called "[Under the Sky We Make: How to be Human in a Warming World](#)". It's really beautifully written, it talks about some of these bigger, existential crises, like what changes am I going to make in my life? What does this mean, for me? Flight is a big part of it. She tackles this question about deciding to have children or not, and how people wrestle with those ideas. I think it's a beautiful look at this broader anxiety that many of us are feeling and really bringing it down into, what does that mean for me on the day to day, and how does that affect my decision? So, I'm going to put that in the group chat. And that phrase, "I'm going to put that in the group chat" I stole from one of my favorite podcasts called Pop Chat. That's my next thing. I'm recommending [Pop Chat](#), a Canadian podcast, hosted by Elamin Abdelmahmoud, which is like a pop culture podcast. I know nothing about pop culture, and it is so delightful. It's the only way I stay current on anything. So highly recommend it. Last thing on this roundtable nerd out, I am doing a new podcast. So, I'm excited to hype that it's called Nice Genes, and it's sponsored by Genome British Columbia, and it's all about genomics and how it intersects with our lives and different aspects of genomics. That's going to be coming out in the summer. So yeah, I'm really excited about it. I think it's a lot of fun, and I'm really excited to see it come into the world. That sounds cool in this universe. I guess it won't in another one.

Michael

That's right. So, you celebrate the universe that it is in!

Kaylee

Good job this universe.

Michael

Devyani thank you so much for joining us on this here podcast. Where can people find you, read all about the things that you're doing, on social media, so they can contact their local politician?



Devyani

Yeah, for sure. Please feel free to reach out on Twitter. Its [@Kumari_Devyani](#) my Instagram's the same, but it's Twitter that I use more. Feel free to reach out anytime be it about politics, be it about science. You know, and if there's anything I can do to help out, you know, that's what I'm here for, trying to do a little bit.

Kaylee

Amazing. Well, everybody, go get in Devyani DMs and ask all those science policy questions. Thank you everyone so much for listening. If you want to hear more from us, you can follow us on our socials [@NerdNiteYVR](#) on Twitter, Instagram and Facebook. This episode was hosted by us surprise and probably also edited by us surprise Michael and mixed by Elise Lane. We'll be back in a couple of weeks but until we meet again, make like Devyani and poli-seize the day!

Transcribed in part by Otter.ai