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Episode 14: Why Netflix's Data Scientist Jeffrey Wong Wants the Digital Ad Industry to Make a Bigger Bet on Incrementality

Mike Shields (19s):

Hey guys, this is Mike Shields and this week on Next in Marketing we got a really interesting, unique guest, Jeffrey Wong, Principal Data Scientist of Computational Casual Inference at Netflix. Yes. That's his real title. We talk to Jeff about how Netflix uses all of its unique data and its willingness to experiment to get you sucked into shows that you are almost guaranteed to love. Plus, we went deep into Netflix's experimentation platform and why big brands need to embrace measuring incrementally when they figure out where to spend their budgets. Let's get started. Jeff, how are you? Thanks for being here.

Jeffrey Wong (51s):

I'm doing great. Thank you so much for hosting.

Mike Shields (51s):

No, thanks to you. And I'm excited to talk to somebody at Netflix and this is not a typical subject matter for me or this podcast. You are one of the more unique, unusual titles I have seen, but let's, let's start with—you work in Netflix's experimentation platform, which sounds really cool. Tell us what that is and what it's like.

Jeffrey Wong (1m 11s):

So being experimentation driven is a huge part of Netflix culture and we use experimentation and in many aspects of that business in order to improve operations and kind of ultimately member joy and the experience that users have, and that can range from improvements to the streaming



experience or the UI. And then of course it's probably most relevant today to today's topic in marketing.

Mike Shields (1m 39s):

So, okay. You're not talking about programming when you talk about the experiments or an experimentation platform, obviously, although you have a culture that is about trying new things and taking risks. But are we talking about like just tweaking the way that the shows are presented to individuals and the way that the UI lays out, what are different viewing options or the recommendation algorithms? What things do you guys experiment with?

Jeffrey Wong (2m 3s):

I think we do experiments in pretty much all parts of the business and so a couple of examples are things like what type of artwork that we show. We have a public Netflix tech blog that kind of discusses how we think about how to pair content, TV shows, movies with different types of artwork that will be able to attract people to shows that they might be interested in. We also do experiments to figure out how to best optimize the layout of the page for different devices and how to optimize the slate of content that we recommend for users.

Mike Shields (2m 49s):

So that reminds me of when you'd read about how Google—in the early days would spend like an enormous amount of time trying to figure out what color the links should be, what font they should use, because there was a real science to what people are responding to. So it's not—I think people wonder with Netflix if you just show up, throw up a library with the marketing photos, from all these different shows that works. But no, you guys—it sounds like you guys tweak and play around with, you know, what images are people going to respond to and different different users will respond to different faces and actors and stills and stuff like that?

Jeffrey Wong (3m 20s):

Yeah. I think there's a really fun example with with Stranger Things that I like talking about. In Stranger Things, it's a huge hit show that we have on the service, and there are a couple of



different ways that you could potentially market it to someone. You could say that it's a thriller, or you could say that it's a show about kids. You could also say that in a very specific way. You could probably say that it's kind of this show with a throwback feeling to what life was like in the eighties and, in particular, there's this one image that is really interesting to talk about.

Jeffrey Wong (4m 2s):

It's this image where the kids are dressed up in their Ghostbusters costumes and they are going to school. It's Halloween. They are going to school in their Ghostbusters costumes. And we kind of want to figure out whether or not that's a good image that people will relate to. Obviously, if you've never seen Ghostbusters, you might not even be able to relate to this part of the show. But, if you have seen Ghostbusters, maybe you will relate to that part of the show.

Jeffrey Wong (4m 32s):

Ghostbusters was a movie that was produced in the U.S., but Stranger Things is streamed all around the world. And so, we also kind of have to figure out in an international audience, do people relate to Ghostbusters, which again was an American production. And so we have to ask all of these types of questions and try out different types of images to figure out what kind of experience is—what kind of images will give the best and richest experience for the members.

Jeffrey Wong (5m 3s):

And, and you can only do that just by literally trying it out.

Mike Shields (5m 6s):

Right. And with a show like Stranger Things— does that mean you're trying, you know, try A, B, and C copy or—and see what works or are you trying hundreds of images and variations? It's probably not hundreds because it, it takes a lot of time to produce those. But yeah, it is. I think you could say it as like an A, B, C copy. Interesting. Okay. Getting off Stranger Things, although we do a whole podcast on it, but I think people generally understand like in this, even in the marketing



world, they have a rough idea what a data scientist is, or what they do, but what is Computational Causal Inference and what does that mean for you?

Mike Shields (5m 41s): What is your job?

Jeffrey Wong (5m 43s):

So, the team that I work in is the experimentation platform team and we are trying to put a science into how to do decision making, kind of using that example about artwork. We can talk a whole lot about how to do the best decision making for the business and the best decision making for what's going to give a rich experience for the users. And that's kind of what my team is about, so I'm a researcher in that department and the department, kind of, is very wide in terms of research. We have people that work on research for forecasting.

Jeffrey Wong (6m 18s):

We have people that are doing research on recommendations. We have people that are doing research on how to stream videos in the best way, but within the department, I'd say that I have a specialty in an area of science called causal inference, which is exactly how you analyze that data to figure out, when you have an experiment, how do you analyze that data in order to figure out what's going to be the best experience for those users?

Jeffrey Wong (6m 52s):

Now, causal inference is this kind of this very common scientific field that's used everywhere in medicine to figure out, you know, which type of drugs is gonna be the best way to treat a particular illness. It's a very common part of science in psychology and in economics and so on and so forth. But this area that I've created is called computational causal inference. And it really focuses on, maybe the engineering aspects of how to make a system that will support good decision making for operations and good decision making for the benefit of all the users.



Mike Shields (7m 35s):

Okay. So in terms of decision making, the decision you are referring to are what shows do you recommend, that's where my mind goes—is your algorithm deciding what shows to show people or to surface?

Jeffrey Wong (7m 51s):

Yeah, that's definitely one part of it. We've got, you know, we have to make decisions on which shows to recommend to people. We have to make decisions on, on what type of art work to make for their shows. But we also have a bunch of internal decisions that we have to make around operations and also how to deliver the best streaming experience for users. There's a lot of decisions about our own operational systems as well.

Mike Shields (8m 23s):

So tell me if this, if this makes sense—this is kind of how I'm thinking about this and this not might not work—I'm going to be, I'm thinking about this in terms of digital marketing. Like when Google will show somebody search results it's based, you know, when they type in something like athletic wear, the algorithm, does it mean—at least from what I know that it doesn't have to deduce that much because it's an intent machine, like people are telling Google what they want. So it's a lot of, I, I would think it a lot easier for Google to figure out what to show you. But no, with something like Netflix, you, people are not sitting like primarily the kinds of searches where they are just like meandering— I'm going to watch a show with a dark antihero.

Mike Shields (8m 58s):

They are just kind of, they're telling you little things about what they like based on their behavior. Is causal inference is a way to pull out like really hard to read signal's and try to make connections amongst the broad group of users—Is that the right way to think about it? And you can tell me if I'm wrong.

Jeffrey Wong (9m 21s):



Let's take a step back because I think you're actually describing another type of research. And so when it comes to, to a search engine like Google, yes, people who enter something that they're already looking for—something, they have kind of a specific intention when they search for something. And so, that's an area of research that focuses on—it's called relevance. So search engine, algorithms, things like Google, they, they have a focus on relevance to make sure that they show you things that kind of match your initial intention for the reason why you wanted to search for something on Google.

Mike Shields (9m 59s): Sure.

Jeffrey Wong (9m 59s):

But I think there's another area of research called discovery, and that's like a whole area, a whole new line of research and algorithms associated with discovery, and discovery is a little bit different, where you don't really have any specific intention in mind in the beginning. And we just want to be able to show you things on the homepage where we want to promote certain types of movies or certain types of content to the user that kind of matches what we think is going to be interesting for them.

Jeffrey Wong (10m 34s):

And so I would call that discovery versus relevance. There are two types of a research fields.

Mike Shields (10m 41s):

It almost feels like you're making the discovery of a show feel like serendipity when it's, there's actually a lot behind what someone stumbles upon and falls in love with.

Jeffrey Wong (10m 53s):

Yeah, I think you could say that.



Mike Shields (10m 55s):

Okay. Let's shift gears a little bit. I want to talk about an important marketing concept that what people that understand it know it's a really big deal, but not everyone does, and it's incrementality and, let's just maybe help define that. In your eyes what do you mean when you are talking about incrementality and marketing?

Jeffrey Wong (11m 16s):

So when it comes to marketing, I'd say that incrementality is a science of measuring how effective ad impressions are and I really want to emphasize that it really is a science, like it follows this scientific method for how you should figure out how effective ad impressions are. And so in order to do that, we use data, we use experiments just like in the scientific method.

Jeffrey Wong (11m 49s):

And we use statistical models to kind of quantify the effectiveness of ads for different geographies, for different creatives, for different media types and so on and so forth.

Mike Shields (12m 4s):

And can that be, does that specifically apply to marketing that is trying to push someone towards making a transaction, like user acquisition or can that be applied to attitudinal marketing, like trying to improve a brand perception or an image or stuff like that?

Jeffrey Wong (12m 21s):

So the way that we've used it is we've been curious to figure out a way to quantify how many incremental subscribers does Netflix get by showing different types of ad campaigns. And I think you're right, there's actually a lot of different ways you could have used this. You could have tried to figure out how many incremental users are visiting the website, like netflix.com or how how



much increase or is there a way in brand awareness, but for the ways that I've used, it, it's mostly in how many incremental a people are signing up for, for Netflix.

Mike Shields (13m 4s):

And is it, is it often used on top? Like I always think of when I think of incrementality, in my limited understanding, I think of a marketer that already spends X amount of money on media and advertising and they're thinking about adding either a new channel or a new medium. And so they would like to isolate the impact of the, the, you know, the extra 10 to 20 million bucks they're gonna spend. Is that going to get me, you know, 10 or 10 more users per dollar or whatever, but, but is it, is it going, am I, am I going to be reaching the same people I'm already reaching?

Mike Shields (13m 35s):

Can I figure out if I add social media to the mix, it's gonna pay off without missing or without duplicating what I'm already doing? Is that a way that marketers you, is that the right way to think about the way a marketer to use it as well?

Jeffrey Wong (13m 44s):

Well, I think that's, exactly one of the ways we, we hope to people use incrementality, with once you have a solid way to measure the effectiveness of ad impressions and then you get to ask questions of things like is my ad campaign already saturated? You know, can I ask the question? Does everybody already know about Stranger Things? And if I invested another \$20 million to an ad campaign, how many extra users am I getting?

Jeffrey Wong (14m 19s):

Is it better to use my \$20 million on a different channel? Is it better for me to use it on a different type of audience? Is it better to use it for social media instead of a different type of channel and so on and so forth, but it, it kind of all of those questions, the ability to answer those questions, they all kind of rely on this fundamental core of being able to use, being able to have a way to kind of establish some kind of measurements on how effective ads are.



Mike Shields (14m 55s):

So that sounds like exactly what brands would like to do right now. They are all, everyone in every market was trying to be more accountable and track every dollar, what kind of, when they are to whatever outcome they care about, but there are challenges to doing that at scale with all the different rules of different platforms and trying to extract data from each one. What's your biggest challenge that you've encountered so far with trying to execute incrementality?

Jeffrey Wong (15m 19s):

Oh yeah, absolutely. There's so many different ad platforms. There's so many different Ad services. You've got Facebook. You've got Google. You've got Instagram. You've got YouTube. And so, and there's just so, so, so many more, there's tons of different players in this field, but what I'm, what I'm really hoping for is that incrementality, that the application's and the value and the use of incrementality it, I think that it has been taking off over or the past several years.

Jeffrey Wong (15m 50s):

It's become something that people are demanding be available all the time, and I'm really hoping that all of these different ways that we do advertising the way, the different ways that we do digital ads, I'm hoping that all of these different platforms and different services will eventually one day kind of consolidate on a standard for incrementality. And that's what, that's something that I love to promote and that is something that I am really hoping for in the future, but admittedly is kind of an ongoing evolution right now.

Mike Shields (16m 24s):

I don't think you're the only advertiser that it feels that way. I think that, that there's a lot of frustration with that and hope in the industry that that will somehow come together. But with all the, with all of the challenges aside, have you had some really great successes with implementing incrementality and, and improving the performance, of your marketing? How what's that journey been like?



Jeffrey Wong (16m 42s):

So in terms of the journey for me, I think it's -- it feels like it's been a very long journey from the beginning to where we are now, but I'm hoping that because of a lot of the work and research that we did at Netflix, a lot of other people get to get to benefit from that. And we, as an industry collectively can move closer to standards on Incrementality and standards on how we can use Incrementality in order to, to be able to get the best reach and the best amount of incremental brand awareness and user acquisition and so on and so forth.

Jeffrey Wong (17m 20s):

I think Netflix's story is really, really interesting in terms of the journey and kind of alluding to what I talked about at the very beginning Netflix is a very curious, it's a very data driven. We are trying to always try out different ways to give members the best experience they can get. And within marketing, you know there's kind of this like in an enormous marketing budget and any optimizations that we can make there can make a meaningful impact on the return on ad spend which can be used to improve brand awareness, improve, improve growth, and so on and so forth.

Jeffrey Wong (18m 2s):

But first in order to kind of like start that journey, we need transparency and we need data and we need to introduce kind of new metrics that will help us quantify marketing. And it always starts there. It always just starts with transparency and the ability to, to track progress in, in a return on ad spend, as we kind of roll out different types of ad campaigns or different types of creatives and so on and so forth.

Jeffrey Wong (18m 33s):

And we really needed transparency into questions like how many additional subscribers can we get if we raise the marketing budget or what if we don't raise the marketing budget and those are kind of like, you know, the simple top level questions, but there's also deeper things like will our growth rate be better if I raise the budget for, for channel one instead of channel two? and



that level of curiosity and the business use case kind of forced us into having to design these very scientific experiments about a, about ad campaigns.

Jeffrey Wong (19m 12s):

From a tech point of view, they're we needed to be, but to kind of support that level of curiosity for the business. And so from a tech point of view, we needed to be able to run, you know, experimental campaigns where we literally do try different levels of budgets and different types of audiences and, and other aspects of the campaign. And we had to develop a lot of new, interesting technology to be able to help scale that and manage those experiments.

Mike Shields (19m 40s):

Okay Jeff, once you have an Incrementality measurement system established, what should you do with it?

Jeffrey Wong (19m 47s):

So I think Incrementality has kind of that core foundation. It, it gives you data and it gives you transparency into how effective your campaigns are. And once you're, once you're able to know that you can improve your ad campaigns in so many different ways for, for example, how much do you want to spend on the ad campaign? And you can also optimize things like what types of creatives work better for your content, a bright color, dark color, creative's that focus on a, on the characters, of a show for, for example, on Netflix, what about creative's that focus on scenery or landmarks?

Jeffrey Wong (20m 30s):

And what about creative's that focus on the hero or on the villain? Again, the talking about Netflix in particular, and you can also answer questions of things like, should I be investing more in rich media? Does it make sense to invest more in rich media, on small devices? Where creatives may not be able to get to shine as much. You get to answer all sorts of these things.



Jeffrey Wong (21m 0s):

Once you, once you have a transparency and data about that.

Mike Shields (21m 4s):

Like sounds like how it kind of, you know, optimisation that digital marketers have always wanted, but as he has been sort of elusive until now. What else can you, we're talking to a lot about Incrementality through the lens of advertising and marketing, what are their, does it apply to other parts of, of businesses? What are some other use cases?

Jeffrey Wong (21m 21s):

So I think, I think there's so much that we can do with, with Incrementality, and it's something that I want to be working on for, for several more years. So let me just share maybe three exciting areas that I've been working on. First of all, there's many applications in the general world of promotion, beyond digital ads. There's also an email campaigns. There's a push notifications. There is featured content, and all of these different types of promotion are very similar to the Incrementality that we've used for digital ads.

Jeffrey Wong (21m 56s):

And second, a lot of engineering and research tools that went into developing Incrementality can actually be reused in a lot of other places, in a lot of different areas of science that I'm super excited about. The types of models that we used in a Incrementality are very similar to things that come from biology. They are inspired from psychology. They are inspired from economics and many other fields.

Jeffrey Wong (22m 27s):

So I'm hoping that all of the technology that went into Incrementality can actually also be given back to those other scientific fields, to create some innovations there. And third, I think the most



exciting area is in applications for AI, and the ability for AI to reason in the same way that we would reason. And that's a very, very large topic that I think is super interesting.

Jeffrey Wong (22m 57s):

So maybe watch out for my future talk.

Mike Shields (22m 59s):

Right. And yeah, that sounds super intriguing. Okay. So what advice do you have for marketers that want to experiment or go get this implemented in their organizations?

Jeffrey Wong (23m 6s):

These days, It's easy to get the basics of Incrementality I think. On, on Facebook anyone can go and create a lift study, which will run this very scientific randomized experiment for you. And they even have a, a practical guide on the, on their, on their websites for how to prepare yourself for a data and analysis and what the expectations are gonna be before going into the study, as well as after, after you do the study.

Jeffrey Wong (23m 37s):

But if Facebook is not one of your marketing channels, then you can also do, you can also do this variation on an experiment called a quasi experiment. And the idea here is to find geographic regions that can be matched to create a quasi experiment. For example, San Francisco and Seattle are very similar markets in many ways.

Jeffrey Wong (24m 7s):

And so you can try out an ad campaign in San Francisco for us as not having the Ad campaign in Seattle. And Netflix has had a lot of success in this space on, on this variation of an experiment.



And we've, we posted a lot of blogs on our Netflix tech blog about how to do this successfully and how to analyze the data.

Mike Shields (24m 29s):

Okay. Yeah that sounds like there's a lot of opportunity for brands to get started and, and start learning right away. So this might be hard for you to answer because your inside Netflix, but I wonder you describe the willingness to be experimental and to kind of try anything it, throw it out there, say, you know, traditional marketers don't always think that we operate that way and, but they have been trying to get at these answers for a long time with marketing mixed modeling and attribution models and stuff like that. I guess. So I guess my question is what is not maybe working about those approaches versus Incrementality And how do, how do you get those brands to, to kind of break out of their conservative nature and adopt this experimental philosophy?

Jeffrey Wong (25m 12s):

I think its it starts with leadership. At Netflix a lot of them, a lot of the leaders are very data driven. And so, and so we always have to have measurements about various different KPIs, whether that's in product or whether that's in growth or whether that's in operations. Leadership at Netflix is extremely data driven and they have a good culture of leveraging that data in order to make informed decisions.

Jeffrey Wong (25m 44s):

There's this really large culture of conducting experiments in any vertical, in any aspect of the business, gathering data gathering metrics about how the service is doing when we changed something and then actually having these huge meetings and forums to be able to discuss strategy and what is in the data, what is in the metrics and, and how does that inform a strategy? And that actually comes all the way from leadership and in every single one of their conversations with other people in the business, there's this huge culture around using the numbers to inform what's gonna be the next best move in terms of the member experience and also in terms of growth strategy and in terms of how to make an efficient operation.



Mike Shields (26m 38s):

It's interesting because so much of what you're describing is so not the way the traditional Hollywood had operated, like, you know. Like sure there were studio's like going to focus groups and they, they would want to have some information about how a pilot was gonna do, but they would just make the thing. And it would be based on it largely on a, you know, creators gut or some, some base level research, but they didn't, you know, I, I wonder it, it's got to be, it's got to be difficult for those companies too, to kind of adjust to this world.

Jeffrey Wong (27m 5s):

I think that's absolutely right. I think, I think Netflix is kind of disrupting the way that, productions are made. And I think it's such a exciting time to talk to be in this industry and in the entertainment industry I always love talking about how, yes, I'm a data scientist. I'm a nerd in a research lab, but at the same time I'm working into the entertainment industry and there's a lot of things changing in very exciting ways.

Jeffrey Wong (27m 39s):

I don't think I can comment exactly on how a whole Hollywood operation works because cause I work at the Los Gatos office, I don't work down in the Hollywood operations, so I can't comment too much on that.

Mike Shields (27m 51s):

Well, what are you hopeful about it in terms of Incrementality done in the future?

Jeffrey Wong (27m 55s):

I hope that Incrementality measurement kind of becomes part of the core products that are offered by, by ad platforms, whether a, whether that's Google or whether that's YouTube or whether that's snap or whether that's Instagram, Facebook has been making huge, a huge progress in this area and they actually do offer a lot of services related to Incrementality and I'd love to kind of see, you know, a kind of standardization across the industry and in addition to that



level of transparency that these services provide, I do hope that there are other parts of services like campaign pacing, a campaign flighting.

Jeffrey Wong (28m 39s):

I hope all of those services that are offered also get built on top of Incrementality.

Mike Shields (28m 46s):

Right. You would like this, turn it into a product or a consistent offering by all of these platforms and then am really baked into the way that you manage campaigns for them. Yeah, absolutely. Alright Jeff, the last thing and I'm hopefully it's an easy win. What should I watch? Or do you have anything that's coming or that is on the surface now that I've got to check out, I need help.

Jeffrey Wong (29m 5s):

So for me, I'm, I'm a huge fan of mystery shows, mystery movies, thrillers, I was a big fan of a Sherlock Holmes and I think we just put out a brand new movie called Enola Holmes. Who's Sherlock's sister and it just came out on the surface just now. And I think it's going to be extremely interesting. So try that.

Mike Shields (29m 29s):

Very cool. It sounds fun. So it is going to be something that I go watch with the family. All right, Jeff, thanks so much for being part of the podcast. Great chatting with you and hopefully we'll talk again soon when Incrementality takes hold of the Industry.

Jeffrey Wong (29m 41s):

Thanks so much. Thank you so much for hosting.



Mike Shields (29m 46s):

A big thanks to my guest this week Jeff Wong Principal Data Scientist Computational Casual Inference at Netflix and of course my partners at Appsflyer. If you like this episode, please take a moment to rate and leave a review. We have lots more to bring you, so be sure to hit that subscribe button and we'll see you next time for more at Next in Marketing. Thanks for listening.