Design Notes

with Rich Fulcher

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Liam Spradlin: Rich, welcome to Design Notes.

Rich Fulcher: Hi, it's great to be here. Good to see you again.

Liam: It's so good to see you and I am really glad to have you on the show as part of this series. I think this will be the final episode in the M 10 series, so we're

Rich: Bringin' in the closer.

Liam: Yeah, exactly. I actually want to ask, first of all what you're up to now and also the journey that got you there, including your time and Material.

Rich: I didn't know what a designer was. For a long stretch of my life, I was doing things that were related to design. As a kid, I was drawing maps or drawing cartoons or doing different illustration work, building out for role playing games, all these modules and dungeons and things like that, and populating it with encounters and enemies. But from a school perspective, I was always interested in math and science. I jumped into computers at a pretty early age. My dad had one of the first personal computers, the Timex Sinclair 1000, which was quite ancient. And then I had a

series of computers from there. But in college I studied computer science, I studied electrical engineering, computer science engineering only came out kind of later in my program. And when I went to graduate school, I was studying computer science. I was focused on computer graphics and ray tracing and things like that.

But along the way, as part of being a working grad student, I taught non-major classes in the computer science department. So I was teaching students how to use Word or Excel products at that time. And just watching these otherwise perfectly intelligent college students, flail in front of these unresponsive ill designed interfaces. And I got really interested in, well, who are the people that make these things? And I took my first class in human computer interaction, not even a design class, more of a research oriented class. And then from there it just kind of continued to be this area of focus for me where I was like, well, maybe I'm not going to be a programmer. Maybe I'm front end engineer and I'll build these interfaces. But I just kept digging into design and design and design, learned that word and kind of pushed on that ever since.

I had a number of small jobs doing front end logistical software. But then I got a job at America online in it's heyday, and I worked for, as a designer in what they call the community. They didn't even call it a division, it was just, they called it a dt, a small division. I know, it's so cute. And I worked on a bunch of products like a LL Instant Messenger fledgling blogging product at the time. And then by that point, I was just very much a working interaction designer. I

would go on to work at TiVo, a startup that was later acquired by Dell, a few interesting places. But then by 2009, I found myself with the opportunity to join Google and specifically to join the Android team. And then from there, I spent my next 12 or 13 years as part of Google in various ways.

One of those was Material design, which we'll definitely talk about. When I left Google, I kind of moved into quasi retirement. I no longer work in tech, but you never really leave design behind. Once you are a designer and you have been doing design thinking for decades, you never get to shed that. You still look at the rest of the world as a series of design problems or design opportunities. I've found that to be very true. So in terms of what I'm doing now, I'm doing a few different things. I'm doing a lot of volunteering work. Some of that has been as an elections official for the county here in California. So I ran a in-person voting center in the last election and in the prior primary election earlier this year. And that is just an amazing bit of system and service design to look at as well.

Just all these voters with very distinct needs for what they're hoping to get out of in-person voting or assistance there and just trying to build systems that feel very secure and very trusting for the user, but also can meet a lot of different tasks that they have. So that's been part of what I've been doing. That part is I've just embraced my lifelong kind of interest and passion into board game design. So I've been doing that in a way. I've gotten my first title accepted for a publisher. It'll be a couple of years now still to see it

hit the market, but that's been a really fun exercise because it pulls together all the threads of design. In my experience, I'm doing interaction design, building out the mechanisms and the systems. I'm doing technical writing in composing the rule books. I'm doing some graphic design. I'm doing a little research every time you run a play test. So it's been a fun way to continue in my career in a way that doesn't feel nearly as professional.

Liam: Yeah. Okay. First of all, you have to come back on the show when the game launches because I think there's a whole episode, multiple episodes there. Sounds good. Second, at the beginning you said that for a long time you didn't know what a designer is, and now you cannot stop being a designer. So I want to get your take on what being a designer means, what it means generally or what it means to you and your life.

Rich: I think the quick foundational definition is a designer is a problem solver. And I know that's just over broad, but I always come back to in that first HCI class that I mentioned this kind of definition of the field, which was we're focused on users who use tasks to accomplish a goal and in support of that they have some tools and they're operating in a context. And those five things I think drive a lot of definition of not just design, but of user experience broadly. Who are the users? What are the big things they want to achieve? What are the smaller things they're trying to do to move towards that direction? What can we create for them and what is the context in which they're going to use that thing we create? I don't know. Even when I'm not actively working

in tech on design, I find myself coming back to those, it's not natural for people to talk about their goals, but you kind of need to get at that a little bit to understand, well, which set of tasks should you be doing to get there and things like that. And I think context is super, super important and is one of the easiest things to kind of ignore what else is happening with this user right now? Not intrinsic to who they are, but what else are they experiencing? Are they rushed? Are they worried? Are they operating something that's very unfamiliar to them? So I think all of those facets come into play when I think about design.

Liam: Yeah, I can't help but the ideas of this kind of straightforward human computer interaction definition plus the concept of watching people try to use Excel and the concept of role-playing games, these are smashing together in my head in terms of how contextual and contingent these experiences are and all the different factors that could be influencing it that you're, you're occupying a certain mindset that allows you to uncover that.

Rich: Absolutely. I mean, I use the word conductor a lot to talk about systems and designers. It may not even be that we're building each thing that's in front of the user, but the order we present things in the way that we're trying to understand where the user is before they engage with the tool at first, there's a lot of that that isn't just making the thing that goes into understanding its broader applications and sense of use.

Liam: Okay. So we are here today because it is Material's 10th anniversary all year long, but you were actually at Google for several years before Material even started up, and I want to get your perspective on what design was like at Google before that moment.

Rich: Sure. I'll caveat that. I think my experience might be a little bit different than others because I did join directly into Android. Definitely had a little bit of a reputation within the company of being the pirate ship amidst the flotilla of other products where it just behaved a bit differently. And if you're around in 2009 and you're looking at the competition in the smartphone and smart device space, there was just a lot of liberty to focus heavily on design and user experience. So I think Google as a whole when I joined certainly is very engineering forward company in a lot of ways. And I think that was utterly key to so much of its early success. Android felt a little bit different though. It was very much close partnership across a relatively small team between design and engineering. I can cast my mind back to when I came in for my first interview in person and I wound up, part of the way Google approaches interviewing is they bring in a cross-functional team to talk to you.

You're not just a designer talking to other designers. So I was talking to an engineering manager on Android, and I think maybe we were the second or third question in, and he was like, well, what would you change about Android? And I said, well, I really think the backs stack and navigation behaviors are a little bit confusing for users. And then he is like, well, what would you change about that? And then we

spent the next 35 or 40 minutes on a whiteboard walking through all these kind of thorny edge cases around what does it mean to go back and forward and when do you do a lateral move when you push and pop things onto the stack of screens? And I remember leaving that interview thinking, man, I think that went well and I know I want to work here because that was a really clear signal to me that there was this opportunity for engineering and design to do really wonderful work together.

So that was Android. So I think across the company, we had a wonderful slate of user experience designers and researchers. They were really pushing to do innovative, groundbreaking work, but I think there was a fair amount of constraint on them. I think it was just kind of the identity of the company at the time. I don't attribute any kind of ill will to any of that, but I think there was this reputation that Google lived to that. It was like, yeah, design is important, but we're going to be engineering first or we're going to be product and business first. And I think that started to change, and I think Android was part of that, but I also want to credit the leadership at the top. I remember there was this practice in Google of a weekly all hands, meaning thousands of people could tune in and see this event, this TGIF was the nickname for it.

And we had one where a few UXers, myself included, were invited to speak on the topic of beauty. And this was very much brought by our CEO at the time who was just like, yep, we're an engineering company, but we really need to think about how do people perceive the things that we make?

How do we not just pass the toothbrush test of, do we make products that users use twice a day to make some meaningful difference in their lives, but how do we make it pleasurable to use that toothbrush? How do we make it a rewarding experience? And that in retrospect, it didn't feel like it at the time, the time it felt like, oh, this is cool that we had that opportunity. But it was a little bit of a pivot point for the company where I think it was like, okay, if you were a UX or in a meeting two weeks after that, two months after that, you could be like, but do you remember when Larry told us about beauty and how important that was? And you just had this kind of new wedge to kind of press for a little bit more, not necessarily change, but just more time and opportunity and space to really take design seriously and design quality seriously. And Material kind of emerged as a kind of a second moment following that. There had been some groundwork that had been laid, and then we had this opportunity from teams across the company from not just mobile but from web as well to try to take a bigger step in that direction.

Liam: It's striking that the explicit pursuit of beauty was not always part of, it wasn't always a given when making products.

Rich: It just wasn't. And it's interesting to try to reflect back and you look back at a Google search results page from 12 years ago or something like that, not only is it that different Google logo at the top of it, but it is very much the classic Ted Blue links and the box above it super valuable. There's a reason Google became such an incredibly valuable company

and a resource that people used every day because it did a thing to exceedingly well and directly, but it also did it in a very sanitary way. It was very clinical or Spartan, you didn't really kind of emotionally engage with that. It was just truly a doorway onto something else. And I think you look at a search results page right now between how much imagery it might include, how many different facets of possible four directions that it can hint at, maybe has an AI summary of response to your question, and it's just so much richer now, and it just affords so much more of a sense of opportunity back to those users tasks and goals. We were presuming that the question meets with a one size fits all response with the 10 blue links, and now it's this possibility of like, well, maybe you're interested in this direction. What's the first thing you can tell us after your query that's going to help steer us towards something that's going to be good for you?

Liam: Yeah, that reminds me of a conversation I think I had with Zach Gibson a couple years ago where he told me that Material kind of thought about the company's mission statement of organize the world's information and make it universally accessible and useful. I can't believe I pulled that out—

Rich: Nicely done.

Liam: —first try, but thinking about that mission statement as a design challenge, that the design is not just enhancing the experience or helping you do a task, but it's interacting with

the fundamental nature of the information itself and how accessible and how useful it is to you.

Rich: Yeah, I remember we had a bunch of slides early in Material that were taking that mission statement printed out in proper type, and then you'd go to the next slide and we just had a little carrot at the end of it and then handwritten in and beautiful. That didn't have to be an afterthought that that could be just as core to what it means to serve the users in that way and to provide that information. That was always a kind of rallying cry for us in the early days of Material.

Liam: I can't help but fall a little bit into the philosophy of the situation. Also, I want to dig into what are some of the constituent parts of beauty, especially when it comes to software?

Rich: That's a great question. I'm just going to start rattling things off.

Liam: Great.

Rich: Absolutely. There's just the aesthetic beauty of it. So let's start there. Let's start from the surface, but as you dig past that, it's well, not just like, does it look good static? How did it appear? How does it exit start to get to transitions? You get to animation, something beautiful might be just how efficient was it? It might be how did it work for me and my set of contextual abilities and constraints. So I think beauty has so many facets. Yes, aesthetic, yes, kind of functional,

but also accessibility, universality, the kind of immediacy of understanding intuitiveness, if we want to call it that. And I think some of that is every discipline has their own model of what beautiful is, including engineering, including a product, and that lens is really just one of, do I really appreciate the way this thing was made for that lens that I am applying to it? I guess I'm coming around to beauties in the eye of the beholder, but I think there's that aspect of what are you bringing as the person experiencing it that's going to spark that reaction of beauty to you.

Liam: Yeah, there's a strong subjective or emotional component there.

Rich: Yes.

Liam: I think getting back into the system itself, in my conversation with Bethany, she told me that in the beginning of Material, you were working on navigation and patterns on a small three person team with her and Dave Chiu. Is that right?

Rich: Yes.

Liam: What was that like? I mean, first of all, to be on a team with Rich Fulcher, Bethany Fong and Dave Chiu is like a dream.

Rich: Absolutely.

Liam: But being on that team, taking on such big chunks of the system, what was that like? Did you have a sense of the

kind of scale and also the implications of the work? Back then?

Rich: We had a good sense of the scale that kept expanding on us almost on a weekly basis it felt like, but we knew it was large and definitely ibid by going from just Google for Google and for the rest of the world to build all of their interfaces in. So it got big. It was a really wonderful, exciting, scary period of design work. I think especially for that team as being interaction design focused. We were in a place of reacting to a lot of the conceptual visual work that had already been achieved by the team, which was super excited. We were thrilled to jump in and bring our lens to bear a little bit more, but thinking about even calling it navigations and patterns, I think just fundamentally we were trying to systematize to rationalize all this wonderful creative output from a bunch of different minds in a bunch of different application contexts, both real and imaginary, to turn that into something that could actually have coherency across applications.

I know when you had your conversation with Bethany, there was a lot of discussion about the mechanical operation of things at the component level, and I think the same is true at the system level. We spent a lot of time thinking about what the properties of Material, what we call paper at the time would be. How can it operate? How can it split or heal or raise or lower in the Z plane? When can it shift, could it fold, could it bend? Just trying to understand from this kind of amazing outpouring of design effort that had already occurred. Okay, well, what are the rules that actually bind

this universe together? What's going to make it feel like a functional universe that has some degree of consistency as opposed to just a series of wonderful, but maybe too disparate from each other experiences? I would hear authors talk about world building for fantasy or science fiction, and it's always just like, well, what are that core set of rules that undergird this world that they're building that give it a coherence and that they're going to animate the other things they want to do within that context? And I think we really thought about the work in that way.

Liam: Yeah, it reminds me, I had a conversation with Adrian Secord for the show recently, and we got to talking about creating the interface as a pocket world in terms of how important it is to have internal consistency so that you can orient your things yourself and things like that. And it strikes me that working on a system level to create that kind of coherence or that kind of orientation that you also have to embody it or instantiate it somehow creating, especially for something like navigation, creating test ground or a portal into that world where you can see how it's going. What was the process like specifically on the navigation and the things that connect all these principles throughout an app?

Rich: Yeah, I really agree with that perspective. We focused a lot on what we call pressure testing the system. So it was very much, okay, here's a bunch of directions. Let's build things that feel like end-to-end experiences. So we used our shorthand was vignettes, so we were like, okay, we're going to tell a short little story inside this application that shows this task for this user. Just to kind of illustrate not just what

do these individual screens look like, but what does a coherent set of actions across it look like? And then we're going to make another vette in a different context than another and another and another. Do those all feel like they're speaking the same language, not just visually, but does the navigation feel the same? Are the scene to scene transitions of relating to each other? And that was a critical part of how we evaluated basically every design decision that we were making.

And once we built out those vignettes, then you're like, well, what if the floating action button worked in this way or had this size, okay, put it across all the vignettes. Let's look. And we intentionally tried to pick things that would be broadly representative. So there was a communication task, a navigation vignette, a composition vignette, a more playful thing, a simple info lookup. We tried to kind of cover a large terrain of possible task types with the way that we selected those. It's never going to be comprehensive, but at least it's giving you a meaningful test bed and you start to understand where the riffs start to come in where, well, this is working really well for this set of tasks, but this one over here, it just doesn't feel like it's landing, which is okay as long as you find another alternate approach that still fits within the system that lands in that context. So it was something where we got to the point where we knew the names of these apps, and we used it again for later versions of Material as well, and for these fictional but realistic apps that we construct. We knew them as not just their brands, but we never built these apps in many cases, but we just knew what they were and what every screen was, and it's

like they existed sufficiently in detail for a designer to engage with.

Liam: Yeah, there's something there that I think is really important to focus in on, which is that you created a set of vignettes that were realistic product cases. I mean, I've looked back through the documentation in many cases. They were really well fleshed out, like parameters for what the product is, what the brand is, all of that stuff. But importantly, and interestingly, they were not Google products. Can you talk about that decision?

Rich: So initially our first set was very much just Google products, but then we realized we're doing a disservice here. We're just focusing on the world as it is and just our world. So we knew we needed to broaden, and then we very consciously said, well, let's pick brand expressions that are almost antithetical to Google's in some way. Let's pick products that are in spaces that Google isn't competing within. And that was a very conscious decision, again, towards that pursuit of how much of the terrain do we think we can cover with a good set of representative vignettes that is still large but manageable, a dozen different vignettes to try to represent hundreds of apps. It's a stretch or thousands of apps or tens of thousands, but there was still enough and there was enough variety within, and we'd occasionally add something if we really felt like we had a gap that was a blind spot for us.

Liam: Was there anything from that process that really surprised you once it was built out in such a tangible kind of realistic way?

Rich: I think the more seriously we took the vignettes, the more we saw the need for customization within the system. The earlier versions of Material don't have the later versions than the Material shape or color systems or any of that. And the vignettes were one of the early things pointing us towards, we wish we just had a couple of levers here for how to approach this if we could just move a little bit outside of this defined color system, if we could bring a little bit more of the brand to bear by using shape in this way. So that was, I think, a really early signal for what would drive a lot of M two and forward.

Liam: I want to get into, in kind of a broader sense, how this experience of building out Material design kind of informed or changed your practice as a designer.

Rich: I think a couple of things come to mind. The first is, and this is maybe a comment that just will feel ridiculous now that it's 10 years on, but we were just living in a different world of interface design that was very, go to this screen now, go through doorway and present this screen. And that was just the state of application design, a lot of web design, even a lot of mobile design at the time. That's why I was having that conversation at my interview about navigation and backs stacks. It was all about how do I get from one screen to another. And because we were leveraging so much excellent work in motion design and transitions as a core

part of what Material was going to mean, that really adjusted my thinking. I was going to say broke, let's be more polite. But it moved me to a more, it's not that we have to draw or design to this screen then that screen, but we can have a more fluid exploration of like, okay, how does the context change back to context to present the right tools back to tools for the user in a way that maybe doesn't feel like they walk through this doorway and now they're in a different room because the cognitive load of that is real. Every time it's like whole screen goes away, a new screen comes back, the user has this moment of where am I now? How do I get back to where I was? And we really wanted to make much more gentle transitions to help the user more readily understand how the context had changed around them. Oh, you hit that floating action button to compose something. Well, that button's going to expand upward, and that's going to be the kind of edit or the transition that happens into that next scene. So it really changed my thinking. I was writing specifications as an interaction designer that was just like, okay, here's this screen now here's two or three pages of breaking down everything that happens. Then we do another screen, and that just didn't apply anymore. We had to entirely rethink, well, how are we communicating design in this model where things are just kind of scaling, growing, shifting, expanding. There's lots of interim states of the screen, but we're not rejoining the whole screen.

We're just building more complex patterns within it. So that was very much a, this is great. This feels like a very powerful way forward, but a bunch of the old tools that relied on

aren't going to serve us going forward, so we're going to have to adjust our practice to account for that more. So that was a huge change for Material. I'd been a practicing interaction designer for, well, more than a decade at that point, and it's like, Nope, you're just going to have to relay a lot about what your day-to-day work is like, which is exciting.

Liam: Yeah, the word model really stands out to me there because there's a big part of it. I think. I remember hearing Mattias back when Material launched, and I was just a wide-eyed agency designer taking it all in. He talked a lot about user intent and how the user is in control of the interface and how important that is for helping people understand things and how making the interface is helping someone create that map in their head.

Rich: It's also very consciously trying to flip the relationship of you're the user going into this place and you're experiencing it and you're kind of to your walking through an environment note. You're kind of subservient as the user to that world that's been built for you. It's an opportunity, but it's also a cage. It's this... You're bound to whatever. The way that's constructed and Material wanted to really focus on, well, how do you make the user feel empowered? And part of that is you take an action and that changes the space. You didn't leave the space, but what you did caused it to be transformed in some way, all the way down to the, well, how do we have animations that radiate from the user's touch? That sense of empowerment went all the way to, well, what if the touch their finger touching glass or the click of the

mouse pointer was the driver for how energy gets imparted into the system, and that's the trigger that animation stems from. Yeah, it was a very conscious choice that we became kind of a rallying point.

Liam: How do you think about that? Something that I, I'm designing screens all day, throwing up thousands of rectangles on the board, but I'm always conscious of this boundary that you mentioned, like the glass of the display or the surface of the screen, especially as we're talking about the interface as an environment and mental modeling and everything. How do you think about that as a constraint on the design?

Rich: We tried to look for ways to break a little bit outside of that thinking for Material. When we were trying to rationalize all this system, we had this conceit that the entire world should be able to live between the palm of your hand and the glass at the front of the phone so that how many, every millimeters of distance is the full drawing depth of what you can see on the screen. So we try to imagine, well, what's really happening inside of that world? I remember running down to the local hobby shop partway through the Material development, and I just picked up a bunch of wooden shapes, a bunch of different colors of paper varieties of thicknesses, just like scrapbooking paper and things like that, a few round wooden discs that became floating action buttons and things like that. And we would just kind of physically play with those bits of Material and we'd take an exacto knife and slice it down the center and we'd get some tape and connect it back.

And we really want to rationalize that whole micro universe, that pocket world inside that space. I remember when we did the first reveal of early Material thinking to the teams outside of the Material teams. So the application teams that were like, we hear this thing is coming. What is this thing that you've been working on that we had lots of beautiful work we could point to, but we also made a point of getting an overhead projector, one of a camera posed above a flatbed surface where you can just kind of project what's happening on that. And we'd take all those sheets of paper and we'd have them stacked up. We knew so many sheets of a sticky note were this much in Z height and things like that. So we'd actually build it up and we would be like, well, okay, this is how Material behaves. This is how paper works. And we'd be physically moving those things around, seeing the shadows they create, seeing how they lift or move or pass under each other, and just kind of trying to get other designers. That shorthand that we had developed on the team for how we had conceptualized the space was an important thing for us to communicate very early on.

Liam: Speaking of other designers, I'm curious how you think Material changed other people's design practice?

Rich: I think it really helped reinforce the movement toward design system that was already a little bit in place. I think we had had pattern libraries, component libraries, we had brand guidelines, visual guides. Those all existed. It was often atomic where it was like you'd have one of those, or you might be in a company that has a set of brand

guidelines that's over in one place. They have a pattern library that's somewhere else. They have a component library that's somewhere else also. So we really wanted to pull that together into something that felt like a comprehensive system that could have married all those parts together. We were adding in that focus on transition, on scene setting on choreography, which was new very much in a lot of ways, we're trying to pull in more guidance around accessibility. That might have been another separate segment in the past as well, but I think even more so was the sense of, I think there had been a movement of like, oh, yeah, you should get a design system if you're talking to somebody starting up a new product and maybe they're starting up a small UX team.

That idea seemed very out of reach for a lot of teams. It's like, well, that seems crazy expensive in terms of our work and engineering's work to realize something like that. What we wound up building, we didn't know it immediately, but in Material, we were building a system for building design systems. We were building something ultimately have enough flexibility, and if you move years down the line that's getting into different subsystems, it's getting into design tokens or variables, but is the, okay, here's a baseline for you that you can customize your heart out on top of it, but still have something that feels very robust, foundationally, but bespoke for you as you employ it. And I think that was part of what made Material revolutionary

Liam: That also really makes a connection in my mind between what we were saying about the kind of user's experience

and how their intention shapes their experience of an app. It really highlights that Materials users are not just users, they're also like other teams, other designers and engineers.

Rich: We talk about the onion layer of users that we have for Material. So there was the stewards of the system at the Heart of the Onion, the people that are all building it directly, that the Material team. And then there's the teams in product areas at Google that cover a number of different products, but they're focused on coherency within their product suite. So maybe that's the team that's responsible for drive and docs and sheets or something like that. Then there's the designer for an individual product, whether that's at Google or elsewhere. And then finally layers and layers out is the actual end user of that product. And we had to account for thinking about users at all kind of layers of that set of concentric spheres. How do we make sure we're building something that can be used by that team that manages multiple apps, but is also valuable for the designer who's doing something that's an important extension of the system for their specific application context? And how does it still feel coherent to a user who's using 40 different apps across their device that are all tied to this foundational system?

As I say, we understood scale. We knew that we were biting off a lot when we did this.

Liam: Yes,

Rich: Yes.

Liam: I also want to know how working on Material influenced and shaped your journey beyond being an interaction designer to being a design leader and beyond?

Rich: I came to Google as an interaction designer a few years in. I started doing people management largely of other interaction designers. We started Material, we had that tight team that we talked about of interaction leads or designers. But I think one great virtue of my time on Material was I, as a people manager, I got to have the luxury of managing people with very different expertise than I. It's one thing to lead a team of people where your own experience in that field is immediately helpful to them, and you can help them solve problems or see different ways of thinking about that. And you could nudge them in interesting ways, and maybe they're following a career progression that you've walked yourself. But once you start leading people where for me, managing a motion designer, managing writers, a various bands, managing UX, program managers one level, it's just humbling because you become aware of how much you just don't know.

But it's very exciting because then you're like, okay, well this is great. I get to learn all about this discipline from someone on the inside of it and understand what their tension points are or what's blocking them in their work and how I might be able to help unlock that. So it's great if you're a very curious person because you have this exposure to all these other people that are kind of really weighted into something and you get to see at least the tip of the iceberg of their

processes, which is always fascinating. And then I guess my other takeaway is then it's like, well, this is a design problem in and of itself, just how do we best organize teams to make use of all these proficiencies? What should the interface of our team out to others look like to engineering, to product? How do we partner with different specializations like research and things like that? So that was always very interesting. And then you start to see even the longer term series of challenges. You don't want to be just looking at the problem in front of you. You want to be helping to lead the team towards some more distant goals.

And for me, that was very much this process of like, wow, we're going to build this design system. We're going to design this design system that seems hard. And then you go a little bit further out and just like, well, we're also going to have to support this with a robust set of engineering components that actually make this practical for everybody else to realize the things that are in this design system. Well, that seems hard even harder. And then it becomes, well, you are going to have to make sure that all these many different teams at the company and even beyond our company are able to fruitfully use this design system to meet their needs. Well, that's hard. And then you go even further still where it's like, well, and ideally they're not going to have to invest in a different design system two years down the line, three years the line. So how do you think about building in this in a way such that it is truly organic and sustainable and accommodates the best thinking from everybody else who's using the system in a way that they feel ownership of it as opposed to just the small team. So

this series of very much people and people interaction problems became part of the legacy of my experience on Material.

Liam: Before we close, I want to get back to your game design, and you don't have to reveal anything. I don't want any spoilers, but I want to talk kind of qualitatively. You said that earlier in your journey you were involved in game design as well, and now you are gearing up to publish a game. I'm interested in how you reflect on the experience of designing a game, having passed through this large huge design system project at a huge company with huge constraints. How you passed from that into game design, where you see differences, similarities, how it has felt to you on a personal level to work on something like that.

Rich: Yeah, I mean, I guess the biggest difference I'll start with is how uncollaborative an exercise it is compared to everything in my professional career. It is very solitary work in a lot of ways of just like I have this vision for this thing. I'm trying to construct what do I need to do to build that out? What new skills do I need to learn to get me a little closer to what that idealized version is? And absolutely that'll change as it moves through publication and more hands come in to bring their expertise. But just at the level of initial construction and pitching and even play testing, it's very much a, well, I guess I'm just in charge of this world, which is a pretty unfamiliar feeling compared to the rightly collaborative work that I engaged in for so much of my career. So that's one notable difference.

I guess a similarity is I think about I can't not think about systems. So for a game, for the type of game I've been working on, it's a kind of game where there are different stories that could be told within the game. So what might get referred to as scenarios where, okay, at the start of this version of the game, this player's going to have these pieces. You're going to use this board and this other player's going to have these pieces, and here's the rules that they're going to use to interact that could tweak the rules in different ways. So when you're building those scenarios, that's really the game. That's the experience that people are going to sit down and have when they play the game. But behind all of that is the system. Well, what are the rules, the pieces, the boards, all of that that you can take and you can assemble together in different ways to build different stories, different games.

So that has been the kind of place where I fall back on many of the things I learned in Material. It's like, oh, I'm going to need a way to pressure test this system. So I better build out at least a couple of test scenarios that I can play quickly that are going to let me know if this rule is working, if this component is fitting in where it needs, I'm going to need to think about what's the total complexity of the system? How many words is it going to take to explain this thing? What do people already think they understand about the game based on other games that they've played? So there's so much of that where I feel like a privilege of being able to employ the many lessons that I picked up at Google.

Liam: That's really cool. Well, as I said before, once the game comes out or shortly before it comes out maybe, and we have to have you back on the show,

Rich: That would be delightful.

Liam: Rich, thank you so much for being with me today. It's great to close out this series with your perspective. Like all the guests that I've had on and many others, you're one of the people on Material who I really respect and was really inspired my own journey. So thanks.

Rich: Thank you so much, Liam. And it was part of retiring was also the realization that Google had been the place and the teams that I had worked with and the others I'd collaborated with, where I had just done the best work of my career and I just couldn't imagine a finer set. The Material team is a very, very special team, and I really appreciated all the years I got to spend working with them.

Liam: That's beautiful. Thanks, Rich.

Rich: Thank you.