Anne Pauley (00:01)

If you buy a consumer product, there's a really good chance that every single part of that device has been 3D printed as a prototype at some point. If you think of a million phones, if you have a 1 % error in those parts and you have to scrap just 1 % of them, that's a massive amount of waste. And so any little improvement that happens has huge sustainability benefits.

Ryan Newman (00:31)

This is Dare to Disrupt, a podcast about Penn State alumni who are innovators, entrepreneurs, and leaders, and the stories behind their success.

I'm your host, Ryan Newman, and on the show today is Anne Pauley. Anne is a technical program manager at Google, specifically focused on manufacturing the pixel line of smartphones. Anne is committed to disrupting the manufacturing industry with creativity, and she credits her own success to a broad spectrum of artistic and professional interests. Outside of her work at Google, she spends time working with a nonprofit, women-centered art collective called Flaming Lotus Girls.

There she uses 3D printing and metalworking to build large-scale art installations for events like Burning Man. From concept design work at Meta to animatronic system design at Walt Disney World, Anne's engineering design experience is expansive and nothing short of disruptive.

She graduated from Penn State Schreier Honors College with dual bachelor degrees in mechanical engineering and music technology before pursuing a master's degree with a focus on mechanical design, mechatronics and additive manufacturing. Welcome Anne to Dare to Disrupt. This is a first for us on the show. You're our first guest who has a manufacturing product that many of our listeners have in their back pocket. So we're excited to have you and hear your story today.

Anne Pauley (01:57)

Glad to be here.

Ryan Newman (01:58)

Great, well let's start, Anne, as we always do, which is at the beginning. So would you wouldn't mind sharing with our listeners where you spent your formative years growing up well before you found your way to Penn State?

Anne Pauley (02:08)

I actually grew up in State College. I actually grew up in Lamont, which is a tiny little town adjacent to State College. So I spent the first 23 years of my life in State College. went to State High and then went to Penn State.

Ryan Newman (02:27)

What were some of the things and that you were interested in when you were a child, you know, growing up? What were some of your early pursuits just from a, just a pure curiosity standpoint?

Anne Pauley (02:36)

I was very much a hands-on child. So, you know, learned how to fix things on vehicles and learned how to use power tools and build things. So I was always very hands-on and very mechanically minded. I was a pretty type A overachiever student in high school. Took a lot of AP classes.

Ryan Newman (02:58)

when you were getting older in high school, did you decide to, was Penn State sort of this inevitable thing that you were going to just ultimately end up there or was it one of those things that came about as the result of a lot of different decision and thought?

Anne Pauley (03:10)

I actually only applied to one school. So it was kind of a given. One of my parents works at Penn State. And so it was kind of a given. did my undergrad and my master's at Penn State. And then I was also in Shrier. So my undergrad, I was a double major between mechanical engineering and music technology, which is an interesting combo. Because I did two very very specific undergrad programs. I couldn't really go to just any school and do both of those in the same place. It kind of had to be a big state school or some other school that just happened to have both programs. So it was already kind of a given that I was going to, most likely going to a big state school.

Ryan Newman (03:58)

So now you're a student and you have to decide what you want to major in. How did you decide, you talked about this sort of dual interest in engineering and music. Where did that interest come from and how did it develop into something where you felt like that would be where you'd want to major?

Anne Pauley (04:12)

I was very, very much adept at math. Mechanical engineering is a lot of physics applied. So a lot of dynamics, statics, heat transfer, and that was kind of my favorite AP subject in high school. And it made sense to pick a major that used all of that. When you're in mechanical engineering in particular, one of the most important things that's something that school doesn't necessarily aim to teach you is spatial reasoning.

Some people are just really adept at spatial reasoning, like being able to picture something in their head, kind of turn it around in 3D, figure out how things match together. I don't know if that

has anything to do with nature or nurture or some combination of both, but I've always been very adept at spatial reasoning and mechanical engineering really uses that.

Ryan Newman (05:04)

Interesting. So that was where the mechanical engineering part. And then you also have this love of music or at least some form of music, music technology. Can you talk about where that interest developed?

Anne Pauley (05:13)

Yeah, the polar opposite of spatial reasoning. I was involved in music since I was about nine years old in school. And so that was pretty important all the way through fourth grade until the end of high school. One of the attractions of classical music to me was I was kind of I was kind of a competitive kid. The competitive aspect of music specifically in high school really kind of got me going on that. I did a lot of a lot of ensembles, which is a really cool thing. It's also a great way to make friends. I also did the more competitive high school circuit doing the locals and the regionals and the regional ensembles in Pennsylvania.

Ryan Newman (05:58)

And for the competitive piece, is it that you're performing a piece and then you're being judged based on how accurately you perform it or your interpretation relative to other people playing the same instrument with the same piece?

Anne Pauley (06:08)

Basically, yeah. In a lot of the ensembles, it's not like figure skating where you're getting a score per se. It's a lot about just trying to do better and better every time you're working on a piece. You're working up from the lower seats in the ensemble and then over the years you get better and better. You're usually in an ensemble for multiple years. So a lot of times you start out, you start out in the second chairs or the lower part of the first chairs and

It's kind of ordered based on how well you play, how well you practice, not just your talent. They look for how much effort you're willing to put into it.

Ryan Newman (06:46)

And so that love of music, when you thought about how that would transpire in relation to a major or sort of a course of study, how were you thinking about that?

Anne Pauley (06:54)

I didn't have a specific plan for it. I just kind of wanted to do both. Part of it was that people told me that it couldn't be done or it was just very difficult. And so that kind of, you know, incensed me a little bit to want to make it work. It's pretty difficult to dovetail the music department's class

schedule and the engineering department's class schedule. They don't exactly coordinate with each other to make sure that their classes don't overlap.

So it was definitely tricky to make that all work out and especially fit it into four years with a bunch of summers to make up for the credits. As far as how I thought that they would come together afterwards, I was kind of picturing that I would go into the audio industry after college and combine the mechanical engineering, especially the hardware design and the product design.

with more of the music audio side of things, which is why I did a technology focus. But I didn't end up doing that directly out of college. I have worked on audio products and products that have audio, especially in my current job.

Ryan Newman (08:03)

And you were, as an undergrad, you also were involved in the Humanitarian Engineering and Social Entrepreneurship Program. Can you talk about that program and what appealed to you about it?

Anne Pauley (08:12)

It was a combination of many things. First off, it was the 3D printing aspect of it. I was already very into additive manufacturing at that point. I wasn't so much into the hard research and the hard science side of it, which was what a lot of the research programs related to additive were offering. I'm very much more of a scrappy, hands-on, likes building things kind of person. And so that program had a combination of the additive manufacturing, but also more of this scrappy element to it. We're not building things for research programs. We're building things for low resource situations in different countries where we can build something inexpensively. It was kind of a unique problem that we were trying to address. It gave me an opportunity to do my research projects for my masters in a non-traditional research environment.

Ryan Newman (09:09)

And can you describe what additive manufacturing is for our listeners?

Anne Pauley (09:13)

So additive manufacturing, colloquially known as 3D printing, is basically anything where you start out with a raw material and you're going from that to a final product using some kind of material deposition technology. So the opposite of additive manufacturing is all the traditional manufacturing techniques like machining where you're taking a solid block of material and taking it away, or anything that's injection molded, you're making a mold and then you're injecting the material into it. Whereas additive manufacturing, you're starting out with that raw material. It's usually in like a plastic pellet form or a plastic filament form or a powder form and you're building it up.

Ryan Newman (10:00)

The building it up is to basically create something off of that single unit, essentially.

Anne Pauley (10:05)

So basically all the additive manufacturing methods, they're doing it layer by layer. So either extruding the material layer by layer in a tool path or in a powder bed curing it either light sensitive material or with a laser.

Ryan Newman (10:21)

And this type of research and this type of course of study really requires a couple of innovative techniques, right? We have to have the technology spend to be able to have the machines and the capability to be able to print. And then also the software capabilities to be able to have your ideas be translated into actual movements by the device to create the object. The role of additive printing and the evolution of additive printing when you were an undergraduate versus where you are now, what types of development and progression have you seen in that space?

Anne Pauley (10:51)

It's been pretty dramatic. I kind of got into additive at a really opportunistic time. I caught the tail end of the reprap era of 3D printing. Reprap was a term that referred to the early open source 3D printing movement where printers were replicating other printers, so rapid replication.

The idea was you're starting out with friend with a printer. You print the parts to create your own and they're just kind of an ecosystem that's multiplying organically. It's very different than what 3D printing is now, at least consumer 3D printing, where people go online and buy a printer and then it gets delivered to their house. There was a little bit of that available. It was mostly industrial scale.

very expensive, not something that you buy for your house. And the only way that a student or a regular person at home could get a 3D printer is to buy a kit and build it themselves or build it themselves from scratch and order the parts. Much, much scrappier than what it is now.

Ryan Newman (12:02)

Into all of this fun activity you were doing with respect to 3D printing and also just material engineering in general, you also were pursuing your music pursuits in the Blue Band. Can you talk about your experience being a member of the Blue Band?

Anne Pauley (12:14)

was in Blue Band, the marching band part, for two years, but I was in a combination of the pep bands for a total of six years, all the way through undergrad and grad school. The marching band was... We always like to point out that the marching band practices more than the football team does. That's great. Because it's true. Blue Band is no joke. It's very time intensive.

They practice four to six days out of the week and then the football games are a full day thing. So it's really something that you have to build your entire life and your entire schedule around while you're in it. It's a good organization to be a part of as far as learning just how to be around the same people every single day in a really challenging environment.

very educational in a lot of ways. Uh-huh, beyond just the music.

Ryan Newman (13:14)

beyond just the music.

So you complete your undergraduate degree and you decide that you want to get a master's. What was the thought process as to why you wanted to do advanced education and then how did you ultimately decide that Penn State was the right place for you to pursue that?

Anne Pauley (13:30)

I honestly didn't know what I was doing senior year of undergrad and so I really needed the extra two years to figure out what I was trying to do with my engineering degree. I was also kind of set up to do it. I was a very academic type of person. The master's program fit my brain chemistry very well. When you're going from undergrad to grad school, undergrad is very much you take classes, you take exams, you get grades, you learn science.

And then masters is much more free form. And especially when you're, when you have an assistantship, it's kind of a very funny combination of things where you're taking classes, but that's only about a third of your time. And then another third of it is whatever your assistantship is. So for me, it was TAing classes. So I TAed thermodynamics and heat transfer, which was

Ironically, my worst subject in undergrad, but I ended up TAing it anyway. Then the last part is working on whatever your research focus is. So I did a lot of bouncing around on what I wanted my research focus to be. In my senior year of undergrad, I was in one of the automotive programs. I was in the EcoCar program. That was cool. It was a good learning experience, but I decided I didn't really like automotive enough to go into it full time. And honestly, it was really challenging to be a woman in an automotive program. I was the only woman of 40 something people. that was kind of not very fun for many reasons. After that, I think it got a little bit more diverse in the program as far as gender goes. combination of reasons that I didn't really feel like that was the right path. Also, I didn't really feel any close connection with the state of Michigan.

and didn't particularly want to move there like a lot of my friends did. I kind of decided that I wanted to do robotics more than I wanted to do automotive. I had this kind of funny idea, not really knowing how industry works, where I had to learn every single part end to end of how to build and program a robot in order to go into the industry. And so I looked at what my gaps were and I decided that control systems was the thing that I needed to figure out.

I started out my masters wanting to learn everything about control systems and I was great at the physics side of it and even the more mathy physics side of it. But I just really my brain couldn't

really wrap around the coding side of things. 3D design brain works great for that coding and parsing all the lines of code. You know, not not awful at it, but really not good enough that I wanted to do it a lot of hours out of the day.

just didn't really enjoy it all. So I really pivoted a little bit from that point and zeroed in on the mechanical design side of things. Around that time I got connected with a cool company called Autodesk that makes 3D design software. I was able to work for them out in California, which is where I figured out that I wanted to move to California.

Ryan Newman (16:47)

You also did a really cool stint at Disney. Can you talk about what you did at Disney and sort of how that opened your eyes to just different areas of exploration?

Anne Pauley (16:55)

Yeah, that was a really interesting experience. I'm glad I did that. I learned a lot about robotics at that job because that's what I was doing for the entire job. I kind of took a decent understanding of SolidWorks, which is a 3D modeling program, and became an extremely good SolidWorks modeler because I was doing it for most of the 40 hours out of the week, learning a lot of principles of designing mechanical systems and designing robotics.

It's the kind of industry knowledge that you don't get in classes. In industry, you get out there and they say, okay, you need to use a bolt from this catalog. And like, this is the type of driver that we use. You need to model things so that these tools can fit in it. You need to model this wrench into the program to make sure that it gets the full degree of freedom for the maintenance techs. It also taught me that different companies just have very different vibes. Working on a campus job.

versus working for a software company in the Bay Area versus working for an over a hundred years old, very conservative company in Florida. It's extremely different. found that I kind of vibe with more of the tech industry here very fast and can be hard to keep up with sometimes, but it's just, it's just a very fast moving industry. And I like that about it.

Ryan Newman (18:20)

Speaking of fast moving tech industries, spend time at Metta as well, Reality Labs. Can you talk about your experience working in the Reality Labs?

Anne Pauley (18:27)

I was working on a team that did prototyping for slightly more experimental hardware. We were focused on validating some of the hardware architectures. So things like audio architectures or camera architectures or sensor architectures. My role specifically there, I wasn't a mechanical engineer. I was a technical program manager, which is a pivot that I made a couple years into working here in the Bay Area. And so my focus was

connecting the dots between people on our team and managing people's bandwidth because we were working on so many projects at the same time that there kind of has to be an air traffic controller, an equivalent with spreadsheets, figuring out if people have the bandwidth to take on a new project and what people should be working on based on what kinds of projects they're good at, connecting the dots as far as what resources we need to work on these projects.

Ryan Newman (19:27)

And then ultimately this all led to your role at Google. Can you talk about what you've done at Google and specifically with the Pixel phone team?

Anne Pauley (19:34)

At Google, I'm also a technical program manager. In the context of my current job, that essentially means that I'm 50 % engineer, 50 % program manager. And the engineering side of it is really focused on designing things for manufacturing. And as we're developing these hardware products, so at the moment I'm working on phones. Previously, I worked on

the earbud programs. We're focused on what issues we expect to come up with the designs that are in progress. How do we resolve those? And then are there opportunities to make things better from different perspectives? So change something so that the assembly line runs more efficiently or runs more smoothly. Are there any issues that come up that would cause things to be inefficient?

Ryan Newman (20:27)

What is it that you like about that job currently and what are some of the challenges that you face?

Anne Pauley (20:32)

I personally like the consumer products a lot, especially phones. Phones is the most complicated product that I've worked on so far. There's so much that goes into it. We have to think about mass manufacturing. Making something in the millions is very, different than making something in the hundreds of thousands or the tens of thousands or definitely the hundreds. Optimizing for that is really interesting process in itself.

A lot of products like this we have to worry about reliability, how well the product performs over time, how it can be repaired, things like thermal performance, electronic performance, electronic interference. All of these aspects come into play and they all affect every other aspect of the device. There's a lot going on.

Ryan Newman (21:21)

And can you talk about the role to play back to something we talked about earlier, that additive manufacturing plays in the production and more importantly, the innovation of these devices?

Anne Pauley (21:31)

On kind of a higher level, additive manufacturing is really awesome for lower volumes when you don't want to have to pay the upfront cost of making tools or molds or things where you have to customize a lot of the parts. Like if you have to make a hundred slightly different parts, additive manufacturing is great. When you get into the millions as far as output goes, usually you won't really see additive manufacturing in

final parts because, you a it's not really efficient. There's a lot of labor that goes into making additive parts at scale. Whereas traditional manufacturing, we as a species have spent a hundred years now optimizing that we've figured out a lot of things in that time. How to optimize usage on an injection molding press or a machine shop that can be much more efficient and automated than additive manufacturing can, but it's still

extremely important for developing the product. On the engineering side, we have to do a lot of prototyping. Add-in manufacturing is used a lot in making prototype parts of the final design. If you buy a consumer product, there's a really good chance that every single part of that device has been 3D printed as a prototype at some point, just to validate that everything is working as we expected. When we're working on process development,

There's a lot of parts that are related to that that we use 3D printing for as far as say we're testing an assembly process. In the factory, there's all of these kind of complicated machine fixtures. And so we have to replicate those in really small volumes in our labs and in our testing processes. So we use 3D printing a lot there too.

Ryan Newman (23:21)

And how about from a sustainability standpoint? it just a 3D printing help with respect to sustainability because you're able to then have less waste in relation to the different innovation or is there other areas that sustainability is sort of emphasized within the manufacturing process?

Anne Pauley (23:35)

Yeah, absolutely. In consumer product manufacturing, any waste that happens in the factory has a huge environmental impact. If you think of a million phones or a million of anything, if you have a 1 % error in those parts and you have to scrap just 1 % of them, that's a massive impact. That's a huge amount of waste. And so any little improvement that happens

has huge sustainability benefits and cost benefits and operational benefits. From that perspective, huge sustainability impact.

Ryan Newman (24:13)

So as if your life isn't busy enough, maybe it's the blue band that trained you for this. Outside of your day job, you also spent a lot of time with a nonprofit women centered art collective called

the flaming Lotus girls. Can you talk about what that group is and represents and how you all work together?

Anne Pauley (24:29)

Yeah, we're a pretty cool and interesting group, pretty unique group too. We build large scale art installations. And even within that fairly unique realm, we're a pretty unique group because we're really focused on building a community and focusing on creating educational opportunities for people to come in and learn the industrial arts and learn how to do hands-on fabrication.

You can kind of tell by the name, we're really focused on bringing in a diverse background of people, diversity in all perspectives, but in particular, focusing on creating a really welcoming environment for women and non-binary folks to just get really hands-on with metalworking and all the different aspects of a project, so metal and electronics and many different types of fabrication.

Ryan Newman (25:23)

does it take to create some of these larger industrial art projects and where have you showcased this work?

Anne Pauley (25:29)

Every single piece that we build premieres at Burning Man, but then they have a life long past that. We go to a lot of different events, a lot of big music festivals. Our group has gone to Coachella, it's gone to EDC, it's gone to RoboDoc, it's gone to a lot of these big events. We also do a lot of smaller events that are less flashy, less lucrative, but more community focused. We've done Maker Faire.

most of the years, Maker Faire Bay Area. We've done two installations at Lawrence Hall of Science in Berkeley, which is a children's science museum. And that's really cool because we have some of these installations that were meant as standalone art pieces, but then we installed them at the science museum and they turned it into a whole science.

lesson. For example, we have an anatomical heart sculpture and the science museum turned it into an informative installation about how hearts work.

Ryan Newman (26:33)

Cool. And can you just share with our listeners your most recent art installation at Burning Man and how long it took to create and what it represents?

Anne Pauley (26:40)

We're currently working on an installation called Haven. My interpretation of the general vibe of the piece is that it's kind of a metaphor for both our group and in particular San Francisco as a

city. The concept of the piece is a huge artistically styled nest made of an Art Deco style curvature. So

The curvature is kind of the macro structure. So that's the structural steel that we bend into shape. A lot of the cladding and the space filling stuff. We're working with lot of found materials for many reasons. One of them is sustainability. Another one is the supply chain right now is more complicated than it's been in previous years. And then it's also an artistic challenge because when you're buying raw material,

you can come up with a concept, buy the material that you need to make the concept, and then move on from there. But when you're working with found material, you kind of get what you get. For sheet metal, it could be a disassembled filing cabinet, it could be a disassembled industrial utility box, and that material's not perfectly flat all the time. Sometimes it has holes in it or cutouts or

bends or forms in it. And so we have to take the material that we get and figure out how to adjust the overall concept, fit the material we have. We have a bunch of fabricated birds that kind of represent us as a community, a bunch of odd birds that all come together and build something as a group. The birds, for the most part, have fire effects included in them. wow. We do a lot of a lot of artistic fire effects in our pieces.

Ryan Newman (28:33)

Well, fire effects are disruptive in nature, but this is a dare disrupt podcast. Can you talk about how just in general, the art that you're producing is intended to be somewhat disruptive or how you would explain, articulate that?

Anne Pauley (28:46)

Yeah, I think you could say that making art in this very turbulent society is kind of an act of disruption in itself, but we kind of aim to disrupt especially the industrial arts culture and the just hands-on fabrication culture and really bring in a more diverse crowd of people, giving people an opportunity to learn welding with no expectations.

and creating an environment where people can come in and make crappy cuts on the saws and make welds that would probably not pass inspection. But as long as they're for aesthetic purposes, then that's perfectly fine. And basically lowering the barrier to entry for people to learn a lot of these skills and get involved in big art making.

Ryan Newman (29:40)

Well, and as if that wasn't enough, you also have your own studio, cognitive flow design. Can you talk about what the purpose and ethos of that studio is?

Anne Pauley (29:48)

It's kind of a moniker for my one woman studio that I have where I do a really wide variety of projects. At different points in my career, I've done quite a bit of freelancing work, mainly in product development and mechanical design. That was kind of an entity for my freelance work. But then it's also kind of my entity for doing my own art projects. At the moment, my main interest is doing light art projects. I'm taking pretty

clear filaments or very translucent filaments and making medium scale art pieces that I'm hoping to scale up to very large art pieces in the next year or so.

Ryan Newman (30:30)

And for you, how does the role of the art allow for your own creative expression in a very technical field in relation to just to back to the basics of engineering?

Anne Pauley (30:43)

For product design, I think it's more creative than people really give it credit. Even if the people that work on design don't even consider themselves creative or artistic, it requires a lot of forward-looking thinking, a lot of finding solutions to problems. Our projects kind of tackle the same things. You have an output that you're aiming for. You're trying to backtrack and figure out what materials, what processes, how to design it, how to program the machines.

So it's really the same process as manufacturing a product. It's just for a different purpose.

Ryan Newman (31:17)

Well, thank you, Anne, for taking time today to share your entrepreneurial journey with me. I'd now like to hand things over to a current Penn State student, Irina Potachny. Irina is a rising fourth year material science and engineering student with a minor in sustainability leadership. She is a past participant of the IDEA Test Lab program at Happy Valley LaunchBox powered by PNC Bank. Irina created an upcycled fashion show as a capstone project, and she's in the process of starting a small business

to sell upcycled products. Post-graduation, Irina plans to pursue a master's degree in textile engineering. Irina, I'll now hand the interview over to you.

Irena Potochny (31:56)

Thank you, Ryan, for the introduction. I'm excited to be here. So, and I noticed on your website, you have a list of goals and I can read those off. It's to develop a hyper local system to reclaim post-consumer plastics and turn into high value products, meaningfully increase manufacturing efficiency and sustainability in your personal studio, Google and the industry as a whole, create products that go into regular people's hands.

then inspire and bring joy and work towards inclusion and belonging for everyone to succeed in manufacturing. So I'm wondering how you incorporate those into your current role at Google or just in general with your career.

Anne Pauley (32:36)

I'll go through them one by one. The first one that's pretty focused on my own studio, I really want to figure out how to more efficiently use recycled material. Right now I'm using a lot of recycled material, but it's going through a secondary source. So I'm getting a lot of my 3D printing material from an awesome company in the Midwest called Greengate 3D. I really want to work out processes to take local post-consumer material.

Like say, if you have a supply of plastic cups from somewhere, that's perfectly reusable material. It's good grade, but at the same time, reclaiming that post-consumer material and turning it back into something else is very challenging because the supply chain just isn't very good for that. One of the things that I like about product development is making devices that you actually see out in the wild.

When I take transit to work, kind of have a habit of looking around the train and seeing what phones people have. And I see a lot of our phones out there in the wild, which is super cool. On diversity and manufacturing and improving the representation of different groups. I think it's coming from different perspectives. One of the most important things that is happening in the industry, what we still need to improve on is people in positions of leadership.

really openly supporting a lot of these diversity initiatives. And so I think it's important to go from both directions, that both people in those positions need to go out of their way to make sure that everyone is feeling welcome. But also, those of us who are kind of on the lower levels of these systems, we need to start expecting that from people in higher positions and asking for it. And it's really important

for those of us who are part of some of these communities to make sure that we're supporting each other and creating opportunities to create community.

Irena Potochny (34:38)

Thank you. So I'm graduating next year and I was wondering, do you have any specific advice for young women entering the engineering field?

Anne Pauley (34:47)

Yeah, I think a lot of this comes up in articles that you read about perceptions of women in the industry and especially women's perceptions of themselves in the industry. You just kind of have to stumble through it for a while. I know this is an issue that I always have, ~ both being kind of a type A person and being a woman in fields that don't have many women, is I kind of set the bar a little bit too high for myself.

and want something to be perfect before I send it out or launch it or anything like that. And so I've had points where I could have done something a lot faster, taken less time, and had something better overall if I just kind of pushed something out before it was completely done and showed my work and asked for feedback and kind of stumbled over.

my own expectations for myself that things had to be perfect before I showed it to everyone, anyone else.

Irena Potochny (35:53)

So you would recommend just sending it out or trying to perfect something.

Anne Pauley (35:59)

Asking for feedback on things is really valuable. Okay. Just having open conversations with people and asking questions and not being afraid to sound dumb because it happens.

Irena Potochny (36:13)

Yeah, now that makes sense. So then I was also wondering, for cognitive flow design, how did you pick your materials for those light fixtures? And then how do see yourself changing those materials in the future?

Anne Pauley (36:27)

Yeah, it's mainly just that I'm buying already processed material right now. I really like to work on how to reclaim post-consumer material, like food package waste or things like that, where I can get ~ one type of material, which can be a little bit tricky because you need to have all one type of plastic in order to process it together, but also get it from a more unconventional source than just buying the material.

Irena Potochny (36:55)

Okay, yeah. Yeah, because I know plastic recycling is not an easy task, so that'll be an interesting project.

Anne Pauley (37:04)

Well, we've got a long way to go there.

Irena Potochny (37:06)

Yeah, definitely. And then I was wondering, do you have any current hobbies that would make you want to go back and take a class at Penn State? And what would it be and why?

Anne Pauley (37:16)

On a not very interesting note, considering going back and learning more of the economic side of things and the business side of things that wasn't really relevant to my life until more recently when I'm more focused on the operations side of things. There's a lot of really cool classes going on. One of my favorite classes unexpectedly was religious studies. People that know me would not expect that. I just think history classes are really cool.

It's really interesting to learn kind of how things progressed, how things got to be the way that they are, especially as very industrialized society. There's a really clear macro progression of where we as a species were 500 years ago versus where we are now. And they're wildly different and just fascinating to kind of follow that path. The more you dig into all of it, the more crazy stories you find and crazy little useful tidbits there are. And that's very interesting because you kind of have to look at the, that really long progression of things to kind of see the progression that's currently happening. We kind of accept things as they are now. And we're not usually thinking about what things will look like in 10 years. And it kind of makes you realize that it's a combination of many teeny tiny little steps. And so we're trying to get to a better place in 10 years than we are now, the question is, we making the right choices? Right. Yeah. Are we making enough good tiny steps to counteract the unfortunate tiny steps? Yeah.

Irena Potochny (38:53)

Yeah, I took an interesting history class. was on the history of mental illness. So it went back, like our first reading assignment was from the Bible and then it to present day. So that was really interesting too.

Anne Pauley (39:06)

You see this a lot in human rights also. It's not a linear progression. It's kind of like the stock market. You watch the S &P 500 and it kind of goes like this, but then it goes, It kind of puts a lot of things in context that overall there's been a lot of improvement, but there's definitely been downturns.

Irena Potochny (39:29)

Yeah, definitely. Well, thank you so much for taking the time to answer some of our questions. It was really great talking to you.

Anne Pauley (39:35)

You too. Great questions.

Ryan Newman (39:39)

That was Anne Pauley technical program manager at Google. This episode was produced and edited by our executive producer, Katie DeFiori. If you're listening on Apple podcasts and enjoying this episode, please consider leaving us a rating and review. It helps more people to discover the show. We'd also love for you to share this episode with one person who might be

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