00:09
Speaker 1
Hello and welcome to the Human and Machine podcast. My name is Jaco. This is episode 27. I have with me co host Laura for a change. Laura, nice to have you on the podcast.

00:19
Speaker 2
Thank you.

00:20
Speaker 1
I think episode 26, Lenny and I. It is episode 26. 27 episodes already. It's phenomenal. I can't believe it's 27. Episode 26. Lenny and I spoke with Olmero from CSI on the data to information journey for one of their largest mining customers. There was a very cool chat with Olmero around the value of data, as well as the notion that not all data is valuable. Sounds a bit strange, but a really valuable podcast. If you missed episode 26, have a listen to some of the learnings and sharing some Omaru, you will not be disappointed. So this is our last podcast for this year of 2021. For 2021, I think were able to at least get to all the topics we set out at the beginning of the year. We've had some mining, we've had some freedom devil. We have had some data.

01:09
Speaker 1
Probably the one topic that we haven't been able to cover yet, which we're really excited about this episode for, is around the area of design. Many different names, topics, Ui, user interface, user experience, all those things wrapped into one package around design, and especially in the industrial automation world, it's something our system integrators often speak about. You've had the request a couple of times, a million of times, how to design better things to consider, how to consider mobile. It is definitely a topic that, rightfully so in the year 2021, seems like it's finally getting the attention it deserves.

01:49
Speaker 2
Not even as much as it should, but it's getting.

01:51
Speaker 1
We're getting there. We're getting there. Our industry is slow. It's a big industry. Big ships turn slowly. But it feels like there's a lot more focus on that. And I suppose through the sheer definition of HMI human machine interface, the most important, or one of the most important aspects of HMI design. I'm just going to call it HMI design. It's a lot more comprehensive than that. But is the view on the human that we are actually designing for humans?

02:17
Speaker 3
Exactly.

02:18
Speaker 1
So a lot has been said on the topic over the last couple of years. This episode 27, we're really excited to, we're not the experts to bring an expert opinion and view to this. Somebody that's in the space that has been working around the industrial automation design, not just industrial automation, but design in general, and get a different perspective. And hopefully I know we're going to get some good advice and tips and just things to consider for anyone wondering, starting a new project, starting a new application, where to start, what to consider, that kind of stuff. So I'm really excited about this one. It's a little bit different to what we usually do, but such a hot topic at the moment. Definitely cool. So please welcome to the podcast Ray Sensenbach, who is a product design manager with inductive automation.

03:08
Speaker 1
Ray looks after, or at least is the manager of the product design team of the software engineering department. So Ray, if there's somebody with good sharing and good insights on the topic, it'll be you. Thank you very much for joining us.

03:20
Speaker 3
Yeah, thank you so much for the introduction. I'm definitely happy to be here and happy to talk about design anytime. It's obviously something I'm very passionate about and something hopefully I can lend some expertise on to folks that maybe don't have that expertise or seem to be in this industry slowly getting the need to gain it.

03:41
Speaker 1
Definitely. And I think with most other topics in our industry, we almost have to, I don't want to say dumb it down, that sounds horrible, but you have to sort of simplify. To be clear is to be kind. So sort of simplify some of the things that's perhaps a little bit for engineers at least, perhaps a little bit threatening, a little bit outside of their comfort zones, which is right. But yeah, we're looking forward to that. So maybe let's kick it off with just your background in terms of being with inductive automation, doing what your team do right now. How did you sort of ended up? I imagine you're a designer by trade originally, and now you're with us in the industrial automation space.

04:28
Speaker 3
Yeah. So my background, I actually studied graphic design in college years back and slowly transitioned just through self learning, self teaching, that kind of thing, into the Uiux space. And just sort of always a tinkerer, always driven by learning at a personal level. And graphic design for me was a little bit short sighted. So I slowly transitioned into the Uiux world just because there's unlimited possibilities here, unlimited learning, and it sort of was a better fit for me career wise. But really, my career started down south here in San Diego at Hewlett Packard, where I was a UX designer in their research and development department. And were working on things like augmented reality. And this was kind of right around the time that responsive design came onto the forefront. Mobile design was becoming much more important around that time.

05:23
Speaker 3
But really my time at IA was begun about five years ago when I moved up to the Folsom Sacramento area just to get the family to a little bit more of a family friendly area. But I've been with the company about five years now, and I was hired to essentially help design out the perspective module. So I was the first designer hire on the software development team at IA. And yeah, I just sort of immediately noticed the lack of UI UX design expertise in this industry and again, bring it back to sort of my shift into the industry itself. I'm driven by learning, and again, this is an industry where I'm always asking questions. There is again, this unlimited amount of information out there and this is just constant. There's no ceiling right, as far as what I can learn.

06:20
Speaker 3
And I love not being the smartest person in the room, and I'm definitely in that case in this industry most of the time, which is great. So yeah, hired to work on perspective and sort of bring my mobile expertise to IA. And since then, we've obviously staffed up quite a bit. And we now full product development team. Product design team, full QA team, full development team, and we're all within that software engineering department where we can work really closely together and iterate on the product, make it better.

06:56
Speaker 1
Yeah. So my first thought, Laura, when I thought about when you mentioned perspective, and maybe for those listeners that are not familiar with ignition perspective, like to us it makes. Oh yeah, design on ignition perspective.

07:11
Speaker 3
To.

07:12
Speaker 1
Us it makes perfect sense, but maybe for a lot of other people it doesn't. So maybe from your point of view, hire to design in perspective, maybe you can give us a quick overview of why perspective and why that is such a

relevant statement, something that sounds a little bit unusual, but why does it make sense in the case of perspective?

07:33
Speaker 3
Yeah, absolutely. So ignition is a modular platform, and we previously had a visualization module, which we call Vision. And this is a primarily desktop based application, can't be run on HTML CSS devices. And right around that time, when I joined the company in 2016, 2015 or so, obviously the explosion of mobile devices already happened and this industry was starting to notice that we obviously need access to user data on the go. We sort of get so used to having our phones in our pockets and we can have access to everything else. It's kind of like, why not now make that leap to being able to control our industrial applications from our own personal or company devices? Perspective is another visualization module which we designed from the ground up to be based on these web technologies.

08:27
Speaker 3
And essentially that just gives us access to run sessions or clients in the browser, which really opens up the access to anything with a network, any device with a network, any system, any HMI. And now we've sort of expanded it to include mobile applications, which can natively run Android and iOS, as well as the workstation application, which runs natively on desktops. So it sort of just was the idea of giving. Expanding the access to any ignition project and application is sort of what perspective is solving. And it's obviously relevant to design and mobile and the world we live in now for those reasons, and just because it requires so much design work to bring a new visualization tool to.

09:24
Speaker 1
About. So you mentioned a couple of things there, John. It sounds like quite easy and simple, but from a design point of view, I think in terms of designing for function and not form is the first thing that comes to mind, especially with something like mobile. I'd love to get into the mobile stuff, definitely understand how it's different from mobile. But designing for function at form, and I suppose from an engineering point of view, from an engineer point of view, we know engineers and this is an absolute fallacy. They are friendly, open, approachable people. From your point of view, designing for function is actually also form. Keeping in mind that there is a human on the other side of the screen where we often, as engineers, we think of it purely a cosmetic detail.

10:15
Speaker 1
And now all of a sudden, with something like perspective, it is expanded and things like responsive and mobile and browsers. That does change the game quite significantly, which again, is probably a little bit outside the comfort zone for a lot of engineers.

10:34
Speaker 3
Yeah, that's exactly right. It is sort of a new space when you start to have these types of constraints which are inherent with a smaller form factor that mobile brings. There are new challenges, and especially in this industry, the amount of information and function and data that we're trying to get onto these interfaces is quite difficult to do in this smaller form factor. But it's too bad that there's not sort of a one size fits all solution. But there are best practices and some approaches you can take to create better products, better applications for any space, and especially for the industrial space, which is so engineer centric.

11:23
Speaker 1
Yeah. Again, I'd like to get into some of those approaches and guides, but do you feel that you probably see a lot of examples. I know you help a lot of partners with design fundamentals and approaches. You see a lot of examples. Do you feel that there is a shift towards better design, or at least more awareness around better design?

11:47
Speaker 3
I do. I have seen it improve quite dramatically in the time that I've been in the industry, which is five or so years

a little bit shorter from most folks that are around. But I do see the desire to get better, and most of it is driven, I think, by function. I mean, you talk about function and form. It's kind of the UX and UI split that we talk a lot about just in the design industry in general, user experience, UX being the sort of function, how it works side of things, and UI, or user interface being kind of the form or how it looks side of design, but they really go hand in hand. And I want to say that the focus I've seen is a little bit more on the better functionality.

12:33
Speaker 3
So focusing more on being that user centric, user first approach, using that approach, and generally the tools in the industry are getting better as well. With perspective, we try to give our users or our systems integrators better looking tools out of the box, so that we kind of take a little bit more of that form, that UI burden off of the engineers by giving them better looking tools out of the box, or better availability of things like theming and features like that, which can allow you to make things look better in a consistent way without too much nitty gritty work across an entire application.

13:19
Speaker 1
Yeah, that makes 100% sense. I just had a thought. I actually wrote it down, because if I don't forget to ask, is there any research that shows good interface design to increase, for example, operate productivity, decrease human error, and just that human change management to make operators feel more at ease? Is there any research that you're aware of? I remember probably about ten years ago, people started speaking about situational awareness and the benefits. This is ten years on now. I would imagine by now there would be a lot of, at least studies and surveys to prove some of those things.

14:01
Speaker 3
I'm actually not aware of any specifically in our industry. I'm sure there are, but honestly, my day to day is mostly designing the tools that other folks use to design their tools. It's kind of this one stepped remove situation where I always say that I design tools for engineers, to make tools for engineers. It's kind of this leapfrog. So definitely on my side of that, where I am in the UX industry and doing obviously UX design for engineers, there's loads of data around, just in the general tech software industry, studies and data around better user experiences, causing applications and platforms to obviously run more smoothly, be less error prone. This type of thing.

14:51
Speaker 3
And we see it on a feature to feature level, at least in what I do with ignition where my team regularly tests our features with users doing surveys or click tests or mostly prototype based testing, and we use that data to iterate on the features before they go out and make them a little bit more user friendly and a little bit more polished as much as we can. So, I mean, that's at a pretty low level as far as studies, but we're doing them regularly and definitely they exist out there. In general, at large industry, the benefit.

15:29
Speaker 1
Is actually even more so in our space. I mean, if it makes that much sense, other industries, the importance of design in our space, it must be just from a safety point of view, as an example, so much more important.

15:43
Speaker 3
Oh, absolutely, go ahead.

15:45
Speaker 2
Yeah, it's just that I think everyone nowadays, especially, like you said, the last ten years, when UiuX became such a massive thing, especially mobile applications and just applications, overall, I think everyone have gotten so used to proper apps, proper interfaces.

16:04
Speaker 1
It'S kind of like, it looks good, it feels good.

16:07
Speaker 2
Yeah, it's easy to use. It's very intuitive, like, oh, okay. I know these little three lines at the top of the app means that's where I find the menu. And this is how I scroll through the burger. The burger menu even.

16:20
Speaker 1
I know.

16:24
Speaker 2
Everyone is so comfortable with the type of design there is out in the world nowadays. Personally, I don't understand how a lot of people still struggle with design. I mean, it's kind of like one of those things that should come naturally in a sense of when you start designing. But I do understand for a lot of people that's not the case. It happens with everyone. Writers get rider block.

16:59
Speaker 1
So what Ray is doing, I think, is the first step in that making the tools easier to use and easy to use, that's probably the first step to that.

17:08
Speaker 2
Yeah. And that's kind of why I want to get to, in the sense of, so you making it a lot easier for people that don't find it easy to design, seeing that is obviously your profession, I would really love to know what is one of the biggest things that you have created that you've seen, helped engineers, system integrators, end users out there really use, and that you can see you've made a massive impact on the way that they design. Does that make sense?

17:39
Speaker 1
Yeah, absolutely makes sense.

17:41
Speaker 3
Yeah. I don't want to be too high level, but I would again go back to the perspective module itself. In all honesty, just the ability to create full industrial scale applications in mobile browsers or any browser, excuse me, has opened up, I think, a massive door for all of these other things that you're mentioning, like mobile design, like responsive design, like these applications that are available anywhere at any time, and really the module itself and all of the components within it have sort of opened up that door. But that's pretty high level.

18:23
Speaker 3
But really we're focusing right now on things like stability and much better performance and creating a lot of benchmarks that we can share publicly within the platform and just trying to shift away from a very feature driven output to a much more stable product and just a better performing application in general, because we sort of go through these cycles right, where we're putting out a ton of features and then we're kind of taking a step back and optimizing all of those features to work in all of these different situations. Right now we're kind of in that pullback phase where we're focused on giving our users the tools that they need to troubleshoot their applications and ensure that the stability is there in their end products.

19:17
Speaker 3
But, yeah, I'm not sure if that answers your question, but mostly just opening up that door with perspective, I think for a mobile, absolutely.

19:27
Speaker 1
Because it's so focused on expendability, flexibility and mobile that it's the entire module.

19:36
Speaker 2
It does, absolutely, yeah. No, just quick comments. I've heard of a lot of people that have never designed anything in their entire life come back to us and tell us, listen, this was made so easy. I could design something in a few hours or in a few days. Very user friendly, very easy, intuitive.

19:56
Speaker 1
High five.

19:57
Speaker 2
High five.

19:58
Speaker 3
Yeah. And there's more and more things that we're doing, even just on the education side. So our training and support teams are amazing at providing more and more tools, like through the ignition exchange. We essentially give away all these resources and examples really of how you can use the tool, which I think is so important because it's the scariest and hardest thing to just be staring at a blank page wondering where do I start? What do I put down first? How do I build this thing that I have in my mind's eye? But even things like the quick start feature, which we released, I'm not sure, maybe six months or a year ago, it essentially gives users a pre configured platform which has an example project which is essentially meant to be picked apart in the designer.

20:48
Speaker 3
So things like just naming conventions are sort of baked in so that you can learn by example of how to properly name and organize your layers and your components within a project. And it has baked in sample tags and bits of data to kind of get away from that sort of scary moment where you're looking at a know, brand new fresh install and you don't know where to start. Right?

21:16
Speaker 2
Yep. Everyone's been.

21:19
Speaker 1
That's the intimidating piece. Ray, the first time I saw your name was on, I think it was a video or an article. It was called the HMI extreme Makeover. I think the interview, I remember that it was quite an entertaining video. It talks about that. Everybody loves a makeover story. And I think it was. I can't remember. It was you and other members of the team. You actually took a piece of visual design, which in South Africa, in the industrial automation world, we call it the typical Christmas tree that we see on a lot of screens, lots of greens, lots of blues, lots of dials. And you and the team actually took a couple of those visuals and you did an extreme makeover. And to me you did stuff called, it's obviously very design specific, but I think something everybody can do.

22:11
Speaker 1
You did the squint test. There was limiting the use of color. That's only relevant, a visual hierarchy, visual noise. But you basically explained a couple of these things that you typically do to show this new visual that is clean, that only shows what's relevant, are those kind of steps and things that you do typically the approach that you have with redesigning stuff like that or even designing from.

22:39
Speaker 3
Yeah, yeah, absolutely. So it's funny you bring that up. That was one of my first big public speaking events with IA, I think, is that one of our first iccs? And I believe I partnered with Stephen Fong on. Right. So that approach, it's definitely still of, it's a little bit more UI focused. So interface focused and front end focused. But yeah, I love looking at an interface that exists and rethinking it from scratch because you put on your designer hat.

Essentially my job is to ask questions. So you're looking at an existing Christmas tree, as you mentioned, and you ask, why or what are these colors?

23:26
Speaker 3
Trying to tell me as an operator, as the user of this, and you can kind of slowly pick apart the existing screen and just make it so much better by really drilling down and asking the questions of why am I seeing this information? And as a user, what should I be seeing instead of this, maybe so you can kind of take what's there in that existing talk and tease it apart to create, like you said, a much better, more effective screen by focusing on, I think we talk in that, talk about the difference of data versus information. A lot of folks start with data points and sort of pepper them on a screen. But what you really want to start.

24:15
Speaker 1
With is the question, right?

24:17
Speaker 3
All of the information. Yeah. The mindset shift that I hope folks can make is to switch to starting, like you mentioned earlier, with the humans. So starting with user stories, as we call them. And essentially a user story is just a sentence which replaces what might be a spec doc or like a data spec doc, where you're just seeing, this is the data points I need to see on the screen. It's more user focused. So these user stories are sort of a formula, right? So you start with as a blank, I need or I want blank, so that blank. And you kind of get the three main pieces of information with these, which they mimic a spec doc, but they're much more user centric. And you can write out maybe five or seven of them for an interface.

25:09
Speaker 3
And by starting with that, you really get to the core of what the screen is trying to do versus just data points. And by doing it that way, you have this user focused approach, which in the end just makes everything so much easier to use for the actual folks that are on the ground using this thing day in and day out, because they kind of help to shape what they're seeing, and they have sort of the reasoning behind why they need to see it so that you can shore up these projects in a better way.

25:44
Speaker 2
That's great. I've heard of that before as well, and that just simplifies the project so much. I know of a lot of people that usually the first thing they worry about is saying, where do I start? What do I need to do? What do I need to design? What do I need to build? And it's great. It's great to tell people, listen, there's a way to do it. Write out a sentence, this is what you need to do. I'm this type of person. This is what I need. This is how I need it. That's great.

26:17
Speaker 1
I think something like where there's also benefit with ignition specifically, and it sounds like I'm plugging ignition a lot. But this is stuff that we've really heard is very often in our world, you would see a screen with everything on it because very often of licensing and client restrictions, there's a cost to buying multiple client licenses. So you get one client license that runs everywhere and has everything on it so everybody can use it.

26:46
Speaker 2
Exactly.

26:48
Speaker 1
So again, with something like the unlimitedness of clients and the accessibility that you can create for different people based on what they want to see, that's also opened up that door.

26:59
Speaker 3

Yeah, absolutely. And what you mentioned there. That use case is so powerful, where you're showing different people a different interface because they have different goals. And it just all goes back to this goal based approach to design, where you start with the goals and you design around it, and everybody's goals are going to be different. Every user type, depending on if they're on the floor, if they're an exec in their office. Even things like form factors are so different that you can pretty easily design these different experiences for tailored users with the product, which helps so much for just efficiency and better experiences for folks that are using these things 24/7 yeah, definitely.

27:46
Speaker 1
So one of the questions that I had is we've seen recently, we've seen a couple of designs where it was phenomenal, the company's brand and corporate identity. Not all businesses have these, but a lot of the businesses do, where the company's brand and corporate identity and design elements. I mean, some businesses called, they call it a brand voice, where this document, this reference material was used in the design of the perspective application. So what I really love about that is that from a color point of view, from font usage kind of view, all of these sort of approaches, it has the look and feel of the company's website, the company's intranet, the company's everything else, which immediately doesn't make you feel like it's an app that's just been plunged down, that we're using, that it feels like everything else. I quite like that.

28:49
Speaker 1
And I haven't seen too many of that. Too many of those.

28:54
Speaker 3
Yeah, I mean, that's a great point. You want to feel like you're using something that you're comfortable and familiar with, which right away gives you a better experience in general. And I don't want to be only talking about perspective, but I do work on it every day. So a big push of ours recently, again, was theming feature where we want to make that easy to do. And now it really is where you can bring in your corporate font, you can bring in all of your corporate colors with some very little css knowledge, you can sort of plug them in more or less, and just make these sweeping changes across an entire platform or all of your sessions and applications that you're putting out.

29:41
Speaker 3
It just sort of is again, just another way that these web best practices, which have been sort of existing for much longer than our web based industrial applications, where we're again just sort of learning from them and bringing in the best and easiest use cases from sort of just the technology space into the industrial space. It's kind of nice almost to be five or so years behind because we can just learn from other folks mistakes and bring in just sort of the best once it's sort of all shaken out.

30:13
Speaker 1
Yeah. Why do you think we're behind? I mean, it's a bit of a strange question at this part, but why do you think we're about five to seven years behind? I don't know if it's a view that there's some safety elements that has to. We're too scared to build something. We haven't had the tools to build something. We haven't had the know how and the. And the educational enablement. But I thought about why we so far behind.

30:40
Speaker 3
Yeah. In my opinion, it's because the space is so much more complex than meets the eye. I've sort of seen this over and over again where we'll have a new hire and they come in and kind of have all of these ideas that kind of are so obvious, all these gotchas right out of the gate. We should be doing this. We should be tracking user clicks across all of the platforms. We need analytics in gateway. We need x, Y and Z. And you kind of have to slowly open these folks eyes to the reality of just the complexities of the industrial space. We can't have any downtime, right. We're running critical infrastructure. Security is so paramount. So you can't make these assumptions like you can with just like a SaaS product where you have access to the Internet at all times.

31:32
Speaker 3

Even mobile is a little bit of an odball and scaring people a bit. Having operators be able to control things off site. There's just so many nuances to it because the safety is critical and human lives are at risk and you can't just push hot fixes and, oh, no, it went down for five minutes because then somebody lost millions of dollars of product, potentially, or safety was compromised. It's a very different space, so I kind of understand why it's a bit behind, but I do think that we're going to catch up quite a bit more. Maybe not one to one with software technology in general, but definitely as more folks shift and realize that this space exists. And I'll touch on that in a second, I think we're going to get more and more talented folks.

32:28
Speaker 3
Not to say that we don't have so many already, like, the amount of knowledge and skill in this industry has blown me away daily. But yeah, I think we're going to slowly catch up as these tools get better. But it's probably good to be a little bit behind, honestly, because we sort of have those benefits of learning from others mistakes and being able to have security and safety still be paramount while.

32:57
Speaker 1
Keeping the intrinsic safety and security top of mind. Yeah. And probably also a younger generation of people coming through. It seems like there is a slightly more native mobile generation in our industry now that feel more comfortable with the design and the approach.

33:15
Speaker 3
Yeah, absolutely.

33:17
Speaker 1
Right. So you mentioned designing for the user. I want to find out, is there a five step guide? Is there some references that we can point folks to in terms of starting with the fundamental departure point of designing for the user and what they need and what they have to see? You have a question? Sorry?

33:36
Speaker 2
Oh, no, it's just. Yes, I am very keen to get to those tips and tricks from Ray. I think before we do that, I just have a very quick thing that I think will be pretty cool to know. So you mentioned a bit early about the CSS and HTML things that's going on in perspective. And I know a lot of people when they hear CSS and HTML, they kind of freak out a bit because web designing, that's not python coding. We don't know how it works. Please help. What would you tell people that have never worked with design before, like ever, when it comes to those type of things, especially the CSS parts, how to, what do you call it, work with the components, how to manipulate them, how to bring in colors or whatever it is.

34:34
Speaker 1
In terms of disclaimer or advice, what.

34:40
Speaker 2
Type of advice would you give them.

34:42
Speaker 1
In the sense, because it's stuff that's new to our industry.

34:46
Speaker 2
Where should they start?

34:47
Speaker 1
In terms of learning?

34:48
Speaker 2
In terms of learning, I know I've obviously personally worked with perspective. It's really easy, very use intuitive. I mean, it's not complicated, but some people like to do a little course here and there to go and read up a few articles, check out videos. What would you recommend?

35:08
Speaker 3
Yeah, that's a great question. So I would kind of go to what you just said where you've used perspective before and you've noticed it was easy to use and intuitive, right? Obviously by design, that's my job. So we purposefully abstract away from the HTML and CSS and Javascript, which is actually running obviously the web front end, and we do that. So you don't have to learn those things, honestly, you are still interacting with components in a WYSIWYg environment. What you see is what you get. You are building components with building blocks and you're building up your interface visually meaning that you're not looking at a blank code sheet and writing out lines of code. It's very different in that you are essentially visually piecing together your project with that in mind.

36:02
Speaker 3
Hopefully that's a much easier way to build up a web application or an industrial application. But definitely there are benefits to knowing the ins and outs of CSS specifically for styling and manipulating the properties which we present in a JSOn format. But again, you're not manipulating CSS directly. Again, it's abstracted in a way that is hopefully much more human readable to interact with. But definitely understanding CSS and flexbox specifically for positioning and layouts that can be a little bit more flexible. Flexbox is a web technology used for layout and we rely on it pretty heavily for most of our positioning.

36:53
Speaker 1
It's a good note. We can add that to the footnotes.

36:55
Speaker 2
Yes.

36:58
Speaker 3
Right. So it's one of our containers specifically, and it's definitely one that feels foreign to people. Like you're saying that they might be a little bit hesitant to jump into it. But once you do learn a bit more about how the layout tool works, you'll find that it's kind of the only one that you do use because it is so flexible and it's fairly intuitive as well, once you kind of understand the basics. So learning there, learning on Flexbox and CSS specifically, I think would be a good thing to do. And again, luckily this is the web space, so there are hundreds of thousands of very solid free resources on the web to learn these tools.

37:46
Speaker 2
Yeah. And I know inductive university specifically has that elective study how to build in perspectives, and that's just for everyone listening that obviously knows about inductive university. Really go and check that out. It's an elective study and there's almost.

38:06
Speaker 1
Recently, I think not too long ago. Yeah, two months ago or so.

38:09
Speaker 2
Yeah. But there's a lot of good videos I know that I've worked through myself that teaches you the perspective in basics, how to create bindings, adding great navigation. I also like the articles that you guys have done on tips on how to improve hmis. Just to quickly get back to you spoke earlier about having your fundamentals in place. It doesn't matter if it's ten years ago or today, fundamentals always stay the same. And there's a great thing about

how to, what do you call it? I think it's emphasis. How to put emphasis on different components, especially as HMI screen. Doesn't matter what type it is, but just to understand that will simplify designing so much.

39:05
Speaker 1
On your point about perspective and some of the learning, Ray, we had a couple of system integrators that probably, I want to say ten months ago were having a conversation about web designers and getting front end designers on board in their teams and were discussing the notion and the value of it and the need. And I think it would absolutely be valuable, it would help. There would be a lot of really good things to come out of that. But all of them, they haven't done that. And I think that maybe speaks a little bit to the power and the flexibility and the ease of use of what you mentioned with perspective again, we plug. Plug in perspective again, but they could shows the value that the difference a tool can do. Exactly the knowledge you need.

39:55
Speaker 3
True, exactly. Yeah. So when that question comes up for me, I generally sort of shift it to, like you mentioned, I think the tool itself is wysiwyg enough and intuitive enough for anyone, any engineer to pick it up and run with it. But I think the real beneficial hire in this industry is going to be a little bit more on UX designers where because every problem is contextual and that the solutions are all different based on 1000 things, you really need somebody in there. Asking these questions in testing your assumptions is basically on what you're building and why. And that's sort of where user research and user experience designers can really bring a big benefit to these applications in the space.

40:47
Speaker 2
Cool.

40:48
Speaker 1
I'm just looking at our time. We were on the design approach. We spoke about designing for the user and what they need.

40:57
Speaker 2
Tips and tricks.

40:58
Speaker 1
Tips and tricks. Any further sort of highlight steps or a guide that you think would be valuable to go through?

41:07
Speaker 3
Yeah, definitely. I'd plug again the elective courses. So there's also one specifically about design, which talks about every aspect of design, from typography to layout to hierarchy and things like that, which again are sort of the universal. Right. There's also a responsive module in there, video, which is very good and powerful. My team helped write that one. But yeah, just in general, design approach tips and tricks. I'd say again, write these user stories up front. Try to get away from the specs mindset. Don't reinvent the wheel. When you're approaching applications, you really need to rely on user assumptions because they're sort of assumptions for a reason. Your engineers and operators use other applications all day, whether they realize it or not, be it Google Docs or Facebook or whatever.

42:02
Speaker 3
And these best practices for navigation, for layout, for where things are on a page, on an interface. They're there for a reason, because we're used to them and they're intuitive. So I'd say with things like layout and navigation structures, really don't try to reinvent the wheel when it's not necessary. It's generally more work than it's worth. And then also, one thing that designers do regularly that we don't see folks doing too much in this industry yet is just wireframing, honestly. So working at a very low fidelity for as long as possible before you shift to the actual application that you're building in ignition or whatever it is.

42:47
Speaker 1
That'S a simple and obvious thing, perhaps, eh?

42:49
Speaker 3
Right, it is. People maybe think they can't draw or I don't know what it is, but really my job is to draw boxes and move them around. Right. You can represent any UI with a bunch of boxes and squares on a whiteboard, on a post it note, whatever it is, the main benefit to wireframing is, again, it's fast and it's cheap, but yeah. So the feedback that you get from colleagues and users and customers is going to be a lot better because they don't feel as bad tearing down a little drawing black and white with pencil versus tearing down something, maybe full high fidelity design, because they can clearly see that you've put in a lot of effort to this and you've spent time and money and man hours putting things together.

43:34
Speaker 3
So by working fast and quote unquote dirty, you can get to a better solution in a lot of ways more quickly.

43:43
Speaker 2
That's great. I really love it that you said it, because I like telling people, listen, start with a wireframe. And they always think I'm joking if I tell them, pull out a piece of paper and a payment, start drawing what you want. And they look at me like, are you sure?

44:00
Speaker 1
Naturally we just start and we start designing. We're not sure what and for who and exactly what the sequence is and what the base is going to. We just start designing.

44:10
Speaker 2
Yeah. So it's a great starting point. I agree.

44:13
Speaker 1
Cool. I like the designing for the user with them in mind, what they need, what they have to see, how they interact. Wireframing, that's such an important one. I'm so happy you mentioned that. Anything else?

44:27
Speaker 3
So I don't have too many really specific tips. Just because everything unfortunately is so contextual and it depends, is my number one answer in my job. But yeah, I guess I would just say asking those questions, asking those dumb questions is a big part of designing good things. And once you have things starting to come together. Once you're starting to put together wireframed solutions for your user stories, you're going to want to test them and put them in front of people and get feedback and then make changes. And don't be afraid to, if something's not working, throw it away and draw up another one. Start over, start there again.

45:09
Speaker 3
So yeah, really just, we're talking about user centric design so much, but really mostly you're going to be talking to users, whether that's iterating with them on how an interface works and comes together or whether that's writing those initial user stories. Being user centric is obviously key, but mostly what that is talking to people. So getting out there on the ground and talking to folks is going to make everything better.

45:38
Speaker 1
Awesome advice. I love what you said about asking the dumb questions or being the person that asked the questions. I think probably in this realm, like with many other areas or industries today, I think it's more important to be the person with the questions than the person with the answers. And it's super important to have

that philosophy. So I agree with already. Sure. We've taken a lot of your time, Ray. Any other questions or comments for Ray?

46:10
Speaker 2
I have a lot actually, but I will not be asking.

46:14
Speaker 1
We can maybe have a.

46:17
Speaker 2
No, I definitely asked, I think, some of the very relevant ones now. I don't know, maybe later on when we do this again, I would like to delve a little bit deeper into it, but not today.

46:29
Speaker 1
I'm sure it's going to evolve as well. And as we see a shift, more of a shift from UI to Ux, as you mentioned, where we incorporate other ergonomic type things and broader views on control rooms and things like that, maybe it'll be valuable to have another catch.

46:46
Speaker 2
Up then, because what I've seen is, I think a lot of people understand the basics now, and now they're starting to move into the more complicated aspects of the designing, so they're starting to ask more complicated questions on how to do things. So, very excited for the next?

47:04
Speaker 3
Yeah, absolutely. Yeah. I think more and more folks like you mentioned are getting that baseline and happy to talk again or follow up in some way with more and more specifics because there are so many. They are out there. But yeah, definitely our webinars from past iccs and things like that are a good resource for some of these specifics. We do a lot of tear downs and tear ups in these sessions, which can kind of give some good examples, I guess just good examples of how you might take an existing application and make it much better in a more hands on approach, less high level, less just sort of best practices. But the specifics are out there.

47:51
Speaker 1
Those are my favorites. Extreme Makeover HMI edition. Love that. Thank you so much for your time. Keep up the good work and designing tools that make our lives easier and helping the industry as a whole in that way. Thank you so much for your time. It was awesome chatting to you. I'm sure we're going to do a follow up, maybe in a couple of months time, and we're also going to share a couple of the resources that you mentioned. We'll just include that in some of the notes as well. And do you mind if maybe some people would want to get in touch with you? Maybe reach out on email? Would that be okay?

48:25
Speaker 3
Oh, that'd be fine. Definitely happy to talk with anybody about this stuff. I could go on and on. I'm already going over your time here. Sorry about that.

48:34
Speaker 1
Ray, thank you so much for your time.

48:37
Speaker 3
Absolutely. Thanks for having me. This was really fun. I appreciate it.

48:41

Speaker 1
Thanks, Lauren. This is our last episode for this year, for 2021, as promised. Next year in 2022, we'll be back with. I think we promised a podcast in the mining mineral space advanced process and we haven't done that. We started with the mining, we got a little bit sidetracked. Now we're doing design stuff. It's all relevant. Again, if you're not familiar with the human emission podcast, this was your first episode listening. This is typically what we're all about. We cover topics, talking points relevant to industrial automation manufacturing that aim to enable and to just share some ideas and thoughts. We'll see you in 2022.

49:23
Speaker 2
Yeah, and have a great holiday.

49:25
Speaker 1
Have a great holiday, look after each other and be safe. And thanks for listening and share. We appreciate your time. Thanks everyone.