46: Elizabeth Matthews and Katya Opel: The Concrete Canoe Competition

Gavin Kelly
Hey everybody you're listening to beyond 1894. This is the official podcast of Louisiana Tech University. Today, we are joined by Dr. Elizabeth Matthews and Katya Opel from the College of Engineering and Science. Thank you for being with us here today.

Katya Opel
Thank you so much for having us.

Elizabeth Matthews
Thank you for having us.

Gavin Kelly
So the reason that we have our guests on today is pretty special. We are just days out from the ASCE Concrete Canoe competition, which is being hosted right here in Reston. For those of you that don't know, that's the American Society of Civil Engineers. So that's it's a pretty big deal. And it's pretty exciting not just for college of engineering and science and for the ASCE chapter here, but for the city of rust. And so maybe you guys could talk a little bit about what this competition is and how it sort of came to be situated here in Reston for this, this particular instance of it.

Katya Opel
Okay, so, in 2019, our concrete canoe team actually won regionals and advanced to nationals that year. And just being there was such an incredible experience seeing all the schools from all over the country schools from, you know, different countries as well, India, China, just being around that variety of people was super fascinating. And so then in November of 2019, I was reading my AC e mails. And there was one that was asking for hosts for the 2020 school year, or 2021, school year, national competition, and I sent Dr. Matthews an email that said, hey, so I have a really crazy idea. And so we talked about it, we put in a bid in like a week and a half, to host. And nationals already had a host lined up for 21. So then we got the bid for 2022. They came and visited campus in March of 2020. And then the week later, the whole world shut down. So it's been a long time coming. It'll it we're like in between four and 500 people from all over the US. We'll have some teams from Canada, we'll have a couple schools competing virtually just because they weren't able to come. So India, China, some of those schools aren't able to make the trip over, but we're still going to be catering to them and having them compete with everyone else. There's going to be a team from Mexico, a team from Puerto Rico. And just a big conglomeration of civil engineering students from everywhere.

Gavin Kelly

And sort of just descending on the city of wrestling, which is because nothing's quite happened like that before.

Katya Opel
Not that we're not that we know.

Gavin Kelly
So I'm Katya. You are a grad student of Dr. Matthews here, right? Yes. So what's it like to kind of get to work together on something like this? Like, how does how does this dynamic sort of work whenever you're involved in bringing a competition here like this?

Katya Opel
Well, I love working with Dr. Matthews, um, she was there not many female? Well, there's no other female civil engineering professors. So immediately, I kind of gravitated towards her when she first came to the university. And then I think we just kind of clicked, she wanted to be the faculty advisor for ASC because we just lost ours. And so we took her on board. And then my senior year, I was looking for research opportunity opportunities, and she had a great opportunity for me to get involved. So we did that. And I think we just work really well together. I see her as a mentor, not just you know, as an engineer, but also like how to be a, you know, a woman and engineering and also has a family and you know, how to mix everything and make it all work.

Gavin Kelly
Very nice. So Dr. Matthews, what sort of made you want to become involved with ASC here at Tech.

Elizabeth Matthews
So, to be honest, like, I like to serve in any way that I can. So interacting with the students is one of my most favorite things to do. So it was perfect opportunity to do that. There are many, many ways that I serve on campus and those who truly know me know that I probably do too much service work, to be honest. But um, it's it's been a really amazing opportunity. And I really, really wanted to be their faculty advisor. So whenever they they said they wanted me to come on board, I was more than happy to say yes, so

Gavin Kelly
make sense to me. How long have you been teaching here at Tech?

Elizabeth Matthews
So I've been teaching it's tech since 2017. That's when I first started as an assistant professor.

Gavin Kelly
And you are a graduate of tech, right?

Elizabeth Matthews
I am a graduate of tech. I got both my bachelor's in civil engineering and my master's in engineering from Louisiana Tech.

Gavin Kelly
So what made you want to come back and be a part of the the Tech family here in a teacher capacity.

Elizabeth Matthews
So I always enjoyed my time here as a student. And even though Tech has changed a bit since I was student it actually changed quite a bit. To me, it always felt like a place that was home. So the idea of coming back here was not that difficult of a leap for me and academia is what I wanted to do. So when the opportunity came along to come back, I had no problem making that that leap at all.

Gavin Kelly
Makes sense. Everybody's got a reason to be here at Tech. So Katya, why Louisiana Tech?

Katya Opel
I wanted a smaller school, I didn't want to go to like a big, you know, LSU UL, a lot of people that I know from high school went there, and I kind of wanted to do my own thing, but still be kinda close to home. Where's home for you? Mandeville, Louisiana. I knew I wanted to do engineering. And so that kind of made tech the the right choice. And I don't regret my choice at all. I had so many amazing opportunities since being here. It was like fate almost.

Gavin Kelly
Gotcha. So what what was it about ASE for you here, then that made you want to get involved.

Katya Opel
As a freshman, I was sitting in on an ASE meeting, I was, you know, signed up to be a civil engineering major my freshman year. And I was sitting in on a meeting and they said, oh, we need female paddlers for concrete canoe. And I was like, Oh, well, I'm a female, and I want to get involved with you know, civil engineering organization. I'll go, and the rest is kind of history. I just kept getting more and more involved meeting everyone worked my way up, I was president of the Student Chapter My senior year, and just have stayed involved. I love ASE not only as like a school student chapter level, but I'm involved on like the national level, meeting with, you know, the president monthly, and what's called our student presidential group. So it's a group of students that meet with the ASE President once a month, and we bring ideas from the student level up to the board of direction and get to engage in that sort of way, which is really, really great.

Gavin Kelly
Yeah, sounds good. And you you know, we've we've touched on it already. But you know, this competition centered around a concrete canoe, the sort of an idea, like two words that don't normally belong together. But it has become sort of a staple, sort of an identifying feature of our engineering program here at Louisiana Tech. I mean, there's one hanging from the ceiling, in the engineering building now. So how how long I guess is what I'm trying to ask it has this sort of been a focus for engineering programs at Louisiana Tech at the concrete canoe, canoe building and competition specifically?

Katya Opel
I know, I mean, just hands on project groups is a big focus, you know, engineering students want to get their hands on, they want to get involved want to build things and do things other than just sit down and do calculus all day. So I know that that already is a main target of the engineering programs. As far as concrete canoe goes, I think our you know, efforts and teams go back to the early 90s. From what I've heard, took us a couple of years to kind of ramp up and then we were doing really well, you know, I mean, it comes and goes in waves but we're on a we're on an up right now. So we'll see where it goes from here. Yeah,

Gavin Kelly
got a competition to compete in right. And the Okay, so once again, the idea of a concrete canoe. Explain how sort of that that works. Does that make sense? Like how is that possible?

Katya Opel
So, normal concrete that you see every day like in sidewalks and you know, streets and stuff, that concrete is cement wood mixed with rocks and you know, big particles that are usually heavy because they can take that compressive load are lightweight concrete is you know, the similar cement with some different admixtures but also instead of these big rocks, we use microscopic almost glass bubbles and extremely lightweight what we call aggregates which are the you know, the fillers that bind the cement to with the cement together. And then of course, just the shape of a canoe itself should float you know, the different buoyant factors and everything. It doesn't have to be that the density of the boat is lighter than water but that is one of the goals. We have a boat that's coming that's about seven over 700 pounds so it doesn't have to be lighter than water but it definitely helps when you're putting four people in it to pattern race.

Gavin Kelly
No doubt how so has the canoe is pretty. The shape of it is been pretty consistent throughout history. So how has like the factor of making a canoe out of concrete changed over time. I mean, I'm sure it has just like the way that the concrete is made. Is that sort of a difference as opposed to many years ago?

Katya Opel
I would think so. I know a lot of I mean, new technologies, new aggregates, things like that, of course, play into your mix design. And then I know a big challenge for a lot of schools is making their mold and their form, we are very lucky to have a foam CNC router. So we can, you know, cut that out really well. A lot of schools, they have to, you know, form some sort of wood mold, which takes a lot more time and effort. And then you know, there's a male mold or a female mold, you know, different, there's so many different methods to do it. And that's, again, such a great thing to see at a competition like this, you see everything under the sun of what you could do to make a concrete canoe?

Gavin Kelly
Well, that's a good point, because I'm sure every school has got their own sort of like quirks and techniques and tweaks that they do to theirs. Even if the goal is to create a canoe. No two are the same, I'm sure. Right. Absolutely. What is your so are you involved with the canoe creating process at all?

Katya Opel
I was an undergrad. For the four years that I was an undergrad I was involved with, you know, building the canoe, I was a paddler. But during grad school, I've kind of taken a step back and let you know, the younger kids kind of figure it out on their own. And then also, I'm not eligible to actually paddle and race. So it's just kind of guiding them, helping them throughout the way but also letting them figure it out on their own. Because they do need to figure it out. And you know, their budding engineers, they need to learn how to problem solve, and that's a big one is figuring it out.

Gavin Kelly
So what was your favorite part of it all while you were a student?

Katya Opel
I loved paddling. It's exhilarating.

Gavin Kelly
So what was a competition like for you then as a student?

Katya Opel
It was long days. Yeah, it was a lot, several long days. I mean, you get there, you get to show off your bow, you get to show off your display board. You get to see everyone else's. And then, you know, you have the presentations, and those can be tedious. But I mean, it's still a great learning experience. And then of course, everyone's always looking forward to the races. The races are so much fun. You see everyone's school spirit, as a paddler. You know, kids, like any sport, really, I mean, you gear up and practice all year for this big race, this big competition. And then you just go and you've got two minutes if that to put everything you have into get in your little boat there and back, or through the buoys. And it's, I mean, there have been times where you push yourself so hard, do you have to have someone pick you up out of the boat, because your arms are so dead? You can't really climb out yourself. But it's it's a lot of fun,

Gavin Kelly
since it's so and so it's the canoes are scored much more than just on like their composition and their appearance. Right. They have to be able to perform Correct, yes. So when it comes to a competition, Dr. Matthews, what is the best part of it for you? I would

Elizabeth Matthews
say like the two favorite things I like display is one of them. Because then you get to look at everybody's what they've heard worked hard on all year. So and you know, going back to like some of the designs, like the designs and the requirements for the designs change every year. So it's not the same every year, and then how they decorate those can use and how they use certain techniques to decorate. Those can use changes every year. So it's always exciting to see like, you know, how the teams are able to come up with these designs, but by far the races are the most exciting thing. Just because you get to watch your team race and you're like crossing your felling and everybody's yelling, everybody's cheering and it's just really it's really a lot of fun. So

Gavin Kelly
this is gonna be at Lincoln parish Park, right. And this this competitions, which is a beautiful area, and it's good that wrestling is getting the sort of the sort of exposure and I mean, it's also going to be like smack dab during peach fest, right? Yes. So and that was intentional, right? We

Katya Opel
didn't do that on purpose. We wanted to give our you know, attendees, our participants, a even stronger taste of Ruston, by you know, bringing them to peach Fest and everything getting to really fully experience what restaurant has to offer.

Gavin Kelly
It's it's tricky. We we sort of talked about this before the podcast because we're in the middle of summer break right now. And Louisiana Tech in the student body are a large part of rust and so during the summer, when a lot of the students are on break rust and sort of changes a little bit. So being able to showcase wrestling in a way that brings out the best of it is a little more challenging in the summer but the peach festival and having so many different schools and students come here is going to help with that, I think absolutely. So by the time this competition comes and goes. What happens after the competition? How do you immediately start preparing for the next one? How often? Do you compete? Is it once a year? I mean, I'm sure the preparation is never ending, though.

Katya Opel
So after nationals, or internationals in next week, that's gotta gotta get used to saying that. We kind of take a break until the new set of rules come out in September, I believe. It might be early October, but we, you know, take a break. And offseason, in a way, kind of an offseason. You know, no one's really here for you know, everyone's off doing internships or working whatever it may be. So we really don't do much with it, we might, you know, have a cleanup day where we tidy up, take inventory of things we need to buy, or, you know, kind of brainstorm maybe some new ideas. But for the most part, it's kind of an off season from nationals until we get that new set of rules in September, October,

Gavin Kelly
how dramatic are the the rule changes and the sort of the constraints of the competition,

Katya Opel
they're not super dramatic? I'd say within the last five years, there's been some pretty hefty dramatic changes. I know, like for the year of COVID, everything was theoretical. So they were able to really implement some stuff that in theory, might have worked. But realistically, they probably would have never implemented an in person competition. And it's usually very minor changes, you are required to change your canoe every year. So you can't use the same mold. You can't use the same dimensions. And so every year, it's okay, well, what are we going to change this year? We're going to increase the thickness, are we going to increase the length? Are we going to shorten it? Are we going to increase the width of it? How tall? Are we going to make it all these little changes? Are we going to add more reinforcement every year, you know, you slowly just build upon them about what you've been working

on. And so even though the rules may not change much internally, we do try to make at least one, I'd say pretty drastic change every year, just to really

Gavin Kelly
sounds like Yeah, it sounds like to that once a canoe has competed. It's not really competition eligible anymore, right? Because there has to be different. So what happens to a canoe after it's after it's not really run its course but in a way run its course in a competition?

Katya Opel
Well, if it doesn't break, how often does that happen? I'm pretty awful. I mean, not for us, particularly, but there are some schools that they don't even get to race, you know, at the competitions because they break on transport. But we usually keep ours out at the park. And that's what we practice with, throughout from September to a March April whenever regionals is. So we try to keep them as long as possible, we'll fiberglass any pet like patches, where they may get holes, or cracks or things like that, just to keep them as long as possible. And of course, you know, there's the odd chance that someone drops it and it breaks in half before. Or, you know, God forbid, something like that happens, but um, we try to keep them as long as possible just for practice purposes.

Gavin Kelly
Gotcha. So, like winning and placing in these competitions? What does that do for a, a chapter or a group of students at a university? How does that sort of propel them? How does that sort of help them in their, their academic or professional careers?

Elizabeth Matthews
I would say that, um, the thing, the thing about winning, especially going to, you know, the society wide level competitions is that the experience really does help. Because you see what the winning teams, what their boats look like, and how they compete and how competitive they are. So I do feel like that experience is actually beneficial. And that's something you can carry on and pass on to the younger members, because one of the most important things I feel like and just being a faculty advisor, that passing on knowledge is really, really crucial. And that's was something that was really apparent this year, especially when we went back to in person competitions with our teams that that knowledge hadn't gotten passed down. And so they struggled a little bit. And that's to be expected after coming off as something like COVID. But our team, I feel like did a really good job of passing that knowledge down. And so the experience of competing is it's crucial, I think, for for that knowledge building.

Gavin Kelly
That makes sense, because yeah, I guess when you think about it, there were certainly a minority of students, but a group of students who their first competition was the COVID one. So how do you you know, how do you suddenly get more hands on with how you approach the competition? I guess that's just something interesting to think about. Is it sort of can you sort of feel this energy that like, because this is gonna be the first in person finals in a while. Is everyone sort of just like chomping at the bit to to come here and have this competition?

Katya Opel

Yes. I have a few friends that are in AC chapters around the country and everyone's excited to get back. I think it's the first student, like society wide event. I mean, because there's like leadership seminars and things like that. But I think this one is really the first one that is big, and it's happening and everyone's excited. You know, we had capacities and people wanted to bring double and triple what their capacities would allow them. Of course, you know, we then opened it up and said, anyone can come. But uh, yeah, it. I think everyone's ready. Everyone's ready.

Gavin Kelly
So how many people are we expecting?

Katya Opel
between four and 500?

Gavin Kelly
A large group of people. And they're all bringing canoes?

Katya Opel
Yeah, well, not everyone, some. So this year is actually a combination of three different competition. So we've got concrete canoe, sustainable solutions, which is a sustainability geared competition, and then surveying competition as well. So we've got not just the 18 schools for concrete canoe, but we've got, you know, 12, or 13, schools for sustainable and 12 or 13, schools for serving as well. And so not everyone's bringing a canoe, but it kind of makes it a lot cooler, because you've got all those 18 schools for canoe, but then a certain group of schools that are really good at serving or a certain group of schools that are really good at sustainable. So it's an even broader range of who's all coming.

Gavin Kelly
Yeah. So talk a little bit about those two other areas of competition that you just mentioned.

Elizabeth Matthews
So I'll talk about sustainable because, you know, it's one of my interest areas. So that competition hasn't been around for a very long time, only a few years. And when it started out, it was a building like much like you'd build a canoe, you had to build something. The last few years, they've done more of a design kind of competition, but pretty much the competition gears around designing and using sustainable criteria for that. So sustainable criteria, the tool that they actually use use is called Envision. And for anybody that's heard of sustainability, there's actually many, many different tools that she can use. But, you know, the overall arching idea is that you build something that's environmentally friendly, or has less of an impact on the environment. And there's many, many different ways to do that, and many criteria that go into that. So it's really for me, it's really cool to see that competition and see our students compete in that competition and take some of that knowledge that we teach them in the classroom and apply that. So to me, it's great because I love sustainability. It's just one of my areas, but and then serving I mean, that's been more of I think maybe it's the first time they've had it as part of the ASC competition. Maybe Katya can speak more to this.

Katya Opel

Yeah, we know that there's been serving like regional competitions for a while. But I think this is one of the first years that uesi Which is part of ASC that they have kind of said, Okay, let's make a national surveying competition. So I think last year was the first one and then this year. Well, last year was virtual, so then this will be the first in person. And I believe, I'm not too familiar with it, but some of their, you know, they have their field tasks, they have certain presentations they need to do. And I think it's still there's still a lot of just kind of figuring out exactly what's coming of that competition. But I mean, we've got a good team, they really enjoy serving, it's a good field to go into. So yeah, I think it's still just kind of developing

Gavin Kelly
Nice. So it sounds like there are like different stages of growth for each area, this competition. So it's gonna be I mean, engineering wise, it sounds like there's no way something for everyone, you know, any civil engineering personnel.

Katya Opel
Yeah. And they're piloting even more competitions. I mean, they're still coming up with new ones every year. There's a timber strong competition, that they're still working on construction competition. They just brought back steel bridge. So that's also you know, getting involved. And there's, there's, they're trying to figure out something for everyone. They really are for every aspect of civil engineering.

Gavin Kelly
That's very cool. And we're gonna host them all right now. Okay. So what So how has it been? You know, we're coming right up on it. I'm sure. There's been a lot of like, logistics and all that, that you guys have been like a part of planning and figuring out so how has it been being involved in the process of bringing this to rest? And so like, what's been the most, I guess, involved part of it all? Maybe not the part that's been the most Last fall, but I think that's kind of what I'm trying to ask you is like, what's been the most challenging part of, of making this happen?

Katya Opel
Figuring out everyone that's coming? Honestly. Yeah. I think getting through registration, getting those numbers, making sure everyone's where they need to go. And then it almost makes everything else feel easy. Because you're not waiting on other people. You know, when you're trying to print signs, that's easy. You just have the design, send it off, and then you get it when it's done. But a coordinating with so many different people, people in different timezones, all these different things, it definitely makes it challenging.

Gavin Kelly
Yeah, cuz you think about when you go to an event, you're just you're going to an event you register you go, but when you are hosting it, you are kind of responsible for the majority of that, too. So yeah, I'd say something about Dr. Matthews. Yeah.

Elizabeth Matthews
And just to add, I mean, we're just two people sitting in this room right now. But there's a whole group of people that are behind the scenes that are doing all kinds of different things that have helped out in

many different ways. All the students are on the planning committee, Dr. Tim's has been a huge help with planning, you know, a lot of the aspects of the competition and hosting my husband, Dr. John Matthews was a huge part of the fundraising part, if it hadn't been for him, we want to raise as much money as we did to be able to host this. So there's just a lot of different people behind the scenes that are making this happen. So you know, just just know that it took a huge team to work on this. Yeah.

Gavin Kelly
And so speaking of being behind the scenes, when it comes to competition, the competition days, what are you going to be doing? Are you going to be able to get a chance to kind of just enjoy it, and spectate. Are you going to be running around and keep them busy?

Katya Opel
We'll see. Well, we would love to just be able to sit and enjoy the competition, I'm sure there's going to be things that you got to run in tend to fill up my car with gas and just drive around all over rested, making sure everything's good to go.

Gavin Kelly
All right, well, like I said earlier, we are just a few days away from this competition. I think the date that this podcast drops is going to be just a couple days out. So this is going to be June, 3, fourth and fifth, a Friday, Saturday and Sunday. Like we said, it's going to be a big deal for us. And it's a big deal for the College of Engineering and Science. They so you kids. So I'm really excited to see what happens. I know y'all are. So thank you for joining us today. And good luck with the competition and have fun. I'm sure you will.

Katya Opel
Thank you so much. And of course most of the events are open to the public. So if you're in town, we'd love for you to come out to campus and like a parish park just to see everything. It's gonna be a lot of fun.

Gavin Kelly
We're really excited. Katya, Dr. Matthews, thank you for being here today. And good luck.

Elizabeth Matthews
Thank you so much for having us. Thank you. Thank you.

Gavin Kelly
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