# Health and Human Science Matters Season 3, Episode 4: Svetlana Olbina

Svetlana Olbina: Virtual reality was pretty new at that time. And it was coincidence, Alan Rudolph sent an email and I didn't know he's vice president for research. I responded to email. Because I'm like, "I can't make it to this meeting." And then we spoke on the phone because I couldn't make it to the meeting. And I realized, oh, he's into virtual reality too. Very supportive, creating these different hubs around campus. So it was kind of coincidence too.

Avery Martin: Welcome to Health and Human Science Matters, a podcast by Colorado State University's College of Health and Human Sciences. I'm your co-host and digital media strategist, Avery Martin.

Matt Hickey: And I'm Matt Hickey, associate dean for research and graduate studies. In our college, we make it our mission to optimize human health and wellbeing through discovery and innovation. Don't just take our word for it. Each episode we sit down with people who fulfill that mission, our college faculty and staff.

And today we're lucky enough to have a friend and colleague from construction management, Dr. Svetlana Olbina. Welcome. We're glad to have you with us.

Svetlana Olbina: Thank you. Thank you for having me.

Matt Hickey: Now, we're looking forward to the conversation. We want to get to know a little bit about you as a person, and you as a scholar. We certainly don't want to keep our feet, our minds or our conversation on campus. And so we'll look forward to hearing more about you in terms of what you do as a scholar, but also some personal history and influences. Those things are important to us as we get to know this community that we call the College of Health and Human Sciences.

So we want to start with Svetlana the scholar. And we're interested in big ideas, things that you pursue as a scholar. We look forward to hearing about what those big ideas are, and big problems.

Svetlana Olbina: I think the most recent research that I have been doing is in the area of virtual and augmented reality in construction, and it's a completely new approach to designing and constructing buildings. And I think the big problem that we solve with use of this technology is communication and visualizing the buildings. Because typically for the owners that are constructing a building, they're not knowledgeable in reading the drawings that are in two dimensions, so when they see something in three dimensions, or are able to walk through the building with VR goggles, they're able to understand why is building so complex, and why it takes so long, and why it would take so much money to construct it. I think that's the current research I'm doing, and also I'm applying that in the classroom with my students.

Matt Hickey: Tell me about the reaction of the students, I'm-

Svetlana Olbina: Students are pretty excited when I ask them, "How many of you play video games?" They are pretty shy, they don't raise their hands. But I say it's good actually when you play video games, because you're going to be comfortable with the joysticks and walking through. So they're pretty excited. And they're able to see their little projects that they're working on throughout the semester, and correct them based on what they see in the 3D virtual world, rather than just in Revit, that is one of the tools we are learning.

Matt Hickey: It's somewhat coincidental. I was looking at a floor plan this morning on campus, I got a meeting at noon in a room I've never been in, so I'm going to the maps and looking at these two dimensional... And trying to figure out, okay, so where exactly is this in this building? So this is really helpful.

Svetlana Olbina: Yeah.

Matt Hickey: I'm interested in the extent to which it's actually used in the building industry yet. Is it being adopted here and there, or more widespread?

Svetlana Olbina: I think it's still in its infancy when it comes to industry. There are several companies that are interested and leading in this area. Not many. They will use virtual reality for visualizing and for marketing purposes. And then augmented reality, which is different approach or tool where you overlay existing building with what is designed or what will it look like in future. That's more used in construction industry. For quality control, to see where we are going with construction, and for constructability reviews. So it is there, but not 100%, not many companies.

Matt Hickey: And is it more commercial versus residential?

Svetlana Olbina: It's more commercial I would say, but I think residential will go in that area, and heavy civil is a little bit lagging behind, but they're looking at that too.

Matt Hickey: And I'm interested in early adopters. For example, is this more common in Europe or Asia than it is in the United States or...?

Svetlana Olbina: I think Europe is usually leading. If you look at UK, they have requirement that all new projects are built using building information modeling approach, which is big umbrella where virtual and augmented reality belong, so Europe is usually leading. Some Asian countries, I would say Singapore, Hong Kong. But then we are also doing good job here.

Matt Hickey: Good. And again, are there particular states or industry leaders that-

Svetlana Olbina: Yeah, usually California and northeast of the country. When it comes to the companies, I don't want to single out any company, but we have had big support from Martinson Construction and Saunders in our program. That's how we started in our program actually to integrate VR. We partnered with Martinson, we applied for a grant with the OVPR, and we got it and we were able to buy VR equipment. Five sets of VR goggles to use it in the classes. That was, I think, a big revolution in the department, when we were able to get this equipment for students and for research.

Matt Hickey: Do you think that the day will come when we will no longer have real model homes in new housing units, because...

Svetlana Olbina: That's a great idea, I never thought of that. I was just talking to Avery before the meeting and I really like virtual reality, but I'm still a real people's person.

Matt Hickey: Nothing like the real thing.

Svetlana Olbina: Real reality. So I feel it should be maybe somewhere in between, in terms of we can use it as a tool to help us make some decisions. Whether we'll live in the virtual world and not in real houses, I don't know how we'll mentally react to this technology.

Matt Hickey: Yeah, that's interesting, isn't it?

Svetlana Olbina: I don't know.

Matt Hickey: Something straight out of a sci-fi movie in some ways.

Avery Martin: Absolutely.

Svetlana Olbina: Yeah, that's interesting. That will solve our housing problem here in Colorado, maybe.

Avery Martin: Everyone will just live in the metaverse then.

Matt Hickey: Well, of course I'm really curious to get some sense of how you got interested in this. Construction at large, and then the VR/AR story. And here's where we walk the calendar back to talk about your educational journey, family influences, and ultimately we'll come back to Colorado State University. We'll take a little journey.

Svetlana Olbina: I'll try to be short because been long life. But, I grew up in small town in Serbia that was pretty cultured. My both grandparents, I tell this story to my students, my both grandparents on mom's and dad's side were illiterate except one of them. So they were farmers, they couldn't read and write. And my parents were those that make the big change in their lives moving from the farm to the city. They were able to get their associate degrees at that time. So they didn't have enough money to go to the college, but they had, what I would say, white collar jobs. My dad was a teacher, my mom social worker. So we grew up in very loving family, very supportive.

When I was in high school, my parents just asked me, what do you want to study? There was no question whether I will go to college or not. But I am glad that I had that support. I decided to study architecture. Nobody in my family was in that field or in construction. And I still consider myself first generation student. And they put us through college, my sister and I, with lot of sacrificing. But again, they were always very supportive of our education.

So I ended up becoming an architect. However, my jobs were always on the construction side. I worked in construction for about six years after I finished my undergrad. And then there was a recession similar to what we had here maybe 10, 15 years ago. And there was not much work. And I'm like, "I'm not learning much anymore in industry. I'm going to go now and teach." And position open up in my school of architecture, in architectural technologies department.

Matt Hickey: And this is in Belgrade, right?

Svetlana Olbina: That was in Belgrade, yeah. I was teaching there for about six years. And it was great job, however, we had political problems in the region, and I decided to look for a better life. Like many people come to United States for big opportunities. So I moved here in 2000, I was at Virginia Tech doing my PhD-

Avery Martin: Another hokey.

Svetlana Olbina: In construction. Building construction at that time, which is like construction management here. So that's how I decided to go from architecture to construction. Here in States, I work for Pulte Homes in their construction services.

And because of my background, I'm always teaching something related to graphic communications. I drew for a very long time in my life in AutoCAD. And then I was teaching at the University of Florida, very similar class that I teach here, graphic communications. I believe about 12, 13 years ago, we shifted to 3D modeling Revit tool. And that's how I started looking more also in research in that area. Because a lot of graduate students were interested in what we call today building information modeling.

And when I moved to Colorado State in 2015, with John Elliott we were thinking about what else can we do. And VR came across as a new technology. We are always looking for what's new and how we can integrate it in classes.

Matt Hickey: That's neat. I have to ask you if you have a sense of what inspired that initial interest in architecture. What was it, something from your surroundings, buildings that you appreciated or...?

Svetlana Olbina: I really don't... You know when you're 15, 16, you have to make a decision at that point of time, you can't transfer easily from one major to another. So I think I made decision at the age of 16. I was in high school for building sciences. I wanted to go to math, but there was no math that year as a track. So I'm like, "I'm going to do building science." And I really liked it. I like to draw, I like materials, I like buildings. So that's how I, I don't know, I don't know if it was really embedded in me originally, but I liked it and decided to go into that direction.

Matt Hickey: Do you find yourself ever missing the classical architecture from Eastern Europe? Or is that just, "Nope."

Svetlana Olbina: No, I also tell that to my students. To be a famous architect like Frank Gehry, it's one out of hundred. There were hundred of us in class in Belgrade. It's a relatively small country, Serbia. And I realize I'm much better in structural design, and materials and methods, and I'm going to be more accomplished in that area. So I decided to go in that direction.

Matt Hickey: Good for you.

Svetlana Olbina: Yeah. So I don't miss it. I still love architecture. I love visiting buildings. I have that love for beauty, but I never regretted it.

Matt Hickey: Are you able to get back home on occasion to see family?

Svetlana Olbina: Not very often. I have a lot of extended family there. My sister lives here, our parents passed away. So I'm mostly here. I should go more often, I think.

Matt Hickey: Indeed. Maybe we'll get some new listeners in Belgrade.

Avery Martin: You never know.

Svetlana Olbina: Yeah, maybe, I'll share with my friends.

Matt Hickey: Now tell me a little bit more about the move to the States. That is not hopping in a car and driving across state lines or anything, it's a much bigger move than I think most of us are accustomed to thinking about. So talk a little bit more about, again, what prompted that and what was it like?

Svetlana Olbina: I think I was very patient building my career over the, I think, period of 10 years, or 12 years almost. And I realized I need to... I was doing my masters while I was working, I was a lecturer there, and I realized I need to do PhD anyways. And since things were not getting better there, it was just getting worse and worse, and economy was pretty bad. My sister was already United States. And I learned English in school since I was I think age nine. So I'm like, "I speak English so I can go to Australia, UK or US." And US was really, I think the least complicated country to come to do PhD. And funding, I got full funding from Virginia Tech. So I think I was very fortunate to get that opportunity when I came to Virginia Tech. I didn't know it's a very good university, I just hear about Ivy League schools. But then construction management is one of the top in the country, so I was really fortunate.

Matt Hickey: Beautiful downtown Blacksburg.

Svetlana Olbina: Yeah, Blacksburg. Beautiful place, nice people.

Matt Hickey: And a pretty campus too, I always thought.

Svetlana Olbina: Yeah, beautiful campus. I lived on campus actually, that was the first time in my life. I was in my thirties already. And after working 10, 12 years, I'm like, "Okay, I'm going to do my PhD." So it was pretty tough first week because I had to go to classes, and do homework, and I missed my family back at home. But I know there was no way back, so just going forward.

Matt Hickey: Yeah. And faculty mentors at Virginia Tech?

Svetlana Olbina: Yeah, I had a few faculty that really... I still am in touch with my main advisor, Ivan Bellow, who is retired now. He helped me a lot professionally, and as any other kind of support. Great rapport with students. He's my mentor still, I would say. And then I worked with Walid Thabet, another faculty, he was on my committee. Ron [inaudible 00:14:13], he lives in Australia, and we are still in touch.

Matt Hickey: That's great.

Svetlana Olbina: That's been great, yeah.

Matt Hickey: And the transition from Virginia Tech was to industry or straight here?

Svetlana Olbina: So from Virginia, I was working in summers for Pulte Homes in Washington DC area. And I loved the company, and they always offer me job. But I'm doing PhD, I want to go and teach. So I got job at University of Florida. It's Rinker School of Construction Management, very similar to our program here at Colorado State. And I was there for about 11 years, and then it was time to change and I moved to Colorado.

Matt Hickey: And this was a standard, you saw the job description come across some listserv, or somebody in your network shared it with you?

Svetlana Olbina: I knew some people from here, but it was more, I was just looking for opportunity. And that year when I applied, I applied only to this program. There are a couple of reasons why I came to this program. First, it's, again, one of the top programs in the country. Students are amazing. And also I like Fort Collins. For me, it's also that personal side that I need to live in the city that I like. So it was, I think, in both ways really great.

Matt Hickey: Fort Collins grows on you rapidly, doesn't it?

Avery Martin: Yes, indeed.

Svetlana Olbina: Yeah.

Matt Hickey: [inaudible 00:15:29] town for sure. So we've managed to coax you into coming to CSU. Now you said, you mentioned John Elliott. Were you hired at the same time?

Svetlana Olbina: No, John was hired I believe two years before me.

Matt Hickey: Okay. But he was a connection?

Svetlana Olbina: No, no. Because we were teaching the same class... Sometimes it comes with teaching. It's not like we had big plan. But it was teaching, and we were teaching building information modeling, this couple of software. Virtual reality was pretty new at that time. And it was coincidence, Alan Rudolph sent an email. And I didn't know he's vice-president for research, I responded to email. Because I'm like, "I can't make it to this meeting." And then we spoke on the phone because I couldn't make that meeting, and I realized, "Oh, he's into virtual reality too." Very supportive, creating these different hubs around campus. So it was kind of coincidence too.

Matt Hickey: That's neat. Sometimes it's better not to pay attention to who am I emailing here and just go ahead and ask the question. So that's great.

Avery Martin: Yeah, why not? That's awesome.

Svetlana Olbina: But yeah, John and I collaborated on a study in the class, and then some other research related to building information modeling. Scott Glick and I did VR activity in materials and methods, and just published the paper on that. Yeah, I'm trying to collaborate with colleagues in the department, and we are looking some other collaborations outside of the department at CSU.

Matt Hickey: Tell me more about that. You're anticipating my next question about pursuing these big questions and problems. What are things you're currently doing slash looking forward to in terms of...?

Svetlana Olbina: I was again fortunate to get funding from Engineering Information Foundation that funds IT based research. And we used that funding to integrate virtual and augmented reality into construction materials and methods. But then, this is more really related to education. It could translate to industry tool. But now I'm looking with the colleague, Marie Vans and Jill Zarestky from our college, we are trying to form the team and look at use of these technologies for training of the aging workforce or future workforce. And then also some work could be done with the robots on construction sites. It's pretty new, it's still in research phase. Industry is not using it yet, but that's what this team is trying to figure out. And we are going to apply for NSF, we'll see. That's our goal.

Matt Hickey: Good for you. Now again, you've sparked my interest. Tell me more about the future of robotic construction.

Svetlana Olbina: Robotic is pretty common in car and plane industry, auto industry. But then buildings are very unique. It's not repetitive like you're building Camry or, I don't know, some other car. But some task that are repetitive, and at the moment don't require intelligence of the robots, that they could be controlled remotely or not in real time, they could do. I'm always thinking about robot on the high rise building welding steel beam and column.

Matt Hickey: That's exactly what I was thinking. Because there's a safety issue [inaudible 00:18:43].

Avery Martin: Exactly.

Svetlana Olbina: It's a safety issue, yeah. So this is one example. Or underwater. So some areas that are dangerous and not easily accessible, and that are repetitive task. Because people get injured doing repetitively certain movements.

Avery Martin: Natural fatigue of... Yeah.

Svetlana Olbina: So I do research not only in VR/AR, but how we apply that to safety of construction workers or sustainable buildings. That's another big area that I was working on before I moved to VR/AR.

Matt Hickey: This brings so many things to mind. I started thinking of these old black and white photos of workers hanging out on the skeleton of a building, they're 80 stories in the air or something along these lines. But the underwater thing makes me think of saturation divers who have to spend days at a time living in a little bell, and one hangs out in the bell and two are out working on some oil rig in the North Sea or something along those lines, right? It's an environment where for many reasons robotic workers, for lack of a better word, would have a human safety factor that's significant. Interesting.

Svetlana Olbina: So we'll see. That's our dream at the moment.

Avery Martin: Looking forward to it.

Matt Hickey: Now tell us about research groups, and these may be students, again, these colleagues. But when you think about what we're planning or what we're doing, what does a day in the life of Svetlana look like from a discovery standpoint?

Svetlana Olbina: I think one thing at a time, and prioritizing and catching up. But it is I think number one priority, still teaching, making sure we are doing really something that our department takes pride of. So making sure I am delivering good learning experience to the students. And usually it's a couple of different classes a semester. And then I work with grad students. We have a small grad program, but usually, at the moment I have one masters and one PhD students brand new. They still don't know where they're going with their research.

Matt Hickey: Yeah, that's always fun.

Svetlana Olbina: So that's exciting. I advise women in construction club, which grew a lot during COVID, which is interesting. So we are second largest club in the program after AGC, which is American General Contractors. And 25% of our members were men last spring, so that's interesting. Because we want male students to support female students even here in school, and then translate that to industry. I coach virtual design and construction competition team that competes in arena and they've been pretty successful. We're just building team now, so we'll see how that goes.

I mentioned I have several service commitments. In the department, I was just elected by my colleagues to represent tenure and tenure track faculty on the executive committee of the department. I am responsible for assessment in our program. So we just submitted self-study this spring around going through accreditation this academic year. I serve on grad committee. And also I like to be involved in faculty governance, so at the moment I represent our college in the committee of faculty governance of faculty council. I think that's pretty much it.

Matt Hickey: If that's pretty much it [inaudible 00:22:13].

Svetlana Olbina: My everyday.

Matt Hickey: We were chatting before we came on air about the way our effort distribution is captured ever so loosely for annual reports or whatever it might be. And your 100% sounds like it's a large and varied 100%.

Tell me a little bit, if you don't mind, about what you enjoy to do when you're not working so hard on campus.

Svetlana Olbina: I make time, I make free time. I was just saying this weekend was beautiful weather and I should have maybe catch up on work, but I'm like, "Weather is not going to be beautiful like this forever." So I went for a bike ride on both days. I like to ride the bicycle. My hometown is very biking oriented, so that was really great to see in Fort Collins. And I'm pretty recreational about that, not competitive. I enjoy the scenery and being on the bicycle.

And another passion that I have is dancing. I started taking ballroom dancing classes in 2005, so it's been 17 years. And then I moved to Fort Collins, there's not much ballroom dancing, but I found [inaudible 00:23:17] swing dancing. So I take classes, it's very structured. It was before COVID a couple of times a week, now it's more like once a week. But that's exercise and my social life, de-stress. It has multiple benefits. I do yoga too. I like to cook. And my sister is in San Diego, so I go to visit whenever we can to see her and her family. My niece and nephew.

Matt Hickey: Well balanced.

Svetlana Olbina: Yeah. Well, I don't know, I'm trying. I wish there's more time in 24 hours for everything.

Matt Hickey: When you think about the influence you have on your students and trainees, what are some of the lessons you hope that they take forward? Not just from construction management program writ large, but from you?

Svetlana Olbina: From me? I teach very technical class, AutoCAD and Revit software. But I always tell my students, I teach you also how to, or I help you learn how to be professional. So I want them to show up on time, do their work, ask questions, build integrity, all these more soft people skills that industries actually are looking for rather than just technical knowledge that they will learn anyways. I'm trying to make that impact, being a positive role model. I show up in class 15 minutes before, and I set up, and I chat with them, and then we are ready to go.

Matt Hickey: This is the education of the whole person, right?

Svetlana Olbina: More yeah, holistic rather than... And then to encourage them to learn. It's one piece of software that we learn, but I always tell them, learn how to learn. Don't memorize this stuff. It's going to be different software when you go out there. Like any other class. So just to encourage them to be independent. I always tell them, "I'm not going to spoon feed you. You need to figure it out on your own. And I want you to be problem solvers and critical thinkers." So that's what I'm hoping, to help them get there. Rather than just help them go through one class and get the grades.

Matt Hickey: I think I would've enjoyed being a student of yours.

Svetlana Olbina: I don't know, it's not easy, but...

Matt Hickey: No, that's okay. That's okay.

Avery Martin: Hey, sometime those are the best classes.

Svetlana Olbina: We make it together [inaudible 00:25:42]. I'm happy at the end when I see they learn.

Matt Hickey: That's great. So I want you to exercise your imagination a little bit. You're sitting down with your younger self, you as an undergraduate. What advice would you give your undergraduate self, given the lessons you've learned over the last couple of years?

Svetlana Olbina: Yeah, I tell this to my students too. Just be open to opportunities that life bring because, I don't know, when I was in my teenage years, I could never imagine that I would be living in the United States being professor at Colorado State, or any university. You never know, just be open. I don't have really 5, 10 year plans, it's usually like one year plan. And then if I make decision about something, then it takes one year to bring you to the next level usually.

Matt Hickey: That's great.

Svetlana Olbina: That's my advice to myself or my students, to be open.

Matt Hickey: Excellent. We have a couple questions about this environment we find ourselves in. It's going to be a layered question. The first part of this is related to CSU, we hold out this fact with great pride that we're a land-grant institution. It's not just lip service, it's not just language on a website. We take it seriously, and been struck by that for 26 years, how seriously embedded into our institutional DNA that notion is. Tell us a little bit about your perspective on working at a land-grant.

Svetlana Olbina: When I moved here from another country, I didn't know what it means. I think Virginia Tech is also land-grant, right?

Matt Hickey: It is.

Svetlana Olbina: I really like connection with the community and respect for indigenous people here, and serving not only our students but serving broader community. So in our program we do have service component, and we do go out to the community to help build the things. And I think that's something that I feel is very rewarding.

Matt Hickey: It's pretty neat. Yeah, I like it. That's a great environment to do it in, beautiful state.

Svetlana Olbina: Yeah, it is.

Avery Martin: Absolutely.

Matt Hickey: Embedded within this massive thing we call CSU is this College of Health and Human Sciences. I'm interested in your reflections on being a faculty member as part of the CHHS family and community.

Svetlana Olbina: I like meeting other people, that's one of the reasons I'm always at these university committees, so I can meet people from the campus and see what they're doing. But for our college, I like to attend our research day, which is recent. But even before that, not that recent, but when Dr. Youngblade became a dean, I was always impressed by the diversity of research that we were doing. And I personally, as a person, not as a faculty, also have interest in these areas. So I feel it's really interesting how we integrate very different disciplines and how we could collaborate. I see myself working with faculty from design and merchandising, and from education and occupational therapy. And I assume health and exercise science. Because if we talk about this technology that we are using, virtual reality, augmented reality, it could apply to any discipline, but also how we build buildings that will accommodate different people and different-

Matt Hickey: Healthy living, right?

Svetlana Olbina: Yeah, exactly. I have personal interest in human nutrition, it's just my personal [inaudible 00:29:23], but I think it's also very, very valuable. Whatever we do in our college, it makes big impact on community.

Matt Hickey: There's always something interesting going on, isn't there.

Svetlana Olbina: Yeah.

Avery Martin: Absolutely. And that word impact that you've mentioned a few times throughout the conversation, it is great because that's exactly what we do in this college. I'm curious, I know that you are working a lot in the future, a lot of the things that you interact with and the technology is really on the cutting edge. But have you seen your research, or even the research of your colleagues and your students, make an impact in the lives of others?

Svetlana Olbina: I think the major impact will be in education, helping students learn better. Because they do learn better by looking at images versus just text. And virtual reality is even the next level. But more importantly, I think, for industry, because these students will be going out to the real world and helping companies make transition. We were talking about that earlier today, how much industry uses this technology. They're very busy. They don't have time to spend, I don't know, 80 hours learning some technology or tools. I think our students will make also change when they start working for them.

Matt Hickey: They can bring that integrity piece that you've modeled for them, right? So they are technically competent, and competent as part of a team.

Svetlana Olbina: That too, yeah.

Avery Martin: That's great. That's awesome.

Matt Hickey: Svetlana, I want to thank you on behalf of the college. We always look forward to these. I was certainly looking forward to today. We learned a little bit more about you. I hope you enjoyed the conversation.

Svetlana Olbina: Thank you. I did, I did enjoy it very much. I appreciate you having me.

Matt Hickey: And that's the show. Thank you for listening to another episode of Health and Human Science Matters. If you want to learn more about our College of Health and Human Sciences, go to www.chhs.colostate.edu.

Avery Martin: And if you haven't already, add Health and Human Science Matters to your library of podcasts, give us a follow, and definitely give us a rating.

Matt Hickey: I think we're worth at least five stars.

Avery Martin: Bare minimum. We would be that. We would definitely be that.