

00:00 **OK, so I'm going to start off with some kind of getting-to-know-you questions, and then ask you about collaborating on projects, and then ask you a little bit about technology that you use to collaborate. So what kind of research do you do?**
All of my research is about how to make safety management.
OK.

00:27 So I did some validation studies in the lab or in the plant like beef packing plant. And recently my project is about using metagenomics next generation sequencing for pathogen detection.
OK, so what is the goal of your research?
We try to help the industry, and also provide safety products for the public.
OK, so what is your general role in your research?
My role?

00:56 **What specifically do you do you?**
From experimental design, simple connection to analysis and writing the manuscript.
OK, so how many how many researchers are on your current project, the big one?
Yeah, well I guess more than we have a group of people doing that because it's a big project that we have smaller ones, that big ones.

01:27 So like the total number involved in the big one... it's more than 10, 15.
Is that your largest project?
Yes.
OK. And then what's the size of your smallest, the smallest project you've ever worked on?
Smallest one is just like two people.
So and then on average, like in general, an average. How many people are on a project that you're working on?

01:57 Because there are a lot of projects involved. Neat teamwork. So I say 10.
OK, so are there any disadvantages or challenges to working on smaller projects?
A smaller number of people, you know, just have to do more work by a limited number of people.
Are there any benefits?

02:25 Yeah, it's better. It's easier to manage as a project.
OK, can you elaborate on that a little bit?
If you don't have to prove it's easy to arrange to schedule things in, we need to do it. We can do it now. But if we have more people, then you need to ask everyone's schedule.
Are there any challenges to working on projects with a lot of researchers?

02:53 Yeah, first of all, the schedule thing, and also if that more people get involved, then I guess people share less responsibilities sometimes.
OK, and can that cause issues?
Not really for the project, but to be honest, I sometimes feel like you need to write a manuscript, then there is a problem on the authorship thing.

03:25 **I guess that's an issue. OK, are there any benefits to working on larger projects?**
Sometimes, like the work itself requires a lot of people to get involved because it's just a large amount of work that needs to be done. So basically two or three people just cannot finish it.

03:44 **We need to work about what percentage of your projects have involved at least one collaborator who is another institution, another institution somewhere else.**

Then I probably have six, seven or eight.

04:14 **All right. Can you give me, like, a rough percentage?**

About 50 percent?

OK, so why did you choose to work with those collaborators who are not located here?

Because they are like technical support. OK, so we need the lab space in their lab technicians. OK, and I think that's the most important thing.

OK, so are they providing like some sort of service you can't get here?

04:45 Yes.

OK, so moving down here. Are there any disadvantages or challenges to working on projects where some of your collaborators are not at the same place as you?

Yeah, course, if there are a lot of people get involved in one project and if there are some communication issues and then you just cannot finish or go because we have that problem before.

05:13 **If you ever had a project fail because of collaboration issues, what happened?**

So basically there are three groups get involved in that project. So our group in the lab and also the plant. So like most often we communicate with the lab. So what they need to do, we tell them that and that time also that and tell them something that what they wanted them to do in the lab. Just get confused, OK? And then we just didn't get our results back.

05:43 **OK, so what was the ultimate outcome of that project? Did it get picked up again or you had to redo it?**

OK.

OK, so are there any benefits to working on projects where your collaborators are distributed, not located in the same place as you?

06:15 Yes, like, because sometimes you need to travel outside of the state. All of those labs are very close to where we need to work on the project.

So I guess it is OK to them being not where you are.

Yeah, not here. That's where we have the project.

Oh, OK. OK. And then are there any disadvantages or challenges or differences associated with working on projects where all of your collaborators are in the same place as you do?

06:47 I don't think about that.

OK, and then what about benefits?

Easy to communicate because we don't need to write, email or call. It's just like talk to people and what you need to do.

OK, so what is the benefit of speaking face-to-face versus using emails or phone calls?

07:18 If you speak face to face, sometimes people will know your mood, I guess, and they will know how serious you want them to do something. But if you just do email, I guess maybe sometimes people just ignore the emails.

OK, what about phone calls?

We don't do a lot of phone calls.

Why not?

07:43 Because either we can talk to others or because if we'll work with someone that out of state might have time difference and don't know what their schedules are, it's just better to give them email rather than call them and interrupt what they have doing.

OK, so when you are working, communicating with the people who aren't, aren't you primarily use email?

Yes.

Do you use anything else?

08:11 No, I think primarily using the email. There is another reason we use email because if you call them, there is no evidence that you call them. Everything you talk about is just a phone call and no long recorded by email them. Then we will have some record. OK, so if something get wrong after that, then you will see, hey, here's an email I've already emailed you at least everything here.

08:42 And if you've made some mistake, that's your fault. OK, so that's why I would choose using email.

OK, OK, interesting. So just real quick, have you ever used anything like Skype or for research? Collaboration software?

No, I have a conference call.

09:11 **OK, so how well does that work? How often?**

Not very often.

OK, why not?

Because we just don't need it.

OK, so when do you use a conference call?

Others like they are more than two groups need to talk in the same time to discuss something and we'll just use conference call.

09:39 OK, now Skype, I really don't think we use in Skype. I only saw that one time and some other people's visitation, but I really don't use it.

OK, so about what percentage of your project projects involve collaborators who are in a different field than yours?

Oh, my current one. I would say twenty, twenty four.

10:09 **So are there any disadvantages or challenges to working on projects where your collaborators are not in the same field?**

Yes, because everyone has different background. So something for me, maybe it's just basic thing for someone else. They may just not understand it. OK, and I guess every time when we talk about something, we need to provide the background for everyone.

10:32 OK, and that's the issue for me too, because I have collaboration with computer scientists and they know a lot of coding stuff, but we do not have them. So let's talk about something. They think it's really simple, but just have no idea what they're talking about.

OK, OK. Are there any benefits?

Yes, because how people from different research fields will have a lot of ideas which will really push what you were thinking.

11:02 **OK, are there any disadvantages to working on projects where everybody's in your field or challenges?**

No.

OK, what about benefits?

Everyone is on the same page. OK, so it's easier to have something done. Maybe.

11:29 **OK, so how frequently do you meet with your collaborators when you're working on a project in general?**

Weekly, weekly. Every week.

OK, does that change at all with the size of the group or location of your collaborators or the backgrounds of the people that you're working with?

12:01 If for current project to know about past projects, a different product may have two different groups, **Yeah, so like some of these questions, like I ask, I'm asking everybody the same questions. Right?**

12:23 Right.

OK, what do you think has the biggest impact on the outcome of the project, the size of the group, the distribution of the people where they're located or their backgrounds? I know this kind of outcome is kind of a like a broad question, but like, I don't know the quality of the work or how well subjectively the project goes if you have a larger group.

13:07 Well, I guess from the original manuscript, perceptive like that, the more things we can talk about because everyone can provide their ideas. And if you just have your own group, you probably will not have that many good ideas.

13:27 **OK, and just to make sure that we're talking you the same question, what do you think has the biggest impact on the outcome, the size, the location of the people who are on the group or their backgrounds?**

I think their backgrounds. Their backgrounds, for sure.

OK, so you've mentioned we've talked a lot about communicating with your collaborators and you've also mentioned writing papers. Are there any other tasks or things that you do when you're doing your research that involve your collaborators or involve other people, like sample collections? What about your analysis? Or sharing data with people? Is there anything else and also like making presentations, posters?

14:25 OK. OK, so I guess starting with sample collection, you're working with other people.

Yes.

DNA tools or techniques to do that, using technology.

Technology to do the simple connections?

Yeah.

Or to like that whole process? I don't I don't know anything about sample collection because I'm a computer scientist.

So it's just basic stuff like the vaccine. So it's not really like new technologies.

14:57 **OK, do you have like a database or anything where you're keeping a record of what for sample collection?**

No, because we need to write down what we did. OK, but for data analysis, we do have silver.

So when you're writing down what you did for sample collection, what are you writing it on paper or manuscripts? And also, we need to talk about that for the presentation posters.

15:27 **OK, so how do you share that information with your collaborators, with them?**

Most of them just ask them to help us to collect the samples.

OK, so and then when you're doing the analysis, what aspects of it are involving other people?

So you have both informatics part and the statistical parts. OK, so first of all, we need to ask help from professors at each year.

15:59 **Sorry to interrupt you—in those departments, how do you choose who to contact?**

Because we took their class so we know them. OK, and also like from computer science, that professor just get involved in all of our projects.

OK. Has there ever been a time where you needed to contact somebody to help on a project that you didn't already know?

Mm. Yeah. Yeah.

How did that, how did you pick that person?

16:30 So like because we to have a lot of statistical analysis in their department over out and just like email them and make appointments. OK, so if we know someone will just say can we make a formal with Dr X. If not, if they are not available then is it just random or someone.

16:55 **OK, great. So you're for sure contacting an expert in bioinformatics and statistics then what?**

Yeah, most of time is like that and then it's like the communication between researchers.

Is your communication changing? Is it different when you're talking to, say, <redacted> or <redacted> versus when you're talking to the experts and stats?

Yeah, because it's a different question.

17:25 **OK, do you like use email more or face to face more?**

Because basically it's like one hour meeting.

OK, ok. OK, so you met with them, you're communicating with them. And then what?

Come back from statistics department. They will email us back with their solutions. OK, and from <redacted> in part we will just listen to her advices.

17:58 **OK, yeah. So once you've done that, do you share your data back with those experts who <redacted> is and that group and we have that meeting?**

So basically when I should have the data to everyone in that meeting, I also share my data.

OK, so how do you share that data or just have like figures or charts and present on the meeting?

18:28 **OK, so do you do you put them out or use PowerPoint or?**

Yeah, sometimes print them off, sometimes just use a PowerPoint, OK.

When would you use PowerPoint over printing them out or vice versa?

If it's something like people can easily understand so visually, I will just give them printouts, copies, if something I really need to talk about, I will just use presentation.

18:59 **OK, why PowerPoint specifically over other digital ways? And if it's a you know, like some people make Adobe PDF or use online presentation or a— excuse me, an open source version is CarPoint.**

I guess that's all I know how to do.

OK. Have you ever had any issues using PowerPoint?

No.

19:27 **OK, yes. OK, so do you ever share raw data with your collaborators?**

Yes.

OK, so how do you do that?

On the server, on the server, <redacted>, it is really huge.

OK, right, like terabytes or...?

Yeah, yeah.

19:56 **Have you ever had any issues sharing your data over the server?**

No, I guess sometimes we just forget gave permission to them, and then, OK, that just cannot open it. OK, I guess that's only one.

What happens then?

And then they'll just email me and then I'll just give them permission. OK, click.

OK, have you ever used anything like Dropbox?

Yes.

OK, when do you use Dropbox to use Dropbox when you use Dropbox over putting things on the server?

20:28 So Dropbox is more like best of results. Part of how the raw data routed is really huge that feel like without real results from the analysis we use Dropbox to do with everyone.

So why do you put stuff on Dropbox that somehow is better on Dropbox instead of putting it on the server?

Because we do have some members, they do not have access to the server. OK, so we just have <redacted> so we can share that with everyone in that group.

20:54 **Have you ever had any issues with using Dropbox and collaborating?**

OK, so do you use Dropbox with all of the people that you're collaborating with or just with some?

I guess sound that has something to do with a specific project.

21:24 **OK. And then you mentioned that sometimes your collaborators don't have access to the server.**

Yes.

Elaborate on that.

Mm hmm. So. So the ones that have access to the server are the ones will do the analysis. OK, so they are a bunch of other people that really do not do an analysis like those professors. OK, so now we just share them with data.

21:54 **OK. Do you ever share that kind of share data over email?**

Yeah.

OK, so when do you use email instead of using Dropbox or the server?

So if the founder of data, we need to show them we're just using Dropbox, if I have a very specific one or two results I want to share with them or just e-mail them with the advantage of doing that fast, and that will really draw their attention to Dropbox.

22:24 Everyone wonders if they don't want to look in it, then they will just not ignore it. But if you send them email, they will know that's something you want them to do right now.

OK, as using email to send data ever like had any issues or?

No.

OK, so you've also mentioned writing papers.

You describe like the word closure that we write to pay for it and then send everyone back to it and look for their response.

23:01 **OK, so just like one person writes a draft, or more than one person is writing the initial draft?**

Depends on the project. Sometimes, like everyone has their own part, but for some projects, just one person.

OK, so what are you using to write the paper?

Word.

OK, why Word?

That's what I have on my computer.

23:28 **So when you're working with in the case where you have other people who each have their own part of the paper to write, how is that all managed?**

So still, there will be one person that is in charge of that project, but just some other people to write their own parts so that one person needs to write the draft and everyone just and their piece to that person and that person will add everything to that draft.

24:01 **Are there any difficulties with that?**

We're just need to finish that time.

OK, what do you do if someone's not finishing on time?

I haven't had that problem before.

OK, that's great. That's good. So how are these pieces being sent to the person who's writing the initial draft?

By email, the email.

OK, so then once that that draft is made, it gets sent out to the other people in the group. So how is it being sent out?

24:36 Email, an email send out to everyone at once.

OK, how are there any issues with that?

Yeah. So because everyone was in there responding at different times, so maybe you just correct something from this person and then you get another person's response based on your original one.

25:05 So you need to look up everything from the beginning. And also sometimes they may have the same additions on the same place and now you just don't know which one you should use.

OK, how do you resolve that?

Just talk to go to talk to them, say, hey, which one do you think is better?

OK. OK, so you're talking to them in person. What is the way you are doing that?

25:33 **So sending an email because talk is the fastest way to get the answer farther than anything else.**

What about when you were when you have that kind of an issue with a collaborator who isn't here and have to use email?

Well, most of time would talk about those problems with our advisor.

OK, so I kind of have a few final questions for you.

26:06 **If you could create a hypothetical future technology, you don't have to limit it to what you think we can or can't do that would make collaborating easier on your research projects. What would it be? What would it do?**

26:45 It's hard to think about that... So kind of looking on record, both their voice in their faces, I guess, the images. When they leave messages.

OK, anything else?

27:06 And if something's really, really important, these and other people emails like there are some alarms that will draw people's attention to those things.

OK, so what is your current position or PhD?

My PhD.

OK, you just finished in October?

Oh, well, pretty much you know from there.

27:33 **So and then you're in animal sciences?**

Yes.