

## Angela Spirou on being motivated to implement new technologies in rehabilitation research

Life at Kessler Foundation - Ep 1

[Listen to the podcast here.](#)

- ANGELA SPIROU: 00:09 [music] Getting to know these participants, they give me a new outlook on life. They give me that motivation I need in order to push forward and keep modernizing and keep implementing new technologies because that's what we're here for.
- JOAN BANKS-SMITH: 00:24 That was Angela Spirou, research data coordinator from our Center for Traumatic Brain Injury Research. And this is another episode of Life at Kessler Foundation. I'm your host, Joan Banks-Smith, creative producer here at the Foundation and editor and producer of this podcast. Welcome to the show, Angela.
- SPIROU: 00:43 Thanks, Jody. I'm happy to be here.
- BANKS-SMITH: 00:45 How long have you been with the Foundation?
- SPIROU: 00:47 For that answer, I would have to take into consideration my internship. I did start off as an intern, and that was January 2015. So all said, that would be six and a half years almost. We've known each other for a while now, Jody.
- BANKS-SMITH: 01:02 Yeah. It's always been enjoyable working with you.
- SPIROU: 01:05 Oh, thank you. You too.
- BANKS-SMITH: 01:06 Thanks. So you started as an intern?
- SPIROU: 01:09 Mm-hmm.
- BANKS-SMITH: 01:10 Can you tell us why you decided to come to Kessler Foundation? And did working here as an intern changed the trajectory of your career path?
- SPIROU: 01:21 My last job, I worked at more of a clinical setting, and I always wanted to go more into a PhD program. And because it is a PhD program, I did need a little more research background and research experience. So when my internship was up, I was offered a position at Kessler to be a research assistant and kind of jumped on board so that I can pump up my CV a little bit in order to start applying for that clinical PhD spot.
- BANKS-SMITH: 01:52 Are you currently in a PhD program?
- SPIROU: 01:54 I am not. Life definitely has some twists and turns. Actually, after becoming a research assistant, I was primarily on a lot of studies that required MRIs, and that was also very data heavy and programming heavy. So once I was finished with my masters, I ended up getting into more of a graduate's data science program, which is why I am now the research data coordinator with a lot of programming. So I kind of changed my career path, and that change in career path really was inspired due to the work I do here at Kessler.
- BANKS-SMITH: 02:30 I know in the type of work that I do, one of the big areas today is statistics, infographics. Numbers are really important for what we do here at the Foundation, looking at the different MRIs, the different studies, collecting all that data, and then analyzing it. As part of that, do you find yourself often being challenged on the job?

## Angela Spirou on being motivated to implement new technologies in rehabilitation research

### Life at Kessler Foundation - Ep 1

- SPIROU: 02:53** With my graduate studies in data science, I ended up learning a lot of different languages and a lot of different programs and database knowledge. And because of that, I was then placed on different projects that I never would have been placed on before. So you want to talk about challenging? I never worked with, let's say, eye tracking before. And for one participant, we're talking a half a million variables of data. In order to clean that data and to analyze it, we definitely need to use a language that's called Python. So I would go from programming MRI studies and then to jumping into Python scripting in order to clean eye tracking data, so definitely challenged but in a great way where my skills are just solidifying because of the challenges that Kessler offers me.
- BANKS-SMITH: 03:38** Now, you had mentioned that you collect data for eye tracking. Can you tell our listeners just a little glimpse of what type of work that would be and what that encompasses as part of your study?
- SPIROU: 03:49** When it comes to eye tracking, if it's just eye tracking itself, it's the cleaning of the data afterwards. But when it comes to eye tracking and the MRI, that's what I have more hands on experience with. And pretty much, what would happen is we would put an individual or a participant within the MRI, and they would see a screen through a mirror. So they would be looking above at a mirror that would reflect the screen behind the MRI. And we would also set up the eye tracker behind the MRI as well. And we would track how they look at how dots are moving on the screen and to see if they're ever able to learn if there is a pattern and then see if they start anticipating where that pattern is. So I can see that with their eye tracking data. But then on the back end, we're talking about individuals with spinal cord injury. So we're taking scans not only of their brain but also of their spinal cord. And we're trying to figure out now if there is learning being done in the spinal cord. The work that we're doing at Kessler, it's unbelievable. We're now analyzing data of where they're looking, if it's anticipatory through that eye tracking data. And is that learning being taking place in the brain? Is it being taking place in the spinal cord? Is it both? How does the injury affect their eye tracking, spinal cord, or brain? Jody, it's phenomenal.
- BANKS-SMITH: 05:14** I've actually had the opportunity to use the eye tracker. And yes, it is phenomenal. What's really nice is that particular piece of equipment now is portable, so it can be used in various locations. You're scanning the spine and the brain and using the eye tracker. Does that also encompass cognition and processing speed?
- SPIROU: 05:34** There are different paradigms or different experiments that look at processing speed. I would say for the one that I was just talking about, we do take into account processing speed through their reaction time because if they're anticipating where that dot's going to go next, what the next area they're supposed to look at is, then their processing speed is faster. Right? Their reaction time will be shorter. So yeah, we definitely look at cognition and processing speed without a doubt.
- BANKS-SMITH: 06:02** Well, Angela, it sounds like you're really passionate about the work that you do here at the Foundation. What would you say is your favorite part of your job?

## Angela Spirou on being motivated to implement new technologies in rehabilitation research

### Life at Kessler Foundation - Ep 1

- SPIROU: 06:10 It's more data driven. And I do love supervising and managing these new research assistants and teaching them. My favorite part, without a doubt, are the research participants. The participants are who motivate me to be this excited about my work. When I was a research assistant and I was working with TBI and MS at the time-- and now we work with more populations. But one participant always stood out to me, and she was a woman who was so intelligent. And she finished all of her work, and she was actually a veterinarian surgeon, and she was just in her 40s. And imagine going through all that schooling, and then you open up your own hospital. And you're top of your game, and you have doctors that work under you, and then you get diagnosed with MS. And within three years, you're wheelchair bound, and you can't even show people how to do the work anymore, let alone practice yourself. And you're only in your 40s. So working with participants who have just diagnoses that affected them later on in life - it's not like they were born with these diagnoses - it really puts everything into perspective, Jody, and it just pushes me to do this work because one day, this work may possibly affect me and may positively affect my loved ones because we don't know where life will bring us. So I would say that's what my favorite part about this job is, is getting to know these participants. They give me a new outlook on life. They give me that motivation I need in order to push forward and keep modernizing and keep implementing new technologies because that's what we're here for. Right? We're all about the rehabilitation and to not take our abilities for granted and to just keep moving forward. Yeah.
- BANKS-SMITH: 07:58 Definitely being able to help people with their quality of life because like you say, we just don't know what tomorrow brings.
- SPIROU: 08:06 Right.
- BANKS-SMITH: 08:07 [music] Well, thank you so much for all the work that you do for Kessler Foundation and taking the time to--
- SPIROU: 08:11 Thank you.
- BANKS-SMITH: 08:11 --share with us what goes on in your daily life at the Foundation.
- SPIROU: 08:15 It was a pleasure having this chat with you, Jody, as always.
- BANKS-SMITH: 08:19 Take care now.
- SPIROU: 08:20 You too.
- BANKS-SMITH: 08:23 To learn more about Angela, the Center for Traumatic Brain Injury Research, and if you're interested in a career at Kessler Foundation, be sure and check out the links in the program notes. Tuned into our podcast series lately? Join our listeners in 90 countries who enjoy learning about the work of Kessler Foundation. Be sure to subscribe to our SoundCloud channel, Kessler Foundation, for more research updates. Follow us on Facebook, Twitter, and Instagram. Listen to us on Apple Podcasts, Spotify, SoundCloud, or wherever you get your podcasts. This podcast was recorded on Thursday, July 15th, 2021, remotely and was edited and produced by Joan Banks-Smith, creative producer for Kessler Foundation.