# Navigating Science with a Disability: Academic and Employment Accommodations

## Introduction

### Adam Hubrig

Welcome to our panel Navigating Science with a Disability: Academic and Employment Accommodations. This event is part of the fall MAKERS Series hosted by [Illimitable](https://www.illimitable.org/), an organization that highlights and advances the global contributions of disabled innovators in science, tech, design and entrepreneurship. We would like to thank our partner, the [Disability Empowerment Higher Education](https://twitter.com/DisInHigherEd) campaign, for collaborating with us on this event.

My name is Dr. Adam Hubrig and I study disability activism and rhetoric at Sam Houston State University. I'm going to be the moderator for today's event and today I'm joined by Meena Das, Jesse Shanahan and Henry Wedler.

## Talk about your work and how you got interested in science or research.

### Meena Das

Sure I can go first. So I was in my sophomore year of college when I got a scholarship to attend an assistive technology conference.

When I went to the conference, I saw so many tools there that showed how technology was helping disabled people. So for example, I saw one tool that was trying to help blind people to learn math with audio. When I came back from the conference, I was just so supercharged and then I just thought how can I use my skills in the tech field to make the world better for disabled people. So I asked one of my friends, who is a blind coder, and she told me that the coding tools are not the most accessible to blind students. So me and my advisor thought and we started a research project to make the coding tools more accessible to students who are blind or low-vision. So that is how my journey started.

### Jesse Shanahan

Sure I was interested in science as a child, and then when I first went to college I was really intimidated by the size of the classes because I came from a very, very small high school. So I instead switched to studying language because the department size was a lot smaller at the University where I was, but I ended up coming back to it because I don't think I could really stay away.

And so I started to pursue a graduate degree in astrophysics and it was difficult because I would say that higher education in my experience was not very accessible. So, for a lot of those reasons, I ended up leaving and switching to industry where I now do science and machine learning engineering. There are still lots of obstacles and I would say that there are still large portions of industry that are inaccessible. But I found at least that it was a lot more accommodating than academia so while I cannot continue my astronomy research necessarily I'm still able to contribute to science and I'm hoping that through some of my outreach work and work in disability advocacy hopefully for future students, higher education will be more accessible.

### Hoby Wedler

Yes thanks Adam and I want to start out by saying what an honor it is to be here joined by all of you today. Thanks very much for the invitation.

I, like others, have a really deep interest in science and always have since I was a child, working on projects around our house and my parents did everything themselves on our house. We didn't hire things out very much so, which was great because it allowed us to learn. And my parents did that because they wanted my brother and I to learn and figure out how systems work.

So dealing with plumbing and electrical as a kid I was always fascinated. Electrons coming into the house somewhere and they have to leave somewhere in half the force behind them what is that force? How is water coming from the city water source to us, under pressure, this network of pipes and connectors and really these fundamental concepts got me really excited about science in general.

And I'm sure this resonates with others on this panel but it was a great high school chemistry instructor who really inspired me to go to the next level. I ended up pursuing an undergraduate degree in chemistry to the University of California, Davis, and went on to get my PhD in 2016. I did leave science. I really have the heart of a teacher that was my driver wanting to get involved in academia was to teach.

I wanted to be that professor who made chemistry exciting at 8 AM on a Monday morning to a large 500 person lecture hall for freshman chemistry students. I'm totally blind I have been since birth and there were some accessibility bearers that came up there. I still am a scientist for sure but I still have a more entrepreneurial career where I have a few companies in the food and drink space and also design and branding space and am having a good time there.

## What role has your disability and other identities played in shaping your experiences as a researcher and scientist?

### Meena Das

Sure I can go first. So I think for me the way it has helped me to shape my experiences, I think it has made me much more innovative because of my speech disability. I learned ways to navigate accommodations in my life. In general, I don't give up that fast. So I think it has made me more innovative and more creative or self for example, for a high school project we were trying to make an application for people to try their finances to track their finances so everyone just thought of a way to use a speech to text software to translate your speech to your finances. But then I came up with the thought of what about the people who have speech impediments, they are not going to be able to speak that fast so we did what we did was we trained the application to be more patient so that they could wait for the person with the speech impediment to finish what they are saying. So I think it has made me very creative.

### Jesse Shanahan

I completely agree with Meena and while my experience has been different it definitely resonates with me, that need to be more innovative and to be more creative.

I think for me I had a little bit of a different experience because my disability was something that while I was born with it I was not aware of it until I was in my early 20s. And it started to manifest in very unusual and mysterious ways that doctors could not figure out. So for me as I was simultaneously going through the process of getting my diagnosis, I was also beginning my first experiences with research. And it was interesting because while I would say my experiences with doctors and with the medical field at least in the United States were not the most positive, a lot of my experiences there were very, they were dismissed and it was difficult to push through and find answers.

I found this parallel between how I was approaching my research and how I was trying to find answers about my experience with my disability. And so as I moved through this I would say it made me a better researcher because I was able to continue looking, thinking outside of the box looking for other answers. Overall I would say that it is meant for me at least that especially now when I'm working as a data scientist, that there are many things that I would say a lot of able-bodied or neuro- typical people don't consider when like in Meena’s experience building applications or offering services. There is a lot of exclusion that happens sometimes not even intentionally but through ignorance so while I definitely as a teenager was very ignorant myself, as I've gone to this experience and tried to not only make things more accessible for myself but learn about other needs, it has been something I bring to my work and it has made me a better programmer, it has made me a better software designer because I really do believe that when we make things with disabled people in mind, specifically to be inclusive, it creates things that are more accessible overall. And so I would say that it has made a lot of my work better even if it was definitely challenging at first.

### Hoby Wedler

Thank you. I totally agree with the other panelists. You know, especially what Jesse said about when you figure out how to design one thing to make it accessible for one group of people, you really are typically making that resource or that service much more available and accessible to the world at large. So I think that is a really good practice. Whenever we do something for just one group of people we are actually think about how we can help so many more people along the way.

I studied organic chemistry, it was my passion as an undergraduate and therefore what ended up being my graduate work I ended up studying -- organic chemistry so basically using the computer to probe various organic molecules and figure out why electrons would go one place instead of another. To turn one molecule into a different molecule.

And organic chemistry is one of the most visual sciences out there and people ask me all the time, what made you gravitate towards organic chemistry? I had a hard time answering that question until I was at the end of my second organic chemistry course in undergraduate and I realized, wow, the reason this material is coming so naturally to me is because I've been using what feels like the same part of my brain to do organic chemistry and literally think my way through atomic connections and molecules that I've used for my survival as a blind traveler ever since I learned to walk. So I cannot see desks in a classroom. I cannot visualize that. I cannot see traffic on the street. I have to listen and visualize. And when I'm planning around where I'm sitting in my home office for instance and going down to the local supermarket, I think it through my mind and that process of thinking it through, it is not that different than thinking how atoms connect to molecules.

So we can take distances in feet and miles and convert them into leaders and kilometers and the metric system and convert them to Ångströms and nanometers and the thought process release the same so I feel I had an advantage that I didn't even realize I had for a while as a truly blind researcher in organic chemistry. And so I viewed things differently and I was not subject to understanding what things look like on the page and how atoms were drawn out and connected by bonds in two dimensions. My brain could really think about that in three dimensions and I think that's how my unique ability as a blind guy in the organic chemistry lab was able to help my research and provide more value there because of it.

## What challenges have you or others you know faced when requesting accommodations in employment or educational settings?

### Meena Das

Sure, yeah. I think for me it's like two things. The first thing is that it's like me who always has to take the first step to ask for accommodations. I don't think I have found any company yet to have asked themselves do you need any accommodations. So I think when I first started college, I didn't know so much about accommodations, but that meant stuff. So it just scared me always to ask for them. It just made me feel that the people may think that I'm not smart enough. I think it was that for me and the reason I think those feelings stemmed they were because of the attitude barriers that we still face. People still think that just because I cannot speak fluently, I'm not smart enough or I lack intelligence. So I think it was mostly myself internalizing thoughts that if I do ask for accommodation, they may think I'm not the best suited for the job.

I still remember my first year of college, I went for a job interview and I didn't ask for accommodations and the interviewers actually thought I could not speak English because I was trying to hide my stutter. So I think disabilities disclosure and asking for accommodations is a very personal choice. But in my case, it has certainly helped me to disclose. Thank you.

### Jesse Shanahan

Sure, so as I mentioned before, while my disability is genetic and I was born with it I did not really did not really start to impact my life greatly until after the majority of my undergraduate experience. So I had no experience with accommodations and I entered graduate school. At the time I would say my disability kind of goes in between being invisible and visible so at the time I was walking with a cane. But when I was first considering accommodations, like Meena I didn't even really know what they were or what to ask for or what was possible.

I knew conceptually what accommodations were but I didn't know what was possible for me, what would help me because this whole experience was very new to me.

And while I was lucky that the office of disability accommodations at graduate school was extremely helpful and supportive, I got very spoiled, I would say, interact with them. It was actually the professors that had more of a negative impact so while the office itself was very supportive and was very understanding when I walked in and said I know I need this, I just don't know what I need. The professors like Meena there was a lot of judgment about will if you need accommodations you must not be smart enough or you must not be a hard enough worker because sometimes I would need flexible deadlines or I would not be able to attend class.

And I found that despite working probably harder because I had to make up for a lot of the perceptions I would say there was still this kind of feeling that I did not fit in.

I remember a professor saying to me at one point I think you are too sick to be a scientist and I was like well especially now honestly, to just kind of be completely candid it has been a little frustrated with the pandemic seeing just how easy, understandably but there are challenges but just how quickly a lot of colleges have gone to completely virtual or workplaces offering complete telework at what not when seeking those accommodations myself I was told will that means I'm not working as hard.

I'm glad that hopefully companies and universities are learning through this that you can do it and it means people are working just as hard but it was frustrating for me as a graduate student, for sure.

Now, I will say that when I left graduate school and transitioned into industry at that point I was a bit cynical. I was very much expecting to face a lot of the same discrimination and obstacles that I had dealt with in academia. But I've been really pleasantly surprised at least with the one company that I've been working with since we are the very first day it was not necessarily phrased as accommodations because I didn't disclose at that time. But they just asked what do you need to do your best work? And I was a bit taken aback because I was used to, like in Meena’s experience, the burden to be to disclose and to seek out accommodations. So I tested the water, well flexible hours, being able to take one half day here and work extra this day. Is that okay or if I telework? They were very understanding and that of that required me disclosing. It was just seen as oh you need these things to do your best work well we want you to be set up for success.

And I think that that was a good experience for me. Now I think there are plenty of companies that don't approach it that way unfortunately. And it is still, there's kind of a culture that I found both unfortunately in academia and in the industry that I'm part of around kind of this physical wellness where everybody is bonding over going running or conferences there are let's there are social events is going to be a hike or things that are very exclusionary think about it and for me with my condition, I cannot always participate in those things. So there is kind of still I would say that underlying cultural feeling of well I can participate in my work but I still don't fit with everyone else because that's not really something I can participate in.

So I think in the future I would like to see especially places become more accessible. I would like to see companies and universities take a look at those kinds of cultures and how they exclude people because it is not just as simple as here is a ramp. You have got your accommodation. You know? Here is your ergonomic chair or something. The things that really have impacted me over the years have been that feeling of just never being accepted, never being able to really participate because you are always on the outside.

So in graduate school I did actually require an ergonomic chair and yes they gave me one but they gave me this very large, obvious desk with a special sign saying reserved and all this so no matter what class I was in I always stood out immediately as being other, kind of. So I think even if you disclose or you don't disclose I think it's important to try to come to our points made earlier, make things accessible from the start kind of suggest designing a piece of software. If you make it as accessible as possible, you hopefully remove some of that burden of people to request accommodations because you have built in the accessibility already. And while that will not be 100% possible for every need, I would say the more we are able to do that, the less we "other" disabled people by requiring them to disclose and seek accommodations that set them apart. That was my experience.

### Hoby Wedler

Thank you Adam it's a great question and what I might say is that my disability is very obvious. I’m a blind guy. I've carried a white cane since I was three years old. People pretty much know, “Okay he's not going to be able to see the whiteboard, he’s not going to be able to see what we are presenting. A lot of people should know that. My tactic has always been, and it's actually paid off really well, to educate.

So starting in high school even and my mother was a teacher of visually impaired for 27 years actually took on that career after I was born so I think she was able to help me advocate in this way quite a bit and my father was the same way very much supported me taking responsibility for myself and allowing instructors to know what worked and what did not.

So I would go around in action and explain to my professors what would help me the most and because I did that, I would usually meet with them before the class even started--so before at the end of the quarter, very much at the beginning of the quarter when the class occurred. I would say I'm blind I will sit near the front probably and if there is something I don't understand what you are writing on the board I will ask about it.

So that was early being able to teach professors and educate them because they don't know what they don't know and I'm sorry to hear about for instance Jesse's experience where professors would say you are too sick to come to class that's really unfortunate I can see where that would come from and stem from. For the whiteboard I would always bug them because I would sit up front and say hey when you said this here and tapped on the chalkboard I don't know what you are referring to.

I also have had an amazing opportunity to work with a wonderful assistant all the way through undergraduate and graduate school and the interesting way that I met this wonderful person was through our office of disability resources. And that was actually the group that I had a little more trouble with. They did not understand how a blind person could study science and a couple people in that office, one in particular made several remarks that were particularly jarring to me basically really discouraging me from studying sciences. I actually drifted away from them and went more on my own and worked more directly with my assistant who actually learned Braille to bring stuff to light. Those were some challenges for sure. I've had one challenging one maybe two challenging chemistry professors my undergraduate career who really put dampers on what I could do and were very very hard to deal with hard to work with.

Just because they didn't want the burden of need being there and asking extra questions and that sort of thing but the rest the couple of dozen professors I had across all subjects were super accommodating and again it was more me telling them not to worry about what the office of disability resources was telling them and more just to work with me and this person who I had as an amazing assistant so those are definitely challenges in the education sector. I feel like overall with an attitude of hey let me just teach what works best that tends to work well for all of us.

In terms of employment I did apply before starting to work for myself I did apply for a couple of companies and heard from them when I did not get the job that I make great candidates but because they are not sure what accommodations they will need to provide it just is hard, hard to know what I will need. And not all of them said this to me but I read between the lines that I was the right candidate for the job but not knowing what I would need and how what equipment I would need made it hard for them to give me the job.

And that was very discouraging as oak apple and to do this myself so I started my first company in 2017 took it from there and then I still had the challenge of convincing my clients that I come in fact, can fend for myself and I will provide when you are selling a service, you have to be able to justify that you are solving a problem and sometimes this blind person from an entrepreneurial standpoint can definitely be a challenge. But it's just all about showing people rather than you can tell to a certain extent but you really have to show in the grand scheme of things and it's about showing people we can contribute and we can do our best despite our disabilities. And those are challenges but they are also really exciting when we can overcome them.

## How have you determined whether or not to request accommodations in the past and how did you approached the experience?

### Meena Das

Sure, I think for me the changing point was when, when I started to realize that I'm not able to give my 100% at my work. Also, for example if I go to a job interview, I was so focused at trying to hide my stutter that I was not trying to focus on the actual interview. So that is when I decided that this has to stop. So I didn't do it for them. I did it for me. So the most of the accommodations that I get at my school settings are just the courses that require speaking. An example in the last semester in the class of mine, we had to do presentation for a game design class. What I did was I spoke to the professor and just asked her if I could use a text to speech software to do the presentation. And she agreed to it and it went well.

In terms of job interviews, I think two things. I've worked have worked very well for me. The first thing I ask for extended time so that I have the time to complete what I want to say. And the second thing that has worked great for me is to use a mixture of chatting and talking. Also it's a very common thing for me to type and then speak at the same time. Also if I get too tired of speaking I just stop for some time and then type out what I want to say and then go back to speaking. So I think those two are the accommodations which have worked for me to now. Thank you.

### Jesse Shanahan

Actually the first time that I asked for accommodations I didn't really have a choice. So the Observatory where the graduate student offices were located was a historic building and therefore incredibly inaccessible. So actually to get into any of the three if I remember right three entrances they all had stairs and there were two flights of stairs down to get to where the graduate student offices were and then to access the roof which had telescopes on it was a very steep and rickety spiral staircase.

So stairs in particular there are days when stairs are okay and there are days when stairs are not going to happen and my disability is progressive and so at the time I was also concerned about any kind of long-term needs. So they became that I would not be able to do stairs at all I didn't know how I was going to be able to get to the building.

I actually ended up seeking out accommodations first because I literally could not get in the door. So but I think it was very educational experience for me because I was also, I was diagnosed with my disability one month before starting graduate school so I was learning about what to expect at the exact same time that I was trying to figure out what I would need over the years. So that was very challenging.

And so I ended up requesting accommodations of several different kinds. Mostly because, mostly thanks to the office of disability services and because they sat down with me and explained different kinds of accommodations and what generally people have asked for in the past because I went and said what can I even ask for? Thinking back now it would been wonderful to have this knowledge beforehand because I think I would have been able to ask for things that I needed before it came to the point that I had no choice.

I will say that given the experiences I had in graduate school with conferences and professors and academia in general, it made me very hesitant to talk about accommodations or request anything when I started applying for jobs. And so I didn't disclose, did not request accommodations. I was lucky that like I mentioned to the company where I work now, the policy was, at least in my team to say is anything you need? How can we help you do your work?

But even then I would say that there was still this pressure and some of that from my negative experiences in academia where I would push myself to do things even if maybe I felt like it was going to be kind of damaging to my health.

And so the pandemic in some ways has been helpful as bad as that sounds just the fact that everybody is on telework because I've been able to pace myself. I've been able to be comfortable and do things in the way that I need. It can be difficult I would say, when there are those perceptions of what kind of success or what a good employee looks like and a lot of that is rather ablest when you start to think about that. You are dressed in a certain way and especially being kind of fem presenting a lot of the expectations around women's clothing and professional workplaces things like heels or uncomfortable business wear you are sitting present in a meeting and you position your body in ways that are normal. This is obviously from their perception and you act in ways that people think are within this ambiguous definition of normal. And all of that is so ablest when you think about it.

It would be interesting to see how things change once everyone goes back to work. Being able to hide my disability sometimes and fake able-bodiedness is something I've fallen back on but it has had consequences because it means that I will do a work day a normal day at the office, go in, and this involves a lot of walking. This involves a lot of public transportation and carrying a bag with a laptop and all kinds of gear. So it means at the end of the day when my coworkers may be able to go home and relax and recharge or have hobbies, I'm completely exhausted so all I can really do is just lay down and try to rest my body.

So I think that it is difficult because I worry so much about those negative perceptions because they have damaged my success in academia or have prevented me from really being successful in academia that when considering disclosing in my current workplace as much as possible I guess for me I'm kind of avoiding it and hoping that just by presenting, I do better when telework or I do better with flexible hours and things, I can sidestep that.

I realize that is a bit of a privilege to be able to hide my disability sometimes, but, I think that given some of the perceptions that I dealt with in academia it has made me very hesitant to disclose again in the future.

### Hoby Wedler

Absolutely. Thank you Adam. It's interesting I have whether it's a blessing whatever you want to call it I don't have to hide my disability. Is out in the open. I wear it on my shoulder. So it really is not surprising I go to an employer and say I'm blind I need these materials made into an accessible format so I can actually read them. That is not really a surprise so for me, I really like to do things on my own as much as I can. Don't like to get a bunch of assistance. In the science laboratory in the wet lab experimental lab, I had an assistant just there to be my eyes but they were not doing any of the thinking or working for me. In any of the procedural steps that could take on independently and execute on independently I would do. And I would take extra time to be ultra-independent.

I would just say though that it really was not ever a question of oh do I ask for accommodations for this? It made sense or it did not. The articles published online in accessible format I could read no problem but I did have to get audio textbooks or in some cases textbooks in braille. I pushed for that in many instances in the sciences would struggle to get that to happen because braille is expensive and I did get some pushback from the student disability center on that but when to ask for accommodations come okay so something like double time on an exam, I would ask for that and get that just because on a chemistry exam it would definitely help me. On history exams I used it because it was available but did not always need it or use all the time it was nice to have and I don't feel ashamed for asking for the time even though I could properly take one of those tests realistically in the same amount of time as my sighted or nondisabled peers.

But really it's just over all my feeling is do what you can yourself. You cannot do it whether your disability is something to be hidden or not, it's good to be bold and ask for that accommodation as much as possible and that's what I've done in my workplace and that's what I did while in college as well.

## What can allies do to amplify the work of aspiring scientists and researchers with disabilities and chronic illnesses?

### Meena Das

I think the most important thing allies can do is to give us a voice. I think that is very important to do that. Because sometimes you don't as a person with a disability, you don't believe in yourself. It's nice to have someone who does. Like I just want to share a small example. I think four years back, I was working as a researcher for a professor and then we were supposed to present at a conference. And the professor told me that I shouldn't I should not speak at the conference because I take too much time. And then -- that made me so sad it was just like I just felt so worthless. And then two years back when I started my Masters program, we had the same opportunity to present at the conference and, but this time my new professor told me that I should go speak. So I just it just made me feel so energized and so positive and I felt heard. So I think that allies should try to give a voice to us, yeah. Thank you.

### Jesse Shanahan

I want to echo everything that Meena just said and to add onto it I think an additional thing aside from I would say the obvious like educating yourself and listening to disabled people when they share experiences. My other request would be for people to examine their perceptions of things like what success looks like or what a scientist looks like or what being a good student looks like and think about how many of those things are actually necessary. So when I was mentioning earlier, the perception of your successful employee coming in dressed a certain way, sitting a certain way, talking a certain way. Are those things actually success or these prescriptive ideas that we have that are more about those societal ableist expectations? Is that really success? Is that really what a good student a good scientist looks like? We face this in astronomy, to give an example. Two examples I guess. Astronomy requires observing with telescopes; nowadays a lot of that is done remotely. And so these more arduous observing runs where somebody is there in person may not always be necessary and yet we still sometimes hold onto this idea that if you need telework then you are not really working as hard. Well I would suggest that people should examine why it is they think that. And similarly I worked a bit with a blind astronomer and she faced very similar ideas of well astronomy is an observational science you to see the sky and she said no you don't and here's why and she showed her research and how she does excellent research but it is just a different way of interacting with the data.

So I think for allies just like we all do with our own prejudices we have to constantly be self examining and looking wide is that when we see a disabled person either requesting accommodations, performing their research in a different way that somehow a lot people seem to think that different means less. So I would encourage people to really examine those expectations and those ideas around how we judge what we think is valuable because more often than not I think it is more roots in ableism more than it national contributions.

### Hoby Wedler

My answer to this question I know we have very limited time and my answer is very simple, the best allies are the ones that see the value that people with disabilities bring to whatever it is that they are doing and they see that this unique perspective is actually a really important one and really valuable one and really helps their work in many places. At UC Davis, my advisor is working on continuing to make chemistry and the chemistry his work does a particular more accessible to blind people. Even four years out of graduate school we are collaborating on that trying to bring more blind students in. It's about making a more inclusive environment and championing what subway with a disability can bring to the table that maybe someone without that same disability cannot bring. So where can we glean that value? I think it is wonderful thing for the opportunities are found and acted upon endeavor but he wins. So that is the best way to form alliances and just be accepting, be approachable and if you are aware I really think being aware of all of our inputs that are coming into our mind and everything one can do, we are really, by virtue of awareness, becoming more inclusive. So I think just being as aware as possible of what someone can do is really important.

## Conclusion

### Adam Hubrig

Hoby thank you so much and I just want to thank our panelists one more time for their contributions for today's discussion. Thank you so much to our ASL and CART interpreters and finally thank you all so much our viewers for joining us today, for the panel Navigating Science with a Disability: Employment and Academic Accommodations. You can support the work of our panelists by using the links in the description box or by visiting [illimitable.org](https://www.illimitable.org/). You can learn more about the maker series and how you can get involved at [illimitable.org](https://www.illimitable.org/). Thank you all so much.