

Digital Tech College & Career Readiness Series

Explore Exciting Careers in the World of Software Development

Chris Dovi

Welcome, and thanks for joining the capital colabs Digital tech college and career readiness series. I'm Chris Dovi. I'm the executive director of code VA, a computer science education and advocacy organization. Excited to chat today with our panelists. We have Dr. Harris, and he is a senior Diversity Program Manager in Global Diversity and Inclusion at Amazon. We have Alicia Wade, she's a software developer at candlelight. We have a Deena I am going to completely mess up her last name Mignogna and she is a software engineer for Space Systems at Northrop Grumman Corporation. And Jody, also, I'm gonna pronounce Yoti she is the director of cyber security solutions, or excuse me, director and cybersecurity solutions architect, is that correct? T rex solutions.

Alright, so let's get started. The first question I'd love to ask dia to start, if I can, is knowing again that you are not a software developer yourself, but work very much in the talent acquisition piece here? Could you talk a little bit about software development as a popular broadfield explain a bit about growth pathways in software development, tell us a bit about some of the personal journeys that you see, as people are coming to you.

Dia Harris

Yeah, I'm going to start off what I would say, you know, as we look at the demographics and population of this audience that hopefully is very attentive and listening to what we're talking about, you know, we got a career path that has been been typically a difficult path to get into to be an engineer is a very difficult path to get into, you know, as far as the degree requirement, as far as the skill set, and everything, you know, you look at, as you grew up, you know, individuals say, you know, be a doctor, lawyer, you want to make that money and stuff like that. But one of the things I always particularly like about this audience, I want you to know, that your hard work pays off. And I want to say, financially, as well, you know, I've worked for some companies. And I can say that starting off, you know, individuals who work for certain company, starting off, particularly in a software development organization, they can definitely make the six figures and they're looking for and so it is a career, I would say, worth the effort, time and energy that you put into it, because one of the rewarding factors that I think we all have for that you're going to be able to support yourself financially, and stuff. And so there are opportunities for you, you know, your hard work will pay off. Until within there, you know, I think there's particular skill sets that we look for, we look for those individuals who are really, really kind of diligent in really able to kind of quote unquote, dive deep and individuals, you know, how I talk about this career choice option to candidates for for someone who's not technical at all, a software development engineering when they're doing coding or something like that, you know, it's all about the work. They're proud of how they're doing the coding to get to that answer. There may be one wrong, why that they wrote that, that's not going to give them the right answer.

Dia Harris

But you have those individuals who will support you and say, You know what, you know, let's, let's debug that. And let's look at new, there's one line, that's really stupid. So I think, the technical skill set that you get to become an engineer, it can just open so many doors for you whether or not you remain a technical engineer, you know, whether or not you become a program manager or project manager or product manager within the engineering space, just because that because that degree in the technical aptitude that you get from that degree and skill set is really going to be able to open up a lot of different doors for you within a technical field. And, you know, I think sometimes you think, you know, it's not like, you know, you get a nursing degree and all that only thing you can do with nursing, nursing, nursing, nursing, I think with with the with the technical skill set background that you're able to get, whether it be software engineering, systems development, systems engineering, it's going to open up so many different doors for you, for you to be a technical subject matter expert within the field of technology.

Chris Dovi

Yeah, I wanted to ask a sort of a follow up question. that you had mentioned that, you know, this is a hard field to get into. So difficult seems to me and this has been my experience in working with young people around computer science. Sometimes the difficulty is that the pathway is not clearly stated for students. So sometimes it's just hard to know how to get courses to take, etc, etc. Do you have any recommendations?

Dia Harris

So here's the thing, though, there's so many non traditional pathways to get there. And I think Lisa has a great story. Because, you know, I look at individuals I work with on a daily basis, who don't have degrees and their software development, engineering managers, and stuff. And so it was all about To be honest, they will tell you about networking, about the skill set about doing a lot of things on their own, you know, diving deep into dawn, certification, self taught classes, self towards studies, and so forth. But I will say, if we look at an opportunity, as we look at software development, of course, I think, you know, we look at that kind of educational career path is really going to help me and we're looking at kind of computer scientists and majors, the science, technology, engineering and math majors. Those typically because of the coursework, and the foundation that those coursework lays, will actually help prepare you for opportunities within a software development opportunity. field.

Chris Dovi

And the FDA cleared this up. I'm looking forward to asking the same question Leisha, because she does have such an interesting and non traditional, and actually one that probably is very relational to our audience today, because she would normally be telling them what to do. Alicia, can you talk a little bit about your pathway into a computer science career? Well, so those days are long gone.

Alicia Waide

So I was a high school science teacher for Baltimore City public schools for 16 years. I majored in biology in college, at some point, while trying to inspire my students to investigate, explore STEM careers, because they would always be wondering, what am I going to do with this? And so I bring in guest speakers and talk to them about STEM careers and look at careers that had great future projections in terms of job growth. You know, like, kids don't want you to waste your time, let's look at a career where, three 410 years from now, you know, the numbers look good in terms of opportunity. And so software development, the information technology industry, was consistently on that list,

Chris Dovi

And avoiding why right.

Alicia Waide

It didn't mean a lot to the kids, though. They were like, Well, what does that mean? You know, what does it mean to be a software developer? So I would bring in guest speakers who worked in the industry. And the more speakers I brought in, the more I became interested in the industry, myself. And so as a, you know, a wife and mom and a tenured teacher, I'm saying, Well, how do I break into this, I'm not going back to college to get another degree. What's out there for me? So there were these boot camps, they were very expensive, but they didn't always connect to an actual job opportunity. And so spending \$20,000 on that seems really risky. So when I found tantalite, which uses an artificial intelligence based screener to see if you'd be a good fit for their program, when I found candlelight. I said, Okay, well, let me try this because it involves a training program, that would be followed by an apprenticeship period, a two year paid apprenticeship. So even though I wasn't gonna get paid for the training portion, it was about four and a half months, I said, you know, talk with my husband, I said, I think I can take that risk, I can afford to do that. I did that. One of the hardest things I've ever done, but it was a great kind of challenge. I dug deep into my tenacity, my cohort. Now we all depend on each other's phenomenal experience, they've really done a lot to try to support you when you do a paid apprenticeship. That was a two year period. And I wasn't making a tremendous amount at that time compared to my teacher salary, kind of less than half of what I was making as a 16 year veteran teacher. But I learned so much it was absolutely on the job training, working with high profile clients, enterprise level clothes, that kind of thing, which just took everything I learned in the training to a completely different level. And so now, I'm outside of that apprenticeship. I could go to work for a glamour life. I'm still with the company because I like the people. I like the culture there. Although I refer to myself as a unicorn in this industry. Because there aren't any people like me, I mean, age wise, like the combination of my age, I'm not telling you, but the combination age, you know, my gender, my ethnic background, we just don't see many people like me, we're actually writing the code. And so it's one of the reasons why I'm happy to participate in panels like this to let you know, I'm walking the talk, kids, I'm doing it, I can do it, you absolutely can't do it because your brain is much more elastic than mine.

Chris Dovi

One of the cool things about this particular panel is I think almost all of you really are kind of important in the field, we have the minority women, these are both sought after groups in computer science fields. And a lot of what I do, VA is trying to build more and greater involvement and engagement from more types of kids seeing the computer science field, go into Elise, I'd like to come back and talk more in a little bit about some of your career trajectory and sort of what makes you qualified, I guess, the first one, I kind of turn it over and ask a question, if I could of Jodi, we'll start with you. And then I'm gonna ask you, if you don't mind the same question of Edina, but starting with it. So what does a typical day in your occupation look like? And I know it probably looks like a whole heck of a lot. But what do you spend most of your day doing? And what are the day to day responsibilities that someone outside of your field might not know about? that's actually something that a software developer does.

Jyoti Wadhwa

Yeah, no, thanks, Chris, for the question. really pleased to be on the panel. So my engagement with the software world actually is through a security lens. And as the director of cyber security solutions, right now, I'm focused on some federal opportunities. Historically, my days have also been looking at those called commercial opportunities, or basically opportunities that every day organizations contend with in their information technology world, so I wouldn't put it in three buckets, I'm solving on collaborating, and I'm serving. So from a solving perspective, I work with our business partners or clients. And we're looking at the really tough challenges that they're faced with whether they're trying to bring a mobile application to market. So for example, I've worked with some of the, you know, top banks, global banks out there, and they wanted to be first to market with their mobile application. In order for them to do that they had some secret sauce in there that they needed to protect, so that hackers couldn't come in, and number one would break into their organization, but also, you know, steal identity and things like that, and number of threads. And so in terms of solving those problems at a software level, we really have to understand, you know, how that they wanted to go to market, and look at all those challenges, and work as a unified team together. So that's an example of how we would solve problems using nose, you know, really innovative software solutions out there, in terms of collaboration

Alicia Waide

engineering product and business teams. I'm collaborating with a lot of my team members, so I get to have some pretty creative conversations. When it comes to, you know, the design or the architecture of how, how should a solution be delivered? Should it be just maybe on an iOS platform? Should it also involve Android or Google? Those are some high level design decisions that we need to collaborate on? From a business perspective, it could get really fun in terms of trade, so are we going to go or what's your logo look like? You know, what really represents our technology. So a lot of inclusive, you know, end to end perspective on where the software is taking you.

Chris Dovi

So crazy to hear sounds like this is a very creative and collaborative environment that you'd have to work in. If you don't mind. I'm going to ask Dina to sort of follow up on that. I suspect that you work a lot in teams, and that you probably aren't doing a lot of direct collaboration. Could you talk a little bit about that and what your day looks like?

Adeena Mignogna

It's hard to talk about a very typical day because I'm involved in a lot of different things and every day can be very, very different, which, over the years, I've learned, you know, some people like myself ride in that everyday was similar. I am going crazy. I know some people do like a familiar routine. And so what we try to do is find people who like the familiar routine versus like, the, what is the chaos, but the mix up as a manager, I really do wear two different hats. But I do wear a hat where I am working with my team in a technical way. And our manager hat where I am dealing with the people and in the manager hat. A lot of it is making sure that my team knows what they're doing, that they are able to get their job done. And the technical heads a little bit different because they can be everything from I am working on some code with some of my team members to I'm actually going to be spending the next couple days working as a software tester, because one of the teams that I work with, they have a very high priority milestone coming up. And even though someone with my seniority normally wouldn't do this, I do have the technical skills to step in and help. So I am going to just jump in and help the next couple of days. So it varies greatly. But the thing to know is that even on the technical side, my job is really all about making sure other people get their job done, I work my products at my software products, my team is responsible for helping spy satellites. And so our software has to be working for the teams that are actually flying the satellites....But in order to make sure that they are doing what they're supposed to be doing, and happy and healthy, oh, we've got a lot of software here on the ground to make that happen. That's the software My team is responsible for.

Chris Dovi

It's amazing how in everything computer science really is and how so many more jobs are becoming at least 10 generally, computer science jobs.

Adeena Mignogna

That's actually a very ingenious say that way. Because what I've been telling people in the last couple years is to really find what you're interested in, I wound up doing this because I was interested in space. And then it happened to work out that I'm doing software, I started out just being a space person. I majored in physics and astronomy in college, but I just knew how to program and stuff from things I've done as a kid. That's kind of how I got into this. So I do tell people to find what you're passionate about. And also learn how to code. Because if you look around, everything involves software code at some level. So knowing that skilled coding should be like, you know how to read these days or know how to do some math these days. So whatever you whatever you're passionate about, if you're mechanical engineering, still learn

how to code because there are, you know, tie ins to all the software that you use, you know, and able to work interest in the medical field. Oh, my God, like, you know, like software related to medical stuff there is today. So whatever you're passionate about anything, do that and learn how to code,

Chris Dovi

including media music.

Adeena Mignogna

Absolutely. Yep. Yep.

Chris Dovi

And it's, it's truly I mean, it really is the way that many states in our K 12 education programs and colleges are starting to look at this as this is a basic literacy. It's a foundational literacy to other job fields. So if you are an aerospace engineer, you are actually that's the verb you do aerospace engineering, but you are computer scientists. Yeah. Which is kind of a neat idea. So moving on to the next question, just to keep things rolling along. Jodi, I'm going to come back to you with our question number three, which is, can you tell us a little bit about related occupations in your field, I specifically want to ask you about this because you are in cybersecurity, it was interesting, it was sort of, I guess you've you've had jobs in both sort of straight computer science field. And then also in the cybersecurity sector. Could you talk a little bit about some of the many manyfold jobs that are in those fields? Yeah,

Jyoti Wadhwa

no, thank you so much. And that's it's a great segue from you know, what Dan was talking about, I couldn't agree with that perspective, more in terms of following your passion, and then learn how to code down to. So just to give an example of how security cyber security is such an integral part of that, for example, as we have our various devices at home, whether it's Google or Alexa, whatever that you're using, right now, with the way cloud is, is really coming into our lives, we can tell Alexa or Google to start building a network just through a voice command. And what that means is that the people of the future, they're going to have the ability to have sort of like this entrepreneurial and creative mind to stand up many different, you know, things that they're excited or passionate about, very quickly, and, you know, expose it to the rest of the world.

Chris Dovi

I think you just told my Alexa to do that. So when we're done ah You may have already finished.

Jyoti Wadhwa

But from a cyber perspective, what I find absolutely interesting is that, you know, as things have moved to go up, being able to be accessed on many different devices. Also lots of threats out there. So people are looking to take advantage of, you know, maybe some core assets. And it's very important to, in addition to understanding how to write clean code, good code, but how to protect your infrastructure. And there's new players out there like AWS, that offer a lot of the infrastructure, but how they're kind of changing the way at a code level is that they're kind of helping to bake security in. So as you become, you know, a specialist in your area. And maybe you're taking advantage of some of these cloud offerings, you'll also start to learn about, you know, infrastructure as code, which means that you can stand up, as I talked about, you know, anything that you want, but it needs to take advantage of that security. So having that know how, you know, how you can, you know, just have best practices with whether it comes from identity access management, or whether it comes from your network or whether it comes from vulnerability management, so that there isn't malware coming in. Privacy is a huge issue in cyber right now. And the biggest red, the biggest umbrella to think about is how do you manage risk. And that's a big area in cybersecurity. So as we go about our lives, we lock our front doors, we put on our seat belts, and holster all what we call risk mitigations. And that's very, very important in the software world so I particularly find it absolutely cool to be able to do that at a software level, kind of, you know, be that agent.

Chris Dovi

So it sounds like there's just so many jobs in this field, it would be impossible to limit what all what also is related. But I'm getting out of this. Moving to I guess a related question. Back to Alicia, Alicia, here we go. So what levels of education, I think you're perfect to be able to talk a little bit about this, because you've come at it from both the educator as well as the educated. What levels of education and training are required in this field. And again, your story is so interesting.

Alicia Waide

So in terms of training, training is ongoing. We could come into coding, like I did with much experience, and really just start on this journey of continuously learning and training, learning certificates and then more certificates based on like, what direction we want to go into. Currently, I've been doing a lot of cloud application development. And the cloud being the ginormous servers that exist

Chris Dovi

on our actual cloud,

Alicia Waide

right, exactly. So all of the apps and everything that we use, like where's all of that information being stored. So these huge servers, so we're going to connect those apps to that information that don't have to pass information that they type into their phones, to those servers, have them stored, and then get that information back. So like your password, or your visiting, that kind of

thing. So the training is ongoing, as far as education that's required. That's why I might not sound much like a typical educator, because your degree isn't required for this. Your curiosity is your determination. solving skills. And a lot of these guys that are listening to this recording or watch this right now probably have the level of curiosity and determination to solve problems in their day to day lives that could be applied to software development. And it might just be an opportunity to do it like participating in a relaxed corporate school, or something similar. So you know, there are Python courses, developers, courses for all kinds of languages available online and some of them are free,

Chris Dovi

and tons of meetups in your local community.

Alicia Waide

Absolutely. And for those of my company for Callaway, they've just partnered with a company called cold in the schools, where they're going to be working with the Baltimore City School District, in particular, so I'd encourage them to like besides attending meetups, ask their teachers about these kinds of courses and

Chris Dovi

athletes. computer science teachers, too. We're starting to see those in schools, both in Maryland and Virginia. But you're right, CTE has really been where this is bad. Yeah,

Alicia Waide

Yeah, that's kind of been the doorway, historically. So I'm glad that they're infusing more of computer science, as well. So I don't want to, I don't want young people or shoot their parents who might be watching this, for that matter, to think that you need to go to school, to go to something need a formal four year education or degree or even a two year degree, to start getting some experience and getting your foot in the door. That's not the that's not the limiter. However, a degree in computer science was just like keeping on school here. Is is how, you know, it helped me become a director.

Alicia Waide

Director, that's how we are in charge of, you know, massive teams and programs and things like that, how you, you know, segue into the management, but never stopped the mind. And

Chris Dovi

Adeena, we're gonna bring the question to you next, because I think, you know, you're, again, a perfect segue, you have a much higher level of training in computer science. And I guess in a related field, maybe not computer science. Same with my dad. But once you've completed basic education, whether that be in a computer science field, or in a related field that uses computer science, and the training requirements required, are there other related occupations, that person

is, I guess, qualified for and one other continuing education would be needed to kind of move into those areas. gonna say that, you know,

Adeena Mignogna

so for us, you know, different companies are going to have different requirements to work there. So for us to be an actual engineer with that title. And with the corresponding pay, if you do need a four year degree in a related field, we, it's interesting, because you don't necessarily need to immediately right after high school going for a four year degree, we have one of the members on my team, he actually is also on his second or third career, I think he's he's a few years older than I am actually getting started. So he's, like, two years out of school equivalency for a software engineer, but he's, you know, 2530 years into his career. So we have that happening. We've had people who started with two year degrees, and then get four, we've had people start off in the military, and then use their benefits to get the degree, we've had all you know, so there's all kinds of different paths. But to be cognizant of that, you know, there are a lot of companies that do require that said, personally, when I'm when I'm interviewing people, and I do a lot of interviews, for hiring, for internships, and for people coming out of school with their degree, I personally, I don't care what school you went to, I don't care about your grades. I do care about when we talk, you know, explaining that you actually understand what you've been doing that if I put you in front of a computer to do some code, then you have what would be an expected entry level knowledge there. And to me, that is the only thing that matters. So it's what you know. And I always encourage people to look for internships, to look for projects, they can do things that who really get your hands on experience, and it can be even, I've had, I've had people who applied to internships and their only other real outside of the school classroom experience with doing hackathons. But that's something and that means that they know something, they're digesting the information, and they can explain what they're doing to me as the most important thing.

Chris Dovi

If I could, you know, a minute with Adeena, I answered this question as well. Because, again, Amazon, he's the headhunter looking for the people to do this job. And he's looking for people in many different areas. To fill those fields. What do you look for? And then one other occupation, Can people move from to around, etc? They say, just Amazon? Yeah,

Dia Harris

I think part of it. And when you think about software development, there's a, there's a lot of kind of, as they say, kind of sexy parts of it. You know, I think Adeena talks about space, I think space is amazing, I think, you know, students love space, and would love to kind of say, How can I combine software development with space? You know, for us, you know, kind of what you said earlier, Chris, you know, when Jyoti mentioned, A l e x a name, you know, modeling, as well. And so, there's opportunity to work with like, Ai, you know, there's opportunity to do machine learning, there's opportunities to work in the music industry, you know, to kind of, you know, talk about the organization I work for, you know, you think about, you know, we have

amazon music, we have studios, you know, the Golden Globes just happened the other day and some of the Amazon movies and production and all of that and so, you know, software development into are every day. Yeah, so there's so many different opportunities that you have that passion in music. And you know, you want to combine it with software development, there's that opportunity for studios and stuff. And so we also have those things, the things, you know, that weren't sexy consultants, you know, everybody wants to be a consultant, you know, that they get paid well, and do, but you can be a software development consultant as well. Because, you know, once again, we did, you know, software for external clients, and we're looking for those consultants to go in their eyes or find those loopholes, find some issues, be proactive, you know, as a consultant, you may go in and say, you know, what, I think this may be a problem. So, you know, they come back to the team and say, we need to still have a fix for it, just in case it happens, and stuff like that. And so there's so many different opportunities to be a product manager, you know, you can be in our sales group, where you're kind of really working with potential clients, but you're also a software developer, meaning you're able to kind of talk that jargon, you know, to them about what the software will do and how they can be they fix issues that you may have, and, and, you know, the cybersecurity and everything. So there's so many different opportunities for you to kind of move around with the industry. And I think, you know, Adeena did amazing because like she said, you know, she was in astrology and space and, and here it is. And she says she's a software development manager in that space, because that's what she enjoyed in that passion. And so I think candidates can look at their passion. And sometimes they're eclipsed by their parents or colleagues to say, you know, I want to be a software developer, because you can open so many doors, but I think at the same time, they can also continue to build upon some other passions that they may have, whether it be music, entertainment, or other things as well, it really kind of combined them together as I as I challenged them, to look at their passions and don't neglect some of their passions, because they can be injected into the software development, career opportunities. So you can be a software developer, a systems, systems analyst, you know, you can be a network or you can be cybersecurity specialists. When you need a sexy consultant, you can work with machine learning, you can work with AI, artificial intelligence, you know, once again, you work in space. So there's so many different opportunities, it opens the doors for you work in sales, marketing, you name it, you know, but just having that skill set, because the skill set of being an engineer, engineer, I mean, it adds a lot, you know, I will say,

Chris Dovi

problem solving, right? That's really what it comes down to core is, is being able to decompose a problem and come up with solutions to that.

Dia Harris

I work with a lot of right people, you know, and like I said, My background is not in tech at all. And I feel like I'm getting it sometimes, but in the room with these individuals who are just so bright. And they are able to kind of solve a lot of different problems based upon the work that

they've had an opportunity to do. So there's a lot of, I would say, experience based learning that makes these individuals so bright. Yeah,

Chris Dovi

we've got three of them right here. Also, for Alexa, I think they have learned how to spell. If I could just

Jyoti Wadhwa

offer a thought there, Chris, in terms of you know what Dia was talking about, you know, to get that whole roundedness and especially for high school, high schoolers, and sometimes they can be challenging, right, like, you know, to really take on all this, it seems too techie. So, I think working with each other, working with peers, having that tutoring sort of world and creating that world of partnership at a high school level, can be very, very helpful look for opportunities to volunteer with other students and be a teacher. Yes, yeah.

Dia Harris

So just experiment with those things. And even me, like, I don't know about this, try gamification, try to have an article and see if it's a passion isn't

Chris Dovi

Correct me if I'm wrong, but a lot of times with us events, too, they're not looking. It's no coding required necessarily, for some of them. Oftentimes, the programming language you might be using scratch something that's a drag and drop that's visual. They know that they're trying to encourage people into the profession, right. They're not trying to exclude people from exactly, it's all about exposure

Dia Harris

to those events. All right,

Chris Dovi

and we are about to have to wrap up. I do want to just I guess as a final does anybody have any final words of like and keep up to one or two final words of encouragement or suggestion or otherwise? Or just heat criticism on me one of the three to share with our students

Alicia Waide

I just wanted to quickly share that. I don't want them to feel like they have to. to pursue. Every aspect of this is simply not true.

Chris Dovi

That's important, but it's not necessarily something that makes you a computer scientist. God, I'm sorry. Yeah, I thought we're

Jyoti Wadhwa

just going around. So I'll say, you know, be fearless. Don't limit yourself and try new things. You'll be surprised how easy it is.

Chris Dovi

Those are the Adeena you have any words of encouragement? Yeah, I

Adeena Mignogna

would say the following up from what Alicia said, I would agree. Math is not required to succeed. Keep an open mind. You know, keep learning just anything, learning anything is gracious, and be prepared to be a lifelong learner. Because this field, in the last 25 years, has changed so much. And it's going to continue to change just every day open to it.

Dia Harris

And do it any last words, my last words would be look for an environment that's going to continue to allow you to be your authentic self, no matter what it is. And hopefully, that environment will allow you to expand upon your skill sets that you offer them because you offer them a very unique thing, whether it be your technical savviness or your problem solving. So but just once again, do your research and find an environment that allows you to be truly your authentic self and that graces authenticity that you can offer. And get out

Chris Dovi

there and do it. Guys, everybody, thank you for being with us today. Dia, Edina. Joni, and Alicia. Thanks very much for talking with me today. Thank you, everybody. Thank you for listening today on behalf of the Capitol colab thank you for joining the digital tech college and career readiness series. Feel free of course to connect with me on LinkedIn and I am co pa are here to support you in pursuing your computer science.