Ramona Schindelheim, WorkingNation editor-in-chief:

You're listening to Work in Progress. I'm Ramona Schindelheim, editor-in-chief of WorkingNation. Work in Progress explores the rapidly changing workplace through conversations with innovators, educators, and decision-makers, people with solutions to today's workforce challenges.

German Flores Alcala, CodePath Guru:

I had no role model. I had nobody around me that was into tech and programming. So really growing up there was no influence whatsoever of tech. I didn't even know how prominent of a field it was.

Ramona Schindelheim, WorkingNation editor-in-chief:

That's German Flores Alcala, he was struggling in traditional computer science classes in college until he started CodePath bootcamp, which helped everything click for him. We'll get to German's story later. First I speak with Michael Ellison, the founder and CEO of CodePath. He's not just trying to increase diversity in tech, but he's rewriting the infrastructure of higher education computer science. And CodePath is making a big push to reach out to the Latinx students like German, black students, and women, people with great potential but underrepresented in the tech industry.

Michael Ellison, CodePath founder and CEO:

Becoming a software engineer, it's a highly skilled position, it requires a lot of time and effort in order to be able to develop the skills that can completely change the trajectory of these big companies that are trying to automate and modernize. Historically, the path into these technology companies has been through technical internships. A lot of what you'll see as entry-level, it's not quite entry-level, it requires thousands of hours of practice, knowledge, but then there's also this importance of being able to work with people who've been there, who have done that. For example, black computer science students.

Michael Ellison, CodePath founder and CEO:

In 2019, although there were 6,300 black CS degrees awarded, we only had about 8% or 588 who actually became software engineers. So 588, when in that same year we had around 900,000 open computing jobs that went unfilled for greater than five months. So this is us producing hundreds, when we actually, as a country, need to fill this gap of hundreds of thousands. It's completely unbelievable how small the number of people we're producing overall, and then especially when it comes to underrepresented minorities are.

Michael Ellison, CodePath founder and CEO:

And some of the biggest reasons behind that, the massive attrition that we see. A lot of students are being encouraged by great programs like code.org or Girls Who Code, and they're inspired to pursue computer science and to become more tactical. And then when they get into freshman and sophomore year, they enter into a system that wasn't designed for them, that's actually more designed to filter them out, where 70, 80% of these underrepresented minority students are dropping out freshman, sophomore year and not making it through.

Michael Ellison, CodePath founder and CEO:

So there is one big element of this, a very leaky pipeline filtering students out, and then there's additional gaps as well with oftentimes you can be a current student, many computer science programs today, and then you're not learning the skills that are actually the most in demand skills at these

different technology companies, which create additional barriers with making it on the radar of these recruiters or succeeding when you are in an internship or an entry level position.

Michael Ellison, CodePath founder and CEO:

So there's multiple of these gigantic bottlenecks that when you don't go to the right school, you don't come from the right background, you don't have the right access, they can bound and then they make it so that there's only a trickle of people who actually enter in and successfully are able to become software engineers.

Ramona Schindelheim, WorkingNation editor-in-chief:

Where is that filtering out happening? How is that happening? Is there no mentor there? Is there no individualized help?

Michael Ellison, CodePath founder and CEO:

There's certainly a massive support gap. There's a nationwide shortage of computer science professors. And so, while on one hand, there's been a lot of interest in computer science, the class sizes in these introductory courses especially have become larger, but there are fewer professors or upperclassmen to be able to help and to support these students.

Michael Ellison, CodePath founder and CEO:

Also, introductory computer science courses have typically been more weed out courses as well. There is definitely a support gap when you're students that you're more likely to have imposter syndrome, to have gaps in confidence and academic confidence, then it's going to be even harder for you to be able to stay into a major that has a history of emphasizing that you don't fit in and you don't belong and trying to overcome that.

Michael Ellison, CodePath founder and CEO:

So I think that's some of the earliest side of where it starts, but then you also have related to the gap between computer science and software engineering, you don't learn iOS, or Android, or you don't learn cybersecurity in a lot of these standard computer science programs in colleges and universities. So largely, due to this gap, a lot of companies will filter candidates, they filter schools, and they pick the top X number of schools in order to determine which resumes they're going to look at.

Michael Ellison, CodePath founder and CEO:

So if you're not coming from a school that they're recognizing, you don't already have something on your resume, then you're very likely to be filtered out before you even get an opportunity to prove yourself. And this disproportionately hurts people who don't come from privileged backgrounds, and especially underrepresented minorities and low-income population. So there's multiple of these points where it's pushing you out. And then there's also, even if you are able to stay in, you still have to overcome the, "I'm one of many, and my skills don't get me the role, my connections and my pedigree gets me the foot in the door."

Ramona Schindelheim, WorkingNation editor-in-chief:

Okay, so let's talk solutions. What is being done? What are you doing, and what other organizations are doing to try to reverse this trend?

Michael Ellison, CodePath founder and CEO:

We try to focus on holistically meeting students where they are with, I would say, three major types of interventions. CodePath is transforming CS education multiple years from freshmen to senior year. We start with the inspiration piece at the very beginning, you enter as a freshman, and then you see CodePath courses on your campus endorsed by your professor in the course roster that help to inspire you to pursue computer science, and also better prepare you for your first introductory CS courses, your freshman and sophomore year, so you're less likely to drop out. So that's number one.

Michael Ellison, CodePath founder and CEO:

Number two is CodePath is working with major tech companies like Facebook, and Microsoft, and Cognizant in order to make sure that the curriculum that exists on that campus is exactly this... We're limiting the gap with what is expected in the industry, but also making it more student-centered, more culturally relevant, more personalized, is the right pacing for you, and it's designed to make you fall in love with programming, as opposed to weed you out of programming.

Michael Ellison, CodePath founder and CEO:

And the last piece, and this is extremely challenging is, well, I have the skills now because I took CodePath courses, but what about me standing out to companies? And this is a problem that you hear across, we hear about bootcamp programs, any type of skills training program. CodePath has created a virtual career fair, where if you are an employer that signs up, then you have to interview every person we put in front of you, regardless of school, regardless of resume, regardless of background. And this has done wonders for students from going to your local community college or your state school that doesn't get the same attention, but there's lots of talented students there.

Michael Ellison, CodePath founder and CEO:

So that combination of filling in the skills in a student-centered way over multiple years, building confidence with the now we're going to make sure employers have to talk to you, that recipe has been phenomenal. And even Microsoft participated their first year, this past year with us and they gave offers to one out of three of the students that we put in front of them.

Ramona Schindelheim, WorkingNation editor-in-chief:

That's fantastic. Now, how many students do you usually have every year?

Michael Ellison, CodePath founder and CEO:

We've been growing by about 50% on average year over year since 2015. We'll serve about 5,000 students this year, then in 2021, that's about double the number that we served last year. And this is also in spring 2021, we'll be close to 70 colleges and universities. Spring 2020 we are in about 26 colleges and universities. So a lot of growth, which is a testament to the value for professors and for students.

Ramona Schindelheim, WorkingNation editor-in-chief:

Is CodePath totally working with college campuses or are there opportunities outside of college to get the same support?

Michael Ellison, CodePath founder and CEO:

Yes. Right now CodePath is very focused on two year and four year institutions. So we're at a lot of community colleges, we're at a lot of four-year schools. Historically, CodePath has partnered with major tech companies to do a whole variety of different types of training programs. For multiple years we are teaching veterans onsite at Facebook. So it's not so much that it needs to be a college campus, it's just that we want to make sure we're working closely with industry. All of our training, all of our programs has always been free.

Michael Ellison, CodePath founder and CEO:

So the cybersecurity program at Facebook free for any veterans, you could come onsite mentored by Facebook engineers, and we've just loved to do programs that help to expand access. Although right now there is a heavy emphasis, specifically on college university programs, largely because of the importance of internships in order to lead to an entry-level position at many of these tech companies, in the future we're going to expand and just provide free training programs for really anyone and partnering with large tech employers to make sure that as much as possible, there's a very direct and seamless route from your technical achievement and learning outcomes directly to your first job opportunity.

Ramona Schindelheim, WorkingNation editor-in-chief:

As we go deeper into 2021, where do you see the need for your services? Where are you going to put your emphasis moving forward? Is there going to be any change? Is there more of a need for what you're doing?

Michael Ellison, CodePath founder and CEO:

Yeah. More than ever, underrepresented populations, low-income populations have been affected the most disproportionately from COVID with loss of life, with lost opportunities, with a lot of students are out of school. We see the incredible urgency with trying to make sure that we can upskill as many people as possible, help as many people as possible to benefit from that digital acceleration that has happened over the past year and be part of that opportunity to be upwardly mobile and economically more secure.

Michael Ellison, CodePath founder and CEO:

Our big emphasis, I would say, moving into the next year is even though we're growing fast, 100% year over year, quality is actually always our theme. And from this standpoint, we've been focusing very much on partnerships with minority serving institutions and historically black colleges and universities, and making sure that we're helping to support the lack of resources that many of those campuses have.

Michael Ellison, CodePath founder and CEO:

So there's been a huge push with deepening our relationships, expanding our relationships with those particular programs. You'll see that this year will help to be the banner year of CodePath going beyond just helping to supplement computer science programs, going deeper into the core student experience. We want to make sure that the default path in a computer science program is a path that builds your confidence, is a path that makes you fall in love with programming. As opposed to what I mentioned before, it can be a path right now that makes your imposter syndrome worse and makes you feel like you don't belong. We want to change that and change it from a core system-wide level.

Michael Ellison, CodePath founder and CEO:

So that's a major investment in professor relationships, school relationships, and especially as it's focused on minority serving institutions and HBCUs. So that's our big push in this year. And then over the next couple of years, you'll see CodePath reaching the majority of CS institutions in the country. About 80% of computer science students attend 120 institutions, so we're well on our way to try to make that depth and breadth a level of impact.

Ramona Schindelheim, WorkingNation editor-in-chief:

How has the employer's response changed to the workforce, particularly the underrepresented workforce? Over the last year, what's the response been to make it more inclusive?

Michael Ellison, CodePath founder and CEO:

I think there's been a lot of pledges, there's been a lot of statements. We have seen a big difference than what we've seen in the past. At the executive level, there's been a seriousness to try to change things, diversify workforces, create more inclusive spaces for underrepresented minorities. And although that gives me a lot of hope and a lot of optimism, I am very much pushing major employers to think about how their actions and their plans will impact the communities that really need more durable, sustainable change.

Michael Ellison, CodePath founder and CEO:

As an example, if you're talking about diversifying the workforce, you see a lot of organizations as their first reaction is send some recruiters to some HBCUs, not understanding that the majority of black students in computer science programs and across college campuses, they're not attending HPCUs and there's not a lot of representation in a lot of these computer science programs.

Michael Ellison, CodePath founder and CEO:

I love HBCUs, we certainly do need to include that as part of the equation in impacting black communities. But we also need to understand where the numbers are, how we move the needle from a diversity and tech standpoint, which looks a little bit more nuance with going beyond just the first knee jerk reaction, and then really making a concerted effort to connect with these community leaders and these non-profits, these organizations that year in year out are trying to think of how we can move the needle.

Michael Ellison, CodePath founder and CEO:

And then how important it is that we are sharing those notes between philanthropy, between nonprofit, between large companies, and then also ultimately policymakers. So this is something that's not going to be solved overnight, and it's important that we are making sure that we're bringing in the representative voices and backgrounds so that there's lasting change, and it's not just something that ends up being a here today, gone tomorrow type of initiative.

Ramona Schindelheim, WorkingNation editor-in-chief:

And if you were talking directly to a student who was considering this career, what would you say to them?

Michael Ellison, CodePath founder and CEO:

I would say I've been in a similar place as you. I grew up low-income in rural Maine, single mother household. At points in time, we were homeless growing up and I didn't know if I was going to be able to get to college, succeed in college from finding entrepreneurship and tech entrepreneurship early back all the way when I was 19 years old. I've now founded six different organizations and one of my recent startups was sold to a public company for $3 billion a couple of months ago. There's really limitless opportunity. Tech careers, it's a modern day gold rush, this is the place to be.

Michael Ellison, CodePath founder and CEO:

If you want to increase your chances of getting lucky and having an upper mobility, you don't need to become a software engineer in order for this to happen, I'm not a software engineer. Being interested in technology and developing that technical digital literacy is going to open up immeasurable opportunities for you. And I think I'm a pretty good example of that.

Ramona Schindelheim, WorkingNation editor-in-chief:

German Flores Alcala is just one CodePath success story. He's 23, his family immigrated to Southern California from Mexico when he was just five years old. He shared a story with me and how he decided to get into tech. He told me it wasn't easy at first.

German Flores Alcala, CodePath Guru:

I had no role model, I had nobody around me that was into tech and programming. My mom would applaud me for just closing a browser or something. She wasn't very fluent in technology, people around me weren't. So really growing up, there was no influence whatsoever of tech. I didn't even know how prominent of a field it was. Even in college, I was completely lost. I felt so lost and I felt so discouraged. My third year of college, I was struggling so much. I was taking still the fundamental CS classes, and computer science wasn't my major, it was my minor, but I figured I could not get into computer science. It was just ridiculously hard, and you had to get perfect grades, and I was barely getting through on the beginner classes.

German Flores Alcala, CodePath Guru:

And I was in the lab, my friend, who I had met, we were working on a lab assignment, a homework assignment, he comes up to me, he's like, "Oh, I saw this flyer for this thing, app development." And I was like, "Okay, I can make an app and I can put it on the app store, and I could probably make a lot of money, and I could start helping my family now while I'm still in college, just make passive income, advertisements or whatever," because I had seen some 12-year-old who made some Justin Bieber app, it was on YouTube and he was making crazy money for no reason. And I was just like, "Okay, maybe I can do that." So it just so happened that the bootcamp was CodePath.

Ramona Schindelheim, WorkingNation editor-in-chief:

German tells me he was struggling in his college courses, but as soon as he started CodePath bootcamp, everything started clicking.

German Flores Alcala, CodePath Guru:

Once I took that bootcamp and I started making a project from scratch and seeing the holistic view of putting it together and everything, it started making sense to me. All these computer science terms started to make sense like, "Oh, this is a class. This is why we're doing this." The CodePath bootcamp iOS

course at the end of the course, there is a demo day where we present our apps. We work with our friends or in a group, we present our project, and then after we have been working on our project, our friend who was also in the labs was like, "Hey, you guys should apply for this incubator. That app that you guys are working on sounds really cool. The incubator just gives you free money to work on your idea."

German Flores Alcala, CodePath Guru:

So it was like the startup little ecosystem that you see as decultivates prior to CodePath, and prior to this clicking, I had no idea what I wanted to do with computer science. I had no idea why I was even taking these classes. I just felt like I was wasting my time. I felt like I wanted to drop out, I felt like I wasn't good enough. I would be in the computer science labs trying to do my assignment and I'd literally be tearing up because I would be on the queue trying to get help from the TA and everybody around me is finishing, they're all smart, they're doing what they're supposed to do, they belong here. And I felt like I had imposter syndrome before CodePath.

German Flores Alcala, CodePath Guru:

I felt like maybe the system just was broken, and I got put here by accident. But after taking CodePath and making the projects, and seeing the patterns and everything started clicking, I realized like, "Okay, maybe I can do this." And it started giving me confidence to start doing more and applying myself more, and I got involved with the startup ecosystem on my campus. I build my own team, I build my own little startup. From there, just started building on top of each other, but CodePath was the tipping point.

Ramona Schindelheim, WorkingNation editor-in-chief:

He said CodePath helped him get over this so-called imposter syndrome through it's hands-on mentoring.

German Flores Alcala, CodePath Guru:

I think CodePath, the idea that they were just walking us through a tutorial of making a project and the videos were reassuring that we can all do these projects and build apps and stuff, that was completely opposite of what I was facing at UCSD, where UCSD was like, just do it on your own, you can't collaborate on code. This was very guided, they're holding your hand the whole time in the videos.

Ramona Schindelheim, WorkingNation editor-in-chief:

German was taking courses, taking CodePath and working 20 hours a week. It was a tough year, but after that year, he applied to be a tech fellow to give back and teach other students. That led to an invitation to be a tech guru, a paid position with CodePath in which he helps others on their journey into a career in tech.

German Flores Alcala, CodePath Guru:

I completely enjoyed the experience. I felt so connected. It was really awkward sometimes talking in front of students and they're not really talking back, and you have to crack a joke here and there, and sound a little foolish here and there. But I didn't mind, because to me, it made my heart warm because I know I was able to advise a lot of other students. There was a lot of students who felt lost as well, and I gave them reassurance and I would stay after class and talk to them for like 10, 20 minutes sometimes just telling them how I was feeling at one point and how they're eventually going to get it. And I would

go above and beyond to give back to that community, and I recorded videos and I sent them out to the students and it started getting a lot more personal where still, I felt like, wow, CodePath really made a home for me.

Ramona Schindelheim, WorkingNation editor-in-chief:

In December, German started working for the software giant Intuit, full time as a software engineer, iOS developer. He's come a long way from that nervous college freshman in a very short time.

German Flores Alcala, CodePath Guru:

They have me coding on the QuickBooks iOS app. So far it's been a really thrilling experience. Everybody's so nice and welcoming, and the flow of my daily schedule goes, like I check some emails, I join some meetings here, there. But for the most part, I'm at home, just coding and just looking at code, just working on any feature, fixing some things or cleaning things up. The fact that I can even just be in the comfort of my own home and the fact that I'm working for such an amazing company and came from so little, I'm so happy and grateful to be where I am.

Ramona Schindelheim, WorkingNation editor-in-chief:

You've been listening to a special edition of Work in Progress, expanding opportunities in tech, creating a more diverse and inclusive workforce. This series is produced in partnership with Cognizant U.S. Foundation. For Working Nation, I'm Ramona Schindelheim, thanks for listening.