Zebra Your Edge Podcast

Hosts:

- **Stuart Hubbard, Senior Director, AI and Advanced Technologies, Zebra**

Guest:

- **Saliha Demir, AI/Software Engineer**

Transcript

00:00:00:00 - 00:00:23:29
Stuart
Welcome back to our podcast, everyone. I'm Stuart Hubbard, Senior Director of AI and Advanced Technologies at Zebra Technologies, and I've asked Saliha Demir to join me today because she's working on some very interesting AI projects. Saliha recently graduated from college and is interning with Zebra right now with some software engineers in our mobile computing and cloud business unit.

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Stuart
But prior to joining our team, she participated in a new program sponsored by MIT and Breakthrough Tech in which they gain AI engineering skills that can be applied broadly across different industries. So I wanted to hear more about how early career professionals are being trained to use AI, and also what Saliha, as a new software engineer, believes to be the greatest opportunity for AI-augmented or AI-automated workflows across different industries.

00:00:50:05 - 00:00:53:09
Stuart
So, Saliha, I appreciate you sitting down with me for a bit. So thank you.

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Saliha
Yeah, thank you for having me on this program. It's really an honor.

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Stuart
So, Saliha, I know this program and the project you were working on was recently featured in The New York Times. So, very impressive. But in case our listeners didn't see that story, can you tell them a bit about the program and what you specifically accomplished through it? I understand it's an 18-month intensive program designed to upskill engineers in certain areas, such as machine learning,

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Stuart
AI, of course, but also data science more broadly. Is that right?

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Saliha
Yeah, yeah. So just breaking it down. The program has like three parts to it. So the first part is the summer part where you're just getting the fundamentals. So that's where we kind of dive into more data science and machine learning. It was kind of like a classroom environment where we actually had like labs and homeworks that we had to do.

And, we had one final project that we all did together. And that was just so all of us could get used to coding with AI because a lot of us had no background in it. I had a very little bit of a background in that, but, not enough to like, know how to do what I did later on.

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Saliha
So once we passed that part, like, we had to have a high average in order to pass and go to the next part of the program, we were slotted to work with different companies, to do real-world AI studio projects. So in my case, I was slotted with a startup. And what what we mainly worked on is we worked on making sense of unstructured data using 10-K financial documents.

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Saliha
We would just have the AI query it, figure out the answer, and then bring back the metadata, meaning like the page number where it found it, how it's applicable. And in that program, in that part of the program, I was mainly dealing with AI. And we were working with teams. So in the team, I was like a lead AI developer.

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Saliha
And after that, the final portion of the program was a spring portion where we worked with the Botanical Garden. So, they basically had us classify different plants, figure out where they're coming from, what they look like and whether or not the documents are like the actual plant itself - a drawing of the plant, a photo.

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Saliha
So we had the AI go through, I think it was 10,000 data points. So we had to go through all of that. And we made it like a competition. So everyone in the program was going - instead of like splitting off into different teams - we all were just working on getting the most accurate version of it. And yeah, that was at the New York Times...

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Saliha
I was interviewed for - or not at the New York Times, at the Botanical Garden - I was interviewed for the New York Times. So that's kind of how that happened, too. But that's the gist of the program.

00:03:48:15 - 00:04:03:10
Stuart
So it sounds like you went from 0 to 100 in such a short time and being thrown into the deep end. But have you recently developed an AI model that also identify foods that meet more than a dozen different kinds of dietary restrictions?

00:04:03:12 - 00:04:04:06
Saliha
Yeah.

00:04:04:09 - 00:04:05:17
Stuart
So tell me about that

00:04:05:19 - 00:04:06:20
Saliha
How did you get the

00:04:06:22 - 00:04:09:23
Stuart
skills to take on such a big project on top of that?

00:04:09:25 - 00:04:33:09
Saliha
So, last year, I was still an undergrad. I was doing my senior project. And that summer, like last year's summer, is where we took - or I took - the machine learning foundations course. And since, in senior project for my school, you have a year to work on whatever you come up with, I decided, "I want to do something with AI.

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Saliha
I want to do something with app development and put them all together." So as a team, we kind of brainstormed, we were about six people and I was like very ambitious with my goal. I wanted to use AI completely with the project. So, I just came up with a problem that a lot of people face is like a lot of people have different dietary restrictions.

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Saliha
It's not cut and dry. Some people can be allergic to things. Other people, like in my case, we have to eat halal. So we decided we came up with about, I think it was 16, 17 different dietary restrictions, like pescatarian, halal, kosher and different allergies. And I programmed an AI to go through ingredient lists, like you would scan that and it would tell you whether or not what you can eat is okay for you to eat.

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Saliha
And as a team, we kind of made that into one huge project, one app that would - like a full stack app that you would just use. So, even like to this day, I think we need a little bit more tweaking. But if we were to release it, it would be fully like applicable. Like it would work.

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Stuart
Yeah. No, I mean this is quite close to my heart because my son's got a nut allergy and I know that we're forever reading the back of a packet. And then some of the writing is very small. And then you go, well, has it changed? Have ingredients changed? So yeah, I find this really useful for us specifically.

00:06:06:06 - 00:06:11:29
Stuart
So, what are you working on at the moment with Zebra? Is it AI centric or more traditional software?

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Saliha
Yeah. With Zebra, it's kind of a mix of both. I'm doing mostly AI centric, but they're having me develop like an app that I can use with AI to answer some questions, like Zebra- related questions. So, yeah, I'm still working in the same vein of AI and app development.

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Stuart
And is it more machine learning or are you looking at generative AI? What kind of areas within AI are you looking at?

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Saliha
It's the same as generative AI. I'm just pulling like what Zebra has, like a model that zebra has, and I'm just going to tune it up and make it fit to answer those questions.

00:06:47:12 - 00:06:56:19
Stuart
Okay. And so is there anything that you're learning differently in business as an intern than what you get taught in school?

00:06:56:22 - 00:07:17:05
Saliha
Oh yeah. The real world is completely different from, like, very safe project. So for me, I knew I had a year to work on my project at my school, my senior project. Like a full year to go on everything and like three months to work on the other projects, like the AI studio one.

00:07:17:07 - 00:07:37:29
Saliha
But in terms of the real world, it's so, it's like a whirlwind. There's always stuff to work on, always new things to consider. We have to constantly keep updating to keep up with the drastic improvements in AI. So even stuff like my supervisor taught me, even stuff from four months ago could be considered outdated.

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Saliha
So it's kind of hard to keep up with this rapid advancement that I never really had to pay attention to. And also, in the corporate world, a lot of projects are like given and then they're like, okay, never mind. Next one, this might be better. So it's it's been an adjustment, but I think it's really fun to just constantly have new things to work on.

00:08:01:11 - 00:08:23:17
Stuart
So I'm interested when you say the within four months, “that's old now.” And I know my team kind of - not suffer from it - but we do a lot of kind of looking at the papers and looking at the research out there. But what have you learned about kind of focusing on kind of solving a problem rather than trying to do the next best thing or the next state of the art thing?

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Stuart
Is there any learnings that people can take from this?

00:08:28:02 - 00:08:49:20
Saliha
Yeah. A lot of times, I always heard the phrase, ‘don't reinvent the wheel.” And I'd be like, but what if you can make it better? But no, I realized, like, especially in this high adapting world of AI and like, software in general, you have to be the best in the fastest way. So in order to do that, you have to use what's around you.

00:08:49:23 - 00:09:13:24
Saliha
So if you spend a lot of time making the best item and not improving the better item, you might get like bogged down and stuck on things that you wouldn't otherwise work on. So like, with improving a better item, you already have a baseline. But if you were to restart from scratch or let's say build ChatGPT from scratch, it's a long way to go to get to where they are right now.

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Stuart
Yeah, and very costly as well to get there.

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Saliha
Oh yeah.

00:09:16:21 - 00:09:40:20
Stuart
So yeah, certainly. So, Saliha, you're just starting your career in AI, and I've been in AI for a long time, and I'd be interested to kind of get your thoughts on where AI can actually make the biggest impact. And where can AI help in the future? But what's your initial thoughts?

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Stuart
And especially coming into Zebra, where you see us in different industries, where would you see it making the best impact?

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Saliha
Honestly, I was thinking about this question too, and AI could be used everywhere. I think the limits of it are like, if we place limits on it, that would be a disservice to AI because it's not a matter what is the best thing it can help with? It's a matter of when can we make it help this thing?

00:10:12:26 - 00:10:42:08
Saliha
So like, right now, I did a talk recently at Columbia University, where I did like a workshop on OCR - optical character recognition. And it was just to high schoolers, but I was teaching it. And a lot of the use cases I found, even though OCR was like an older technology compared to AI, it still uses AI, and it can still be improved.

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Saliha
And it's used like everywhere. Like I found out that OCR could help, like blind people read it could be it could help, like everywhere. so it's not a matter of like what specifically? I can help with. It's a matter of just how can we utilize AI to best help in like a specified area? Because if you train a model, it's going to be the best at what you train it to do.

00:11:06:05 - 00:11:15:21
Saliha
So I don't know if this is like a roundabout way of answering, but there's no perfect singular application that AI can go into.

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Stuart
No, I mean, I agree with you. So it's making sure that it's applicable to the right use case, but it's yeah, unbounded and it can help everywhere. So with that, then the next side of that is do you think there's anything commonly misunderstood about AI? Perhaps something that you misunderstood before you kind of actually got into the field?

00:11:39:12 - 00:11:53:24
Stuart
Because I know there's a lot of areas that you can focus on and there's a lot of specialists within AI. So you've got deep learning, machine learning, you've got generative AI and it's a vast field that the people can get into.

00:11:53:26 - 00:12:21:14
Saliha
Yeah. So, I misunderstood that “AI exists to harm or take over things” rather than “it exists to augment people and help things.” So, it took me a little bit to understand that AI is just the tool, and it's whatever you make of it. For me, I came in with a probably a negative experience of AI.

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Saliha
I also never really use ChatGPT or anything like that, so I had like no background in AI in terms of using it before starting the whole program. And I'm also an artist, so all I heard was like, AI is taking over art. But later on as the more I learn, the more I know, the more I see that it's an augment.

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Saliha
So, when AI is used for harm, it's just harmful intentions that augmented the AI. And when AI is used for good, it's good intentions. So going back to the example of art: I know that a lot of art is being wrongfully taken sometimes. but then there's also an AI that exists to block that AI that takes the art.

00:13:11:00 - 00:13:29:23
Saliha
So it's kind of like, AI can be used for anything, any type of thing. So yeah, it's just going back to the question, I learned that it's more of a tool to be used than something to be afraid of.

00:13:29:25 - 00:13:50:27
Stuart
Yeah. No, I totally agree with you that, So. Yeah. Interesting. So you're at the start of your career. that's very exciting. You've done all these things, you've done the software engineering, you're looking at the AI side, you've done a few different projects. So where do you see your career heading? Where are you driving to get to?

00:13:51:00 - 00:14:11:09
Saliha
Oh, honestly, I just want to learn, at the point of my, I'm at the point of the career where I'm just starting, so there's no need to box myself up. There's no need to say I'm only going to learn AI, or I'm only going to do software, or I'm only going to work, like on this very specific niche thing.

00:14:11:11 - 00:14:39:12
Saliha
So, I just want to learn. So at this point, I didn't expect it, but my path has brought me towards being really advanced in AI. So I'm learning as much as I can with AI. And then later on I'm going to move on to whatever the next thing that catches my interests. But in terms of work experience, my dream is to just be happy and be content and always be learning with what I'm doing.

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Stuart
But do you see it being in the AI field, but it could be in any industry solving it, many different problems?

00:14:46:26 - 00:15:08:12
Saliha
I'll definitely be in software. I think that this is like what I love to do. At this point, I do see myself in AI, but once again, if there's something else that comes up that maybe, like, the next big thing, like, I know blockchain was the thing and now it's AI. So, we'll see what where the future takes me.

00:15:08:14 - 00:15:30:13
Stuart
Yeah. So interestingly, as you talk about the next big thing, obviously generative AI, LLMs (large language models) is kind of all the buzz word and the hype at the moment. How do you see that affecting software engineering or research going forward? Because I know there's now some tools to kind of help them out. But for somebody starting in their career in engineering,

00:15:30:13 - 00:15:33:11
Stuart
well, what impact is that going to have?

00:15:33:13 - 00:15:55:17
Saliha
Yeah, I think AI will definitely make things easier and some things harder. So, in terms of like easier, I know, like just a small use case, like in software engineering, when I have a little bug, it takes me hours to figure out what the bug is. I have to do my own research. I have to Google things, go on StackOverflow, just figure out what's going on.

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Saliha
But with the use of AI, you can just give the AI your code and be like, what's the problem? How do I fix it? So it's a way of streamlining things to make it easier for you to develop your code or just augment what you have. But, I know it could be not harmful, but maybe a little bit harder to work with in a way since AI is very...it's like a black hole.

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Saliha
You don't know what exactly it's doing and what exactly works. You can train it and make it more sophisticated, but overall, like the process of what exactly goes into it and how it comes out is a little bit muddied as of right now. So, if you want to work on just AI and figure out what's going on, what's wrong with it, how to make it better, that's... it's a little bit confusing to work with.

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Saliha
So, it needs insight and experience on why things work that way or how we can make it better. But overall, I think it's just the next thing in software or engineering where you use AI to just help make your code better. Like in terms of...let's say you're testing, I kno for other types of engineering, there's a lot of testing that requires a lot of detail, but also it's pretty monotonous.

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Saliha
So you can use AI to free up time for yourself. So the AI does that while you work on other things.

00:17:20:10 - 00:17:43:00
Stuart
Yeah. Yeah. So it goes back to it's a tool and augments your job and obviously make sure you can go faster and do more efficiently. So. Okay. Interesting. So last question, what advice do you have for others just starting out in their career journey? What lessons to be learned? What kind of hacks and things that you recommend?

00:17:43:02 - 00:18:11:15
Saliha
The first thing I want to say is never box yourself up. I came into software, actually, I came into computer science thinking I would only work strictly software - no front end, no back end, just kind of building stuff on my own. And I really wanted to box myself up. So any time I would get a new opportunity for something different, I would be like, oh, I think I'm gonna...

00:18:11:15 - 00:18:37:24
Saliha
I think I'm better suited for this. So, the first time I, started unboxing myself, I guess not putting myself in one label is, a Zebra data science hackathon I got into, in my first year of college. I had barely any coding experience. I had a little bit from before, a little bit of Python, but I went into a hackathon for data science that wasn't software engineering, it was data science.

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Saliha
And I ended up, me and another girl, we worked together, and we ended up getting second place and just being our first year of computer science. And after that I realized it's not the label, it's the knowledge. So you can have knowledge on everything. and if you label yourself to be one thing, it's a disservice to yourself.

00:19:01:25 - 00:19:26:07
Saliha
I also want to say, “Take opportunities when you get them.” Like, for the New York Times, that was... I saw the opportunity - that journalist was interviewing people - and I went in and I kind of waited for her to not notice me, but I made myself noticeable. And then I walked up next to the interviewer, and I dropped a little hook.

00:19:26:07 - 00:19:48:16
Saliha
And I was like, please let me get interviewed. But the hook was enough to get interviewed. And now, because of that opportunity that I made myself, I'm now on this podcast or I got to speak to other interns about this. And just, genuinely participate in things even if you don't think that you’re qualified to do them. Just try it out.

00:19:48:16 - 00:20:15:21
Saliha
Apply to things. Figure it out. Another funny story going back on that: For the Breakthrough Tech program, I thought I was getting hacked. I got an email randomly on my student, my school, account, and it said, oh, sign up for this program. And I was like, okay. So I went in and I put in all my information, I press enter, and then I realized I could have been a scam email because I had never heard of the program.

00:20:15:21 - 00:20:38:05
Saliha
So I was so scared that something happened, but I still went for the opportunity. In terms of that, like, definitely cross-reference that what you're signing up to is real. But, still, signing up changed my life. I would probably not even be working at Zebra if I didn't do this program. So yeah, the two main things:

00:20:38:05 - 00:20:44:10
Saliha
Don't label yourself/don't box yourself up, and take any opportunity that you can.

00:20:44:13 - 00:21:02:00
Stuart
Fantastic. Yeah, I like that because I think I heard the advice is 90% is just turning up because the opportunities are there and then you just take them. So, yeah, I really like that. So, Saliha, thank you very much for your time today. I wish you every luck in your career. It's been great getting to know you.

00:21:02:02 - 00:21:05:28
Stuart
I think you've got a great career ahead of yourself, so thank you very much.

00:21:06:00 - 00:21:17:09
Saliha
Yeah. Thank you so much for having me. This has been incredible - like everything at Zebra, being on this podcast. Thank you so much for having me.

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