



BUSINESS RESILIENCE

Transforming Healthcare Outcomes with AI and Global Talent

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In this episode of the Zinnov Podcast, Amit Phadnis, RapidAI's Chief Innovation & Tech Officer discusses artificial intelligence in healthcare, diagnostic accuracy, and retaining talent, with Pari Natarajan, CEO, Zinnov.

This is the verbatim transcript.



0:00 Introduction

Pari: Welcome everyone to a new episode of the Business Resilience Series of the Zinnov Podcast. I'm your host for today's session, Pari Natarajan, the CEO of Zinnov. Today, we are speaking to Amit Phadnis. The Chief Innovation and Technology officer at RapidAI, a visionary leader at the intersection of technology and healthcare. Amit has been instrumental in driving product R& D, engineering and technology advancements in Healthcare, creating products that play a pivotal role in neurovascular, vascular disease care and beyond. A global expert on medical imaging analysis, Amit works to deliver software tools to healthcare professionals around the world to successfully identify and diagnose cerebrovascular disorders using Artificial Intelligence. Welcome, Amit. We are thrilled to have you here.

Amit: Thank you Zinnov, I'm glad to be here.

01:02 - AI in healthcare innovation

Pari: So tell us a little bit about RapidAI. What does your company do and what is the role of AI in healthcare innovation?

Amit: Yeah, I think you already sort of articulated that, but we are an AI in healthcare company first and foremost. We've done a lot of work in the stroke area, but essentially, as you said, you know, we are in the neurovascular disease space, but more particularly, everything that we do is in the critical care and acute care area. So time is of essence, therefore a lot of things that we do are basically for acute condition patients, different types of strokes. We also have products in brain aneurysm, pulmonary embolism, and then similar other disease states from a vascular perspective.

I think RAPID, you know, has been pretty successful over time, we have deployed in more than 2,250 hospitals, globally. We process about 14, 000 scans everyday, and that number grows, you know, basically every day.

Yearly growth has been 30 percent year on year on number of scans. We've done more than 10 million scans already. But I think what's of real relevance is that we've identified more than a million patients for lifesaving procedures as a result of all of the work that we do. We also have a mobile app and to support both the execution as well as delivery of the AI results, we have a platform which is actually pretty comprehensive.

The mobile app is one way for the clinicians to actually consume the results of AI, and the app also has in addition to the AI results itself, image viewing, as well as workflow related tools.

03:00 - AI use cases in Healthcare

Pari: In what you're doing, what is the role of AI? Give us a little bit of use cases. And how you've been using it so far.

Amit: Yeah, I think AI plays a pretty pivotal role. We call ourselves a deep clinical AI company. Because in healthcare, you'll find, you know, different types of AI algorithms or tools, right?

There are what are called basic triage and notification tools. Or triage and notification algorithms, wherein you are basically saying to the clinician that you're suspecting something, but you cannot really go beyond that. But we have a number of algorithms which go way beyond, you know, triage and notification. And we'll talk a little bit more about that. You know, that's why we call ourselves deep clinical AI.

In the stroke space itself, if you run all of these algorithms on the Edge cloud platform, we can now run them in parallel. So within six to seven minutes, we can actually produce all of the outputs from an AI perspective and then deliver it on a clinician's mobile phone. We can send emails. We can also notify them on PACS for example. But there are many mechanisms by which the results can be consumed from an AI perspective.

Pari: It's very interesting. It's mission critical. And then the physicians are using you to make those very critical decisions in a very short period of time. And RapidAI has been around for the last few years, but the AI led innovation seems to have accelerated in the last 12 months.

Is there something changed in terms of how you're using some of these newer algorithms? How are you leveraging some of these algorithms?

Amit: Yeah, actually, obviously, there is a realization that AI can play a big role, right, in healthcare in general. But very specifically with respect to image analysis, as well as, you know, the ability to sort of diagnose disease states.

But I think we saw this at multiple conferences, including RSNA, late last year, there are a number of clinicians are now saying that, look, just triage and notification algorithms are not good enough. Because, you know, just saying that there is a suspected stroke doesn't necessarily provide them the information that they need.

So they need a lot more, you know, than just a suspicion of a disease. And typically what they're looking for is, are you able to sort of isolate where the problem is? Are you able to then, you know, quantify, characterize the disease as well as quantify the disease? So can you take measurements?

Can you characterize, right? You know, either tissue type or disease type or disease state very specifically and localize that disease, to a specific area of the anatomy. All of this is very important for a clinician because, you know, this is where actually they end up spending a lot of time.

Sometimes, you know, it is not very clearly visible on the images, right? And therefore, if an AI algorithm can actually throw light on, you know, these type of aspects and provide them localization, the correct characterization of tissue, it then becomes a very impactful thing from their perspective.

Pari: So coming into the kind of new innovations, which has happened, right? Right now, with Generative AI, it's a lot more probabilistic. It's not going to give the same answer every single time. But in healthcare, you need to be a lot more data deterministic on how these algorithms work. Now, are you able to leverage some capabilities of the Gen AI into your traditional healthcare capability?

Amit: Yeah, very interesting question. Pari, we have been sort of exploring this area pretty significantly as I'm sure many other companies are right at this point in time. Now, look, Gen AI can certainly play a role, but I think we have to be careful about this, right? Because I think this is my view that, you know, we are still quite some distance away from, you know, creating a generative AI algorithm in a diagnostic space, which would be cleared by FDA,

right, as a clinical diagnostic algorithm, right?

And the reason for that is there is still some concern about the generative AI hallucinating at times, and that absolutely cannot happen when you're in a diagnostic area. But I think there are many other places where a Gen AI can be actually applied, you know, pretty effectively, right?

Amit: You know, I think in general, you can say that wherever there is information required, that could very easily be done through generative AI, right? So you could have intelligent chatbots, right? You can have, you can feed in a lot of information, including literature and books and things like that so that there is a very quick reference available. That's just one example. But there's also a lot of work being done in the generative space with images and imaging in general.

Now, although diagnostic algorithms using generative AI may be a little bit away, in terms of our ability to get an FDA approval, but, but I think we can definitely use these techniques to, for example, generate synthetic data.

There are a number of algorithms available now in the generative space, which work with images pretty effectively. And that actually is a pretty important tool, you know, if you want to sort of train algorithms, because real world data is hard to come by, right? And not everybody has access to it.

So at least from a training perspective, you could sort of use generative AI to create synthetic data that can be then used to train the algorithms. Now, you know, for validation, you cannot use that obviously, because FDA requires you to sort of validate your algorithm on real world data.

Not just that, but data that has a lot of, know, variety in it coming from different geographies and, things like that, but there are pretty interesting applications of Generative AI already in the AI space in healthcare.

Pari: It's interesting you say, I thought because of the probabilistic nature of Generative AI, right, that not much, but there are edge cases you're able to leverage it effectively.

Amit: I think for I think for synthetic data, there is but quite effective usage of this. Because you could use any of these imaging related Gen AI algorithms to actually create images, collage images, essentially, right, or combine images to create artifacts, you know or images with artifacts or specific disease states and things like that. And then use those to sort of train the algorithms. That's a pretty straightforward use case from a generative AI perspective.

10:17 - Healthcare specific challenges for AI

Pari: In less regulated industries e commerce, media, it is a lot easier, right? What are other healthcare specific challenges? We talked a little bit about it when we discussed the gen AI piece, but are there other healthcare specific challenges in adopting AI in innovation?

Amit: Yeah. I think for AI to be useful it needs to be precise, right? The sensitivity specificity requirements in healthcare are very high because if you produce an algorithm, which has a sensitivity and specificity of 90 percent each, the number of false positives and number of false negatives are, are pretty significant, right? You're essentially talking about 10% false positives and 10 percent false negatives, which can be a pretty high occurrence rate, right, for a clinician.

That reduces the trust on the AI algorithm pretty significantly So that's one, you know, pretty significant barrier in healthcare. The second thing is, it's not good enough, to sort of say we

suspect something. Okay. For it to be really useful for a clinician, for a radiologist, for example, right?

Burnout is a big issue. Okay. So you have to really help them, you know, reduce the time that it takes for them to actually read an image, for example, right? Or be able to diagnose something or write a report. And that requires us to do a lot more than, you know, just be able to suspect something, right?

It's not very useful to reduce the burnout or the burden on the clinician. So you have to be able to localize it. You also have to be able to quantify it. So there is a lot of variability that comes in. And in spite of all of that, you have to be able to do all of these things correctly, right? And I think that's what makes it very, very difficult, right?

And the requirement for high accuracy is very high and then you have to go beyond a basic suspicion right into localization, characterization and quantification for it to be really, really useful. And of this combination makes it much tougher. I would say to add to that, if you have unlimited data set, you can always do all of this. You know, there is no unlimited data, real-world data, right, you know. And the more peculiar, or the specific, more specific, the disease state, the more difficult to get real world data. So that makes it very challenging.

12:50 - Finding and retaining talent

Pari: Very interesting, And it looks like, you know, that is quite challenging, but why should, right now the job market is very hot for talent with AI skills. So how, how do you find you retain talent at this time for driving, especially around healthcare as well, especially around fast growing startup like RapidAI?

Amit: Yeah. I mean, as you said, there's a high demand for talent. Now, one thing that benefits the healthcare industry in general is the sense of purpose, right? I mean, I think we, at RapidAI, we know that every minute of work that we put in, you know, we'll end up probably saving a patient, right?

And maybe saving an extra patient, through the work that we are doing as we continue to improve the algorithms. And I've seen engineers being extremely passionate about this, right, because they know the direct impact that they're creating, every algorithm that you develop, right? Or every time you upgrade or update an algorithm, make it more specific, make it, you know, more precise in some way, that you are literally going to positively impact thousands and thousands of patients, right? And I think that's a great thing about, you know, being in this space that the sense of purpose is really, really strong. And, you typically find that once people get into it, right, they're pretty passionate about, you know, what they do. And they want to continue to improve what they're doing, right?

Because they know that every single time there is an improvement that sort of goes towards saving somebody.

Pari: On some level they join for the kind of technology they're working on, but they stay for the domain and purpose, the company.

Amit: Yes, absolutely.

14:36 - Leveraging Innovation through tech hubs

Pari: And how is the team, you have set up a tech hub, a GCC in India. How is that team able to help in driving the innovation, especially a lot of this work you do is largely for the US market?

Amit: Yeah, I mean, we have a pretty significant investment in Bangalore, right? I mean, we are a relatively small company, but, given that we started, you know, the Bangalore operations about roughly one and a half years back.

We were very clear right up front. We do not look at this as Bangalore or US or, you know, where the engineer is working. For us, it's all about, you know, what talent we have and what is the work that needs to be done. And, right up front, we were very clear that we are going to put in a certain complete ownership responsibility in Bangalore.

And in fact, the whole edge cloud platform, almost 80-90% of that has been done out of Bangalore right over the last 18 months, which is actually pretty significant because, you know, that's a platform on which we sort of orchestrate all of these algorithms that we are talking about, right? Including the mobile backend and so on and so forth, we are now continuing to invest in the mobile application space right in Bangalore. And I think that investment will continue. So our sense is that given the talent that's available in Bangalore we have an opportunity to do more and more there as, as we also grow the teams in the US. But we are very clear that it, you know, the work that we do is independent of the geographies, right? So it's not like this type of work can go to Bangalore or some other work can stay in our needs to be in the US. We move very fast. We are a late stage startup, I would say.

Although we are heavily deployed and pretty successful, right? From a clinical evidence perspective. We do pretty significant work in every geography that we are in and Bangalore is no exception.

Pari: Got it. So it's interesting that you just look at them as common pool of talent and which, and you have a set of workload you need to get done and you just get done with this talent. There's no major separation in the quality that these teams work on. And when talent joins Rapid AI, what can they expect in terms of their learnability?

Amit: Yeah, look, typically what we have found is that the learning curve is pretty steep, right? We are absolutely at the edge of technology here, right?

I mean, we are pushing the envelope. Whether it is with FDA, whether it is, you know, in terms of the, just the technical challenge that we are taken on the disease state that we are working on, you know, and things like that. And as I said, right, we are deep clinical AI, right? So everything that we do has a lot of depth in it, right? In terms of what we are trying to do in healthcare. So whether it is technology, whether it is the clinical knowledge base. Whether it is the workflow tools that are absolutely pushing the boundaries of the respective areas.

And, the last thing is, we're deployed heavily. So, it's not something that is like deployed in 10 hospitals or 15 or 20 or 100 or 300, right? We are in 2,250 hospitals. The clinicians use our products day in and day out. We get instant feedback right on what's going on with our product. And it is saving lives.

So what it means is, if someone joins Rapid AI, the amount of awareness and learning that they go through is unparalleled in the industry, in general.

And then the work that you do - we don't have work quality issues. We are challenging the teams so much. That they are thrilled with the type of work that they do. And I think that's no exception in Bangalore.

I mean, the work that has been done in Bangalore on the edge cloud is just absolutely phenomenal. It's an absolutely top end platform for AI. It's been developed in record time. It's getting deployed as we speak, at a pretty large scale in the industry and it's carrying all the workloads that we're talking about, but it's also pushing the boundaries in terms of parallel processing.

You know, sustainability, security, as well as, serviceability of the platform. So every, every aspect of the platform is right up there, actually.

19:29 - AI in Healthcare uses Amit is looking forward to

Pari: Yeah. And then they get to work on the top technology in a fast paced startup in meaningful work with high purpose. I think it's a great, great combination for people to work in RapidAI.

My final question, Amit. it seemed like the AI innovation way was again started to accelerate, right? What are some of the AI led healthcare use cases you look forward to in the next two to three years?

Amit: Yeah. I mean, the promise of AI in healthcare is that irrespective of where you are in the world, right?

You should be able to get exactly the same high quality, you know, treatment independent of which part of the world you are in, you know, what economics strata are you belong to, which hospital you go to, whether it is equipped or not equipped. I think that's, that's really the promise of AI.

That it normalizes the healthcare expertise or the clinical expertise across the globe, and it makes it accessible, you know, to the most remote areas, as well as to the most developed countries, right? At the same time, now, if you look deeper, the other promise of AI in healthcare is that if you are able to detect disease states very early in the disease evolution, that upstream effect is pretty significant because at that stage, if you have clearly identified the disease, first of all, the prognosis for the patient is absolutely much better, right?

You know, access to healthcare is still a big challenge, but as we sort of start moving, you know, disease detection, in the upstream and very early stages, cost reduces dramatically, a treatment prognosis improves, you know, very significantly, right. And it just makes healthcare, not a lot more equitable.

Pari: Thanks a lot Amit. Thanks for sharing insights on how AI is used in healthcare. The key challenges that it could create and the opportunities it creates for high quality talent where they're able to work on things which can give them a higher order of purpose compared to other industries. And finally, how AI could truly make healthcare equitable for people across the world? All of these are very insightful. and thanks again for sharing your perspective.

Amit: Thank you Pari.

Pari: Thank you for tuning into this episode. We'll be back soon with another leader, another exciting episode. Till then, take care and stay curious.

