

Podcast Name: *ACM ByteCast*

Episode: Ranveer Chandra - Episode 48

Welcome to the *ACM ByteCast* podcast, a series from the Association for Computing Machinery! The podcast features conversations with researchers, practitioners, and innovators at the intersection of computing research and practice about their experiences, lessons learned, and visions for the future of computing. In this episode, host Rashmi Mohan interviews guest Ranveer Chandra, Managing Director for Research for Industry and CTO of Agri-Food at Microsoft. He also leads Microsoft's Networking Research Group and has shipped multiple products over the years. He is a fellow of ACM, has authored over 100 papers and patents and won numerous awards, including the Microsoft Gold Star award. He has been recognized by MIT Tech Review's Top Innovators Under 35 and was most recently included in Newsweek Magazine's List of America's 50 Disruptive Innovators.

To begin, Ranveer shares that his team at Microsoft works on cutting edge technologies that define our network experience. His industry team looks at the kinds of things in store for the future of different industries. His team also works to bring effective technologies to the farming ecosystem. Ranveer grew up in India, where he began to appreciate the agricultural industry during the summers he spent with his grandparents. He always enjoyed math and electronics, and discovered the exciting possibility to enhance computer experiences through coding. He earned a PhD in computer science and has been at Microsoft ever since. Ranveer's group at Research for Industry partners closely with customers to develop new research and technologies to solve their most pressing problems. He details their 9 steps for product development from ideation to launch. One of the areas the team is most excited about now is in the financial exchanges space. The team is interested in more than just research and publications, but in taking an idea all the way to the adoption stage. Their expertise is bringing the best tools in computer science to specific industries as needed.

Then, Ranveer discusses VirtualWifi, his personal PhD thesis project that actually made it to production. When he joined Microsoft Research in 2005, one of his first projects was the use of TV white spaces. He explains that today, around 40% of the world's population still doesn't have internet access. The problem is not that connectivity is impossible, but that it is not affordable for a large portion of the world. The idea was to put WiFi signals in empty TV channels and send that signal to someone without internet connection. The transformational power of the internet shouldn't be forgotten in the conversation to bring connectivity to the entire world's population.

Because he grew up in India and spent lots of time on farms, Ranveer has seen a lot of poverty in his life. He also witnessed lots of primitive forms of agriculture still being used in India. In 2009, he began interviewing farmers to find out the problems they are widely facing. He discovered that the farmers knew a lot about their farms, but often made decisions based on guesswork. His goal with technology is not to replace the farmers, but to augment their knowledge with data and AI. Additionally, the world has a major food problem alongside the world's growing population. It is not enough to just grow food - we need to be growing nutritious food that doesn't harm the planet. With these challenges, the question is how to sustainably

nourish the world. The agriculture industry needs to be made more productive, profitable and climate friendly. Ranveer's vision is that the future of the world's agricultural system will be completely data driven. The entire lifecycle of a crop should be tracked and recorded from growth, harvesting, storage, transportation and consumption. When Ranveer began speaking to farmers about their problems, he proposed the idea of internet connectivity to use data to override their predictions. Across the board in different countries, farmers were willing to apply these new technologies. The biggest challenge in the adoption of data driven agriculture is the lower level of tech savviness among farmers.

Before wrapping up, Ranveer explains that generative AI bridges a major barrier between farmers and consuming knowledge. The Indian government, for example, has taken steps to break down the linguistic barriers in place. Generative AI is helping to make documents and insights consumable for farmers. Then, Ranveer provides examples of how farmers are actually using these technologies today. What keeps him going in his pursuit is the understanding that one single product could make a huge impact in the lives of so many farmers across the world. Finally, Ranveer shares that he is most excited about the developments in AI in the agriculture and food ecosystem.

Key takeaways:

1:47 - Ranveer introduces himself and shares what drew him to computing.

7:01 - Ranveer's role as MD for Research for Industry.

13:20 - Ranveer's personal PhD thesis topic, VirtualWifi.

21:30 - Why Ranveer is so inspired to create technology solutions for farmers.

26:05 - How Ranveer introduces technologies to farmers.

32:18 - The role of generative AI.

35:30 - How farmers are using these technologies.

40:00 - The phases of product development in Ranveer's team.

42:39 - What Ranveer is most excited about in the tech field.

Links

Learn more about [Ranveer Chandra](#).

Learn more about [Rashmi Mohan](#).

Tags:

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