

Podcast Name: *ACM ByteCast*

Episode: Episode 59 - Dr. Nashlie Sephus

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 is joined by Dr. Nashlie Sephus, a prominent computer scientist and AI expert currently working at Amazon Web Services as a principal AI scientist focusing on responsible AI. She is also the founder of BeanPath, a nonprofit aimed at promoting technology and bridging the tech gap in Jackson, Mississippi.

To begin, Nashlie describes her early interest in computer science, which began with her love for mathematics and music. She found the ability to control systems through coding fascinating, sparking her journey into computing. She pursued her PhD at Georgia Tech, focusing on digital signal processing in music data mining, a field that combines her interests in music and mathematics. Although completing a PhD was challenging, she was driven by her passion for music and computing, which helped her navigate the rigorous demands of graduate school. Then, Nashlie explains how her work in machine learning evolved from digital signal processing to other data types, such as speech, video, and images. She found that the mathematical principles she applied to audio signals could be extended to other domains.

Nashlie shares a personal experience of bias that deeply influenced her work in AI, particularly in responsible AI and fairness. Her current role at Amazon involves mitigating bias, notably in facial recognition technologies. She emphasizes the need for collaboration between consumers, public policy, and government to regulate and enforce responsible AI practices, especially as smaller startups grow into major players in the tech landscape. Diversity in AI development teams is crucial, Nashlie notes, citing her own experience in helping identify product limitations due to her unique perspective. Having diverse voices involved in product development ensures that technology is designed for all users, not just a select group. She highlights the importance of open consortia and collaborative efforts in shaping responsible AI, with organizations like the Algorithmic Justice League and Black in AI playing pivotal roles.

At Amazon, Nashlie works with a team of scientists and professors who combine theoretical research with practical applications. This partnership between academia and industry allows for both theoretical and real-world challenges to be addressed simultaneously, fostering innovation and responsible AI development. When it comes to eliminating bias in AI, it is important to examine not just broad groups of data but also subgroups, as biases often emerge in more granular datasets. AI models often exhibit bias, but the crucial factor is identifying and managing "unwanted bias." Nashlie also notes the difference between equity and equality in AI training data. Simply having equal amounts of data for different groups doesn't necessarily ensure fairness in AI outcomes.

A very common customer service problem is customers struggling to describe specific parts when they need replacements. Nashlie describes the inception and growth of PartPick, an app that helps customers identify and order parts using AI by uploading a picture. She helped build the first prototype while finishing school, and later became the company's CTO after PartPick raised funds. PartPick eventually gained significant traction, leading to its acquisition by Amazon.

After her time with PartPick, Nashlie went on to found BeanPath, a nonprofit organization with a mission to bridge the tech gap in Jackson, Mississippi, and similar regions. With the goal of scaling these efforts, Nashlie purchased 22 acres of land and several buildings in downtown Jackson, an area in need of revitalization. She renovated two buildings: one, the BeanPath headquarters and makerspace, offers a range of activities like AI, robotics, 3D printing, and more; the other, the Bean Barn, is an event venue for community engagement. She emphasizes that technology has the power to change lives, improve lifestyles, and build generational wealth, which drives their efforts to bring these opportunities to their hometown and beyond.

#### Key takeaways:

0:00 - Nashlie Sephus introduces herself.

7:04 – Nashlie's early career and PhD journey.

8:16 - Transition to AI and machine learning.

12:18 - Bias and responsibility in AI.

17:27 - The importance of diverse teams and collaboration.

23:01 - Addressing bias in data and ensuring fairness.

25:11 - The complexity of data equality and AI lifecycle.

29:58 – Nashlie's journey with PartPick.

33:27 - Founding BeanPath and expanding the companies' mission.

#### Links

Learn more about [Dr. Nashlie Sephus](#).

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