Title: Cultivating a research-oriented mindset for machine learning teams in industry

Abstract:
Amazon Alexa relies on machine learning (ML) models to provide innovative customer experiences. Teams supporting these models need to balance the demands of maintaining and supporting existing systems while developing new solutions that improve the current experiences and innovate in new areas. This talk will present methods to balance these demands and encourage continued ML science development and growth within the team while reducing the operational load through automation and distribution of tasks. I will also discuss activities that have proven successful on my team including short-term initiatives that spur ML development in new areas, such as hack-a-thons, competitions and time-boxed innovation proposals, and activities that explicitly link to current advances in the academic community including journal clubs, conference participation and academic partnerships. As my team includes individuals who come from traditional graduate programs in ML and those who entered the field from less traditional paths, these activities bridge potential experience gaps while also fostering continued growth and breadth in ML. As day-to-day program support and risk mitigation strategies often prioritize the more operational tasks or established solutions, this talk will focus on methods to ensure and develop the research-oriented mindset within the team and implement solutions to reduce the operational overhead.

Relevance: Applied machine learning teams use ML to develop business solutions. These models must be maintained and improved upon over time. It is important for ML teams to find methods to automate and innovate in new areas as the repetitive nature of model maintenance and refreshes can result in boredom, burn out and ML skill atrophy. By generating a research-oriented culture on ML teams we can actively work against these effects and spur innnovation in new areas for the benefit of the business. This invigorates the team culture, setting high standards and the expectation of academic engagement, while encouraging professional development. This talk focuses on the workshop's proposed topics of ML excellence and people management.

Presenter: Sarah Campbell, Research Science Manager at Alexa AI

Presenter Bio:
Sarah Campbell is a Research Science Manager at Alexa AI. She leads a team of 6 machine learning scientists in the speech translation and language learning space where they develop and maintain machine learning models (ASR, NLU, language ID, etc.) that enable Alexa experiences in production. She has been managing machine learning teams since 2018, and has been at Amazon since 2017. Prior to Amazon, she was an experimental physicist with a PhD in high energy nuclear physics from Stony Brook University.

Company portrait: Amazon is an internet technology company with wide ranging products and services including e-commerce, Amazon Web Services, and Amazon Prime. Amazon Alexa is an intelligent voice assistant under Amazon's umbrella that helps customers play music, get up-to-date information, control smart home appliances, shop, etc. with a voice-forward interface.