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Key Challenges in Foundation Models (... and some solutions!)

Speaker

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Abstract

Thanks to neural networks (NNs), faster computation, and massive datasets, machine learning is under increasing pressure to provide automated solutions to even harder real-world tasks beyond human performance with ever faster response times due to potentially huge technological and societal benefits. Unsurprisingly, the NN learning formulations present fundamental challenges to the back-end learning algorithms despite their scalability. In this talk, we will work backwards from the "customer"'s perspective and highlight these challenges specifically on the Foundation Models based on NNs. We will then explain our solutions to some of these challenges, focusing mostly on robustness aspects. In particular, we will show how the existing theory and methodology for robust training misses the mark and how we can bridge the theory and the practice.

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