ABSTRACT

The uncertainty in the world necessitates a machine learning system which can solve more complicated and high-stake problems, with the flexibility to update over time. While transfer learning and other paradigms are well-studied, a fundamental question lingers: How can AI progress with minimal manual effort in data curation, especially given the challenges posed by big data in terms of volume, instance complexity, and temporal dynamics? Though large foundational models have shown strong generalization ability, enhancing training efficiency and exploring generalizable scaling laws remain essential.

This presentation is dedicated to rethinking the data use and proposes to learn with AI feedback, with the primary objective of fostering AI growth by exploring the inherent data structures. Rather than an aggressive push for more data, this discussion will delve into strategies to improve training effectiveness with AI feedback for reshaping existing data distributions and refining data supervision adaptively. The frameworks offer enhanced flexibility, efficiency, robustness, and interpretability of AI design, which will motivate discussion on future directions to deliver new AI mechanisms including de-centralized AI and the next generation of services.