The quest for compositional learning

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Abstract : Machine learning systems have made rapid progress in the past few years, as evidenced by the remarkable feats they have accomplished on fields as diverse as computer vision or reinforcement learning. Yet, as impressive as these achievements are, they rely on learning algorithms that require orders of magnitude more data than a human learner would. This disparity could be rooted in many different factors. In this talk, I will draw on the hypothesis that compositional learning — that is, the ability to recombine previously acquired skills and knowledge to solve new problems — could be one important element of fast and efficient learning. In this direction, I will discuss our efforts toward building systems that can learn in compositional ways. Concretely, I will present a simple benchmark based on function composition to measure the compositionality of learning systems and use it to draw insights into whether current learning systems learn or can learn in a compositional manner.

Bio : Germán Kruszewski obtained his PhD at the University of Trento under the direction of Marco Baroni where he worked in the area of distributional semantics, understanding the strengths and limitations of distributional models when trying to account for the richness of human conceptual knowledge. Later, he joined Facebook AI Research as a postdoctoral researcher where he continued studying the learning skills of state-of-the-art natural language processing systems.