

Séminaire LAL

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Relational inductive bias, deep learning, and graph networks

The world around us has rich structure, corresponding to objects and entities, the relationships between them, and rules for composing them into new objects and entities. As such, incorporating structure into deep learning architectures often affords stronger performance and greater generalization; the proliferation of convolutional and recurrent architectures (which both assume a particular type of structure) is a testament to this claim. In this talk, I will discuss an alternate type of structured architecture that can be used to perform computations over graphs. These "graph networks" enable both better performance and stronger generalization in domains where data is readily represented via a graph, including rigid body physical dynamics, combinatorial optimization, and relational reasoning. To motivate graph networks, I will first provide an overview of the standard approaches used in deep learning, and discuss challenges in applying those approaches to graph-structured problems. I will then describe graph networks and show how they can be applied to several different classes of problems, focusing in particular on problems that involve reasoning about rigid body physical systems.

Salle 101 - Bât. 200, Orsay

Organisation :

Aurélien Martens - Joao Coelho - Thibaud Louis - Dimitris Varouchas (LAL) - seminaires@lal.in2p3.fr

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