

October 19, 2023

Cooperative data-driven modeling



**Miguel
Bessa**

Associate Professor

Brown University

ABSTRACT:

The human brain is capable of learning tasks mostly without forgetting. However, deep neural networks suffer from catastrophic forgetting when learning tasks one after the other. We address this challenge considering a class-incremental learning scenario where the network sees test data without knowing its origin. We show the best results to date for the ImageNet dataset, outperforming by more than 20% the state of the art. The proposed method is also applied to learn material laws, illustrating its versatility. This strategy is believed to open new avenues for cooperation among different researchers and practitioners.

BIOGRAPHY:

Miguel Bessa and his research group envision a new era for the design of materials and structures using artificial intelligence. Miguel received a PhD in Mechanical Engineering from Northwestern University in 2016 as a Fulbright scholar. After a short postdoctoral position at Caltech (2017) and a quick leap from Assistant to Associate Professor (2021) at Delft University of Technology, he joined the Solid Mechanics Group at Brown University in the Summer of 2022.