Studying ecosystem dynamics with deep neural networks

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Obtaining ecological data by field observation has been labor intensive. In this study, we present several approaches to obtain ecological bid data, using information technology. First, introduction to data-driven science and big-data science will be presented. As an example of these new approaches, deep learning with neural networks has various applications in ecological studies. In fact, digital images from satellite, UAV, or even smartphone can be the big data. We show how these big data are used to identify specific features of organisms and vegetation. Moreover, deep neural networks can be applied to analyze time-series data and project the future conditions.

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