

kerasR: R Interface to the Keras Deep Learning Library

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Software Repository: <https://github.com/statsmaths/kerasR>

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Summary

Keras is a high-level neural networks API, originally written in Python, and capable of running on top of either TensorFlow or Theano. It was developed with a focus on enabling fast experimentation. This package provides an interface to Keras from within R. All of the returned objects from functions in this package are either native R objects or raw pointers to python objects, making it possible for users to access the entire keras API. The main benefits of the package are (1) correct, manual parsing of R inputs to python, (2) R-sided documentation, and (3) examples written using the API. It allows, amongst other things, users to load and run popular pre-trained models such as VGG-19 (He et al. 2015), ResNet50 (He et al. 2016), and Inception (Szegedy et al. 2015).

Most functions have associated examples showing a working example of how a layer or object may be used. These are mostly toy examples, made with small datasets with little regard to whether these are the correct models for a particular task. See the package vignettes for a more thorough explanation and several larger, more practical examples.

References

He, Kaiming, Xiangyu Zhang, Shaoqing Ren, and Jian Sun. 2015. “Delving Deep into Rectifiers: Surpassing Human-Level Performance on Imagenet Classification.” In *Proceedings of the Ieee International Conference on Computer Vision*, 1026–34.

———. 2016. “Deep Residual Learning for Image Recognition.” In *Proceedings of the Ieee Conference on Computer Vision and Pattern Recognition*, 770–78.

Szegedy, Christian, Wei Liu, Yangqing Jia, Pierre Sermanet, Scott Reed, Dragomir Anguelov, Dumitru Erhan, Vincent Vanhoucke, and Andrew Rabinovich. 2015. “Going Deeper with Convolutions.” In *Proceedings of the Ieee Conference on Computer Vision and Pattern Recognition*, 1–9.