

# PIPGES · WEBINARS

MAY · 07  
2021

02:00 PM

The link will be available  
on the day of the event at:

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**Interinstitutional Graduate Program in Statistics (PIPGES)** of Federal University of São Carlos with University of São Paulo promotes seminars groups (temporarily webinars, due to pandemic issues) of researches involving Probability, Statistics, Machine Learning etc. Our interest, among other things, is to stimulate the sharing of knowledge, as well as the connection between members of the program and researchers in other institutions.

#### **Organizer**

Michel H. Montoril, Department of Statistics,  
Federal University of São Carlos.

#### **RADIAL NEURAL NETWORKS**

This work proposes a very simple extension of the usual fully connected hidden layers in deep neural networks for classification. The objective is to transform the latent space on the hidden layers to be more suitable for the linear separation that occurs in the sigmoid/softmax output layer. We call such architectures radial neural networks because they use projections of fully connected hidden layers onto the surface of a hypersphere. We provide a geometrical motivation for the proposed method and show that it helps achieve convergence faster than the analogous architectures that they are built upon. As a result, we can significantly reduce training time on neural networks for classification that use fully connected hidden layers. The method is illustrated as an application to image classification, although it can be used for other classification tasks.

#### **SPEAKER**

Carlos Tadeu Pagani Zanini ·  
Federal University of Rio de Janeiro

#### **BIO**

Carlos Zanini is Assistant Professor at Federal University of Rio de Janeiro (UFRJ), Brazil, in the Department of Statistical Methods. He received his PhD (2019) from the Department of Statistics & Data Sciences at University of Texas (UT), Austin, USA. His B.A. and M.S. are from UFRJ. He is interested in Biostatistics, Bayesian non parametric methods, mixture models, dynamic models and neural networks.

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