

# Deep Learning in R

**Instructor:** Eduardo Arino de la Rubia (earino@gmail.com)

**Credits:** 1 (2x300min)

**Dates:** June 2-3 SAT, SUN all day

**Term:** Spring 2018

**Course level:** [MA/MSc]



## Course description

Machine learning has made significant progress in the last decade. The cutting edge in machine learning could not even come close to approximating human performance in image recognition, natural language processing, or many other tasks as recently as five years ago. However, the advent of deep learning has closed this gap, and even overtaken the limits of human performance. Deep learning may be the single most overhyped technology of the decade, however there's no denying that the techniques it introduces and the capabilities it unleashes have already revolutionized the world. At the core of many of these advances, is Google's open source package Tensorflow. In this course we will use the R keras package. This package provides an interface into Keras, allowing the user to build models, explore them, and to operationalize them inside of the familiar R programming language.

## Learning outcomes

By successfully completing the course the students will be able to:

- Explain deep learning from first principles
- Setting up their own deep-learning environment
- Build Image classification and generation models
- Apply deep learning for text and sequences

These topics can easily fill an entire PhD's worth of coursework, so this course will provide an overview and example code and use-cases for the standard applications of deep learning.

## Reading list

Deep Learning with R - ISBN 978-1617295546 by Francois Chollet and J. J. Allaire

## Assessment

2 Daily Quizzes (30%)

End of Course Assignment (60%)  
Intellectual Presence (10%)

## Note on Intellectual Presence

To be counted as intellectually present, you must demonstrate an intellectual presence, which means you are engaged in all classroom activities. An intellectual absence (including reading non-course related material, playing/texting on phone, using a laptop for non-class related activities) will be counted as an absence. Students who anticipate the need to be absent should be aware that this course is very compressed, and any absence will make it very challenging to complete this course.

## Contacting Me

Email is a great way to contact me, it is basically a 24-hour link to my brain. However it is important that you communicate very clearly. All emails to me should have a subject which identifies that your email is regarding this course. The body of the email should have a clear point, and if you need a response, it should be very clearly stated. Clear communication is a virtue.

## About The Instructor

Eduardo Arino de la Rubia works at Facebook. He is a lifelong technologist who thrives on effectively communicating data-driven insights throughout an organization. He was previously the Chief Data Scientist at Domino Data Lab, a company he joined as an advisor pre-seed, and took it through a successful series B led by Sequoia Capital. He spent 10 years at Ingram as the Principal Data Scientist. He is a graduate of the MTSU Computer Science department, and has a Masters in Negotiation, Conflict Resolution, and Peacebuilding from California State University, Dominguez Hills.