

Developing data science solutions to geophysical challenges

Instructors: D. Trad, M. Guarido, D. Emery, Z. Niu, and T. Zhang

Summary

- Goal: to learn the basics of Machine Learning, with an emphasis on reproducing research presented during the 2020 CREWES Sponsors Meeting.
- Target level: intermediate. (*Moderate difficulty, similar to a graduate course on ML. We will approach difficult concepts in simple terms, and use notebook examples to make these concepts more tangible.*)
- Tools: Scikit-Learn + XGBoost, Keras, and Pytorch.

Requirements

- An internet connection and a web browser. All examples will be done with Google Collab (no need for installation). Data will be provided in a Google Drive link.
- A basic understanding of Machine Learning and Python is recommended. The course can be taken without this background, but this year we will not cover the most basic introductory material. (*Material from previous years is available for sponsors.*)

Outline

Time	Title	Presenter(s)
10:00AM	Welcome	Kris Innanen
10:05AM	Pitfalls of a Facies Classification Contest	Marcelo Guarido & David Emery
11:00AM	<i>Break</i>	
11:05AM	Convolutional Neural Networks Explained	Daniel Trad
12:00PM	<i>Break</i>	
12:05PM	A Pytorch tour and an example	Zhan Niu
12:35PM	Inversion with Recurrent Neural Networks	Tianze Zhang