

USING HYBRID MACHINE LEARNING MODELS

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HOSTS



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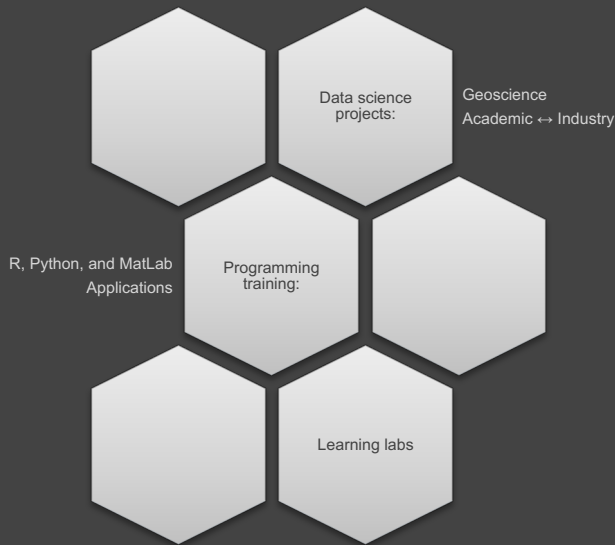


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Data Science

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Data Science

Data Science is a growing field with different tasks and applications. Everyday more people are entering the field, making it a hot career course and moving to this relatively new and exciting area. Here at the CREWES we are engaged on research and dissemination of what is new in the data science world.

With the CREWES Data Science Learning Labs, we focus on the learning steps to how you can bring business value to your organization. The labs will focus on how a data scientist can read, through data cleaning and pre-processing, visualization, data transformation, and finally finishing with app development/deployment. Join us for bi-weekly webinars (beginning announced) to get access to codes and "cookbooks."

Lab 0: July 2, 2020, Noon (MST): Introduction to R and Shiny

In our first lab we will set out our goals, define a learning path, and introduce both the building of apps with the Shiny library.

[Data Science Lab 0 \(video\)](#)

Lab 1: July 16, 2020, Noon (MST): WTI crude oil price forecasting algorithm

In this lab, we will present a workflow in R to predict the WTI crude oil price that comes from the Quandl database, as well as the univariate forecast algorithm Facebook Prophet. We will also demonstrate an app built in Shiny.

[Register for the live Zoom presentation](#)



PAPER OVERVIEW

Presenting the proposed solution

01

HYBRID MODELS

How to create a hybrid model using the package
mlxtend

02

REGRESSION

Coding: how to stack regression models

03

CLASSIFICATION

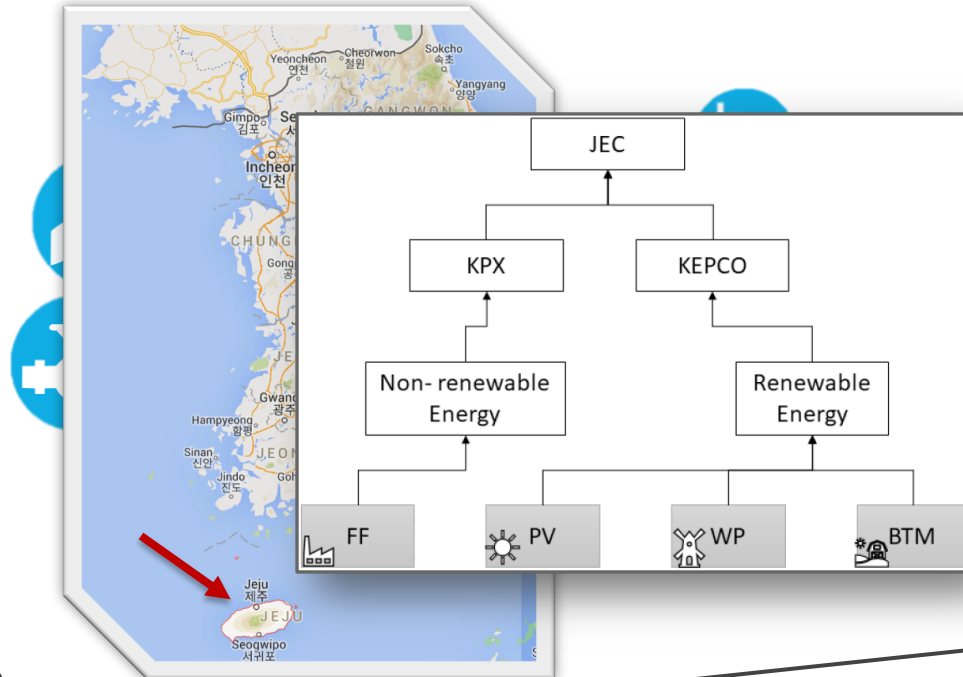
Coding: ensemble voting system for trained
classifiers

04



MACHINE LEARNING-BASED APPROACH TO PREDICT ENERGY CONSUMPTION OF RENEWABLE AND NONRENEWABLE POWER SOURCES

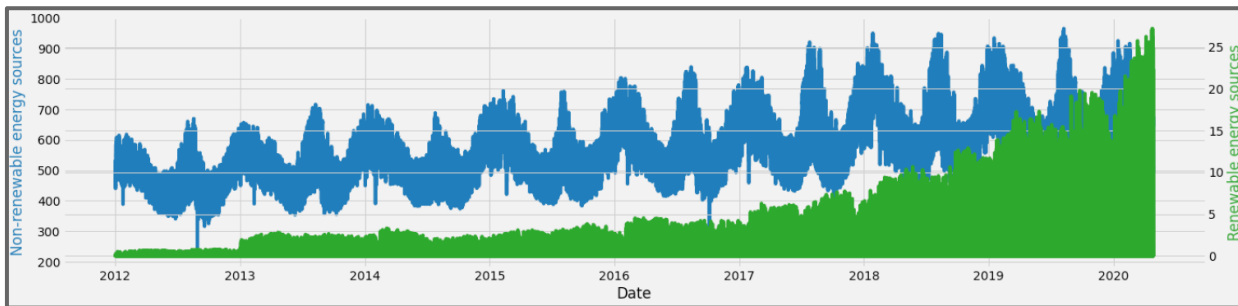
by Khan, P.W.; Byun, Y.-C.; Lee, S.-J.; Kang, D.-H.; Kang, J.-Y.; Park, H.-S, 2020



JEJU ISLAND is used as a test lab

REPLACE non-renewable energy by renewable energy by 2030

FORECAST energy consumption (MW) from all sources



ENERGY MW

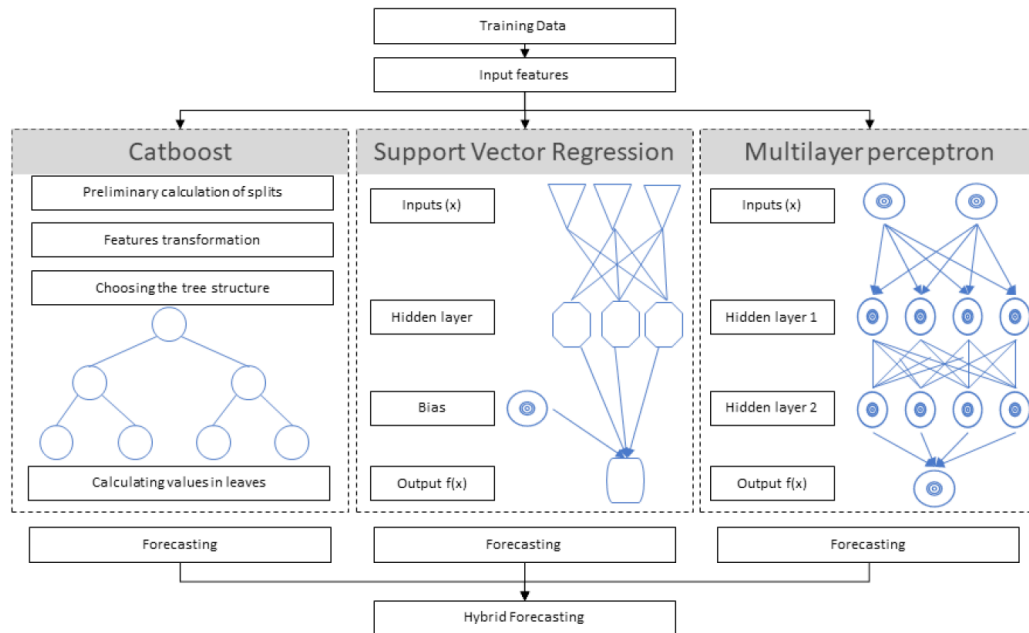
Total consumption
(renewable + non-renewable)

MODEL

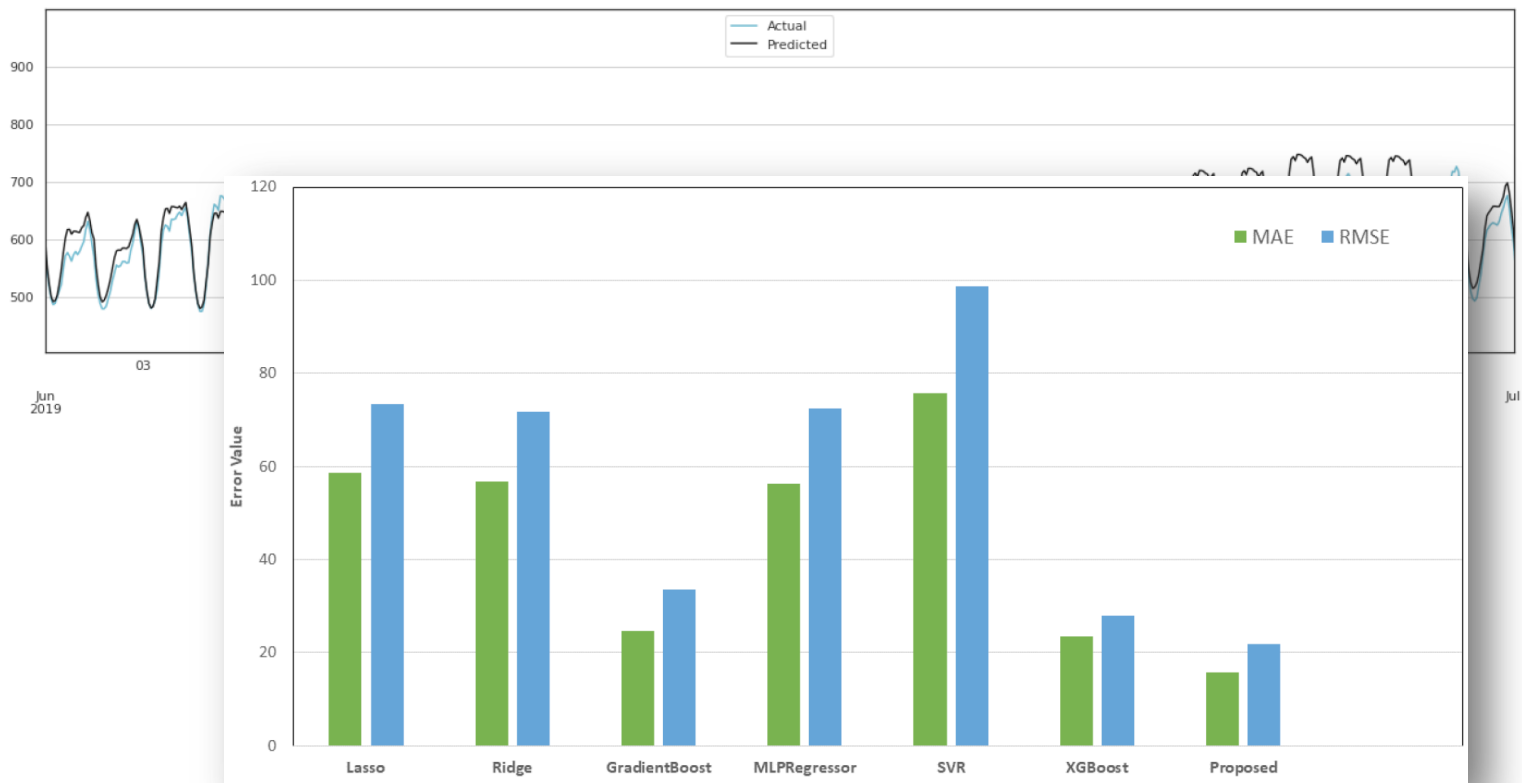
Hybrid model

COMPARE

Against other models



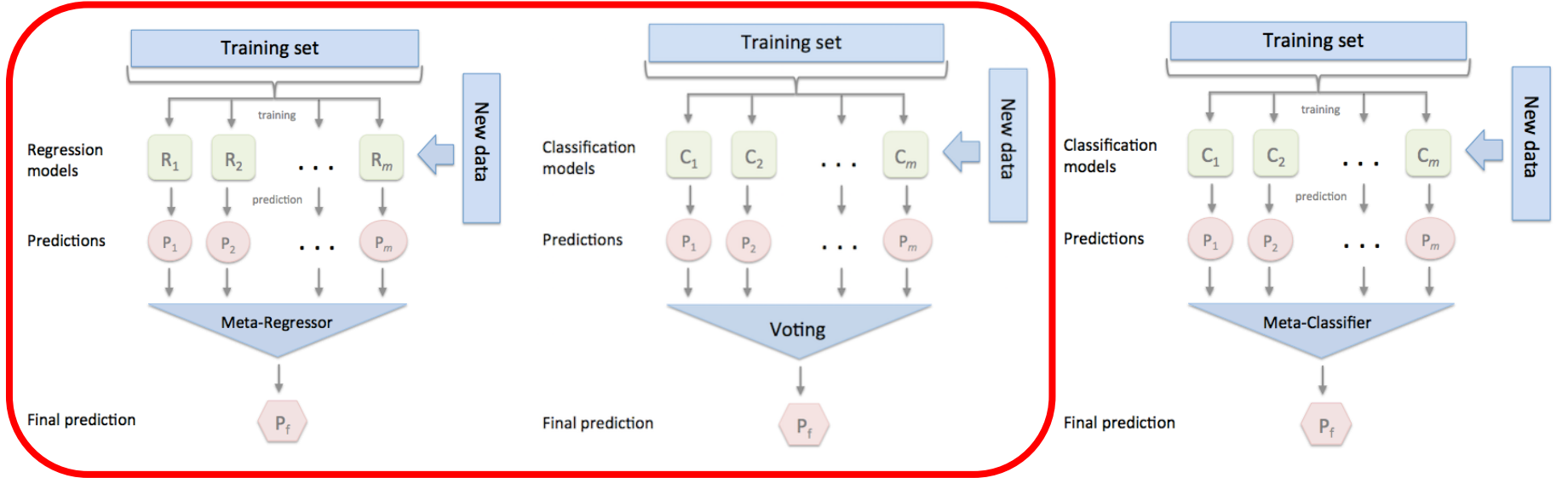
FORECASTING



RESOURCE

- Khan, P.W.; Byun, Y.-C.; Lee, S.-J.; Kang, D.-H.; Kang, J.-Y.; Park, H.-S. Machine Learning-based Approach To Predict Energy Consumption Of Renewable And Nonrenewable Power Sources. *Energies*, **2020**, *13*, 4870. <https://doi.org/10.3390/en13184870>

HYBRID MODELS



Let's Code!!!



Thank you!