

Jan 18, 2023

Joao Paulo Nobrega Alvim

has successfully completed

Data Engineering and Machine Learning using Spark

an online non-credit course authorized by IBM Skills Network and offered through Coursera

COURSE CERTIFICATE



Karthik Muthuraman Software Engineer (Machine Learning) IBM Center for Open-Source Data and AI Technologies Romeo Kienzler Chief Data Scientist IBM Watson IoT

Verify at: https://coursera.org/verify/ZJNTKSGC3RHG

Coursera has confirmed the identity of this individual and their participation in the course.