



5 Courses

How Google does Machine Learning

Launching into Machine Learning

Introduction to TensorFlow

Feature Engineering

Art and Science of Machine Learning

Google Cloud

6 Jul, 2020

Vatsal Patel

has successfully completed the online, non-credit Specialization

Machine Learning with TensorFlow on Google Cloud Platform

This five-course online specialization teaches course participants how to write distributed machine learning models that scale in Tensorflow, scale out the training of those models, and offer high-performance predictions. Also featured is the conversion of raw data to features in a way that allows ML to learn important characteristics from the data and bring human insight to bear on the problem. It also teaches how to incorporate the right mix of parameters that yields accurate, generalized models and knowledge of the theory to solve specific types of ML problems. Course participants experimented with end-to-end ML, starting from building an ML-focused strategy and progressing into model training, optimization, and productionalization with hands-on labs using Google Cloud Platform.

The online specialization named in this certificate may draw on material from courses taught on-campus, but the included courses are not equivalent to on-campus courses. Participation in this online specialization does not constitute enrollment at this university. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

Google Cloud Training

Verify this certificate at:
coursera.org/verify/specialization/86T9YGQDCEPX



3 Courses

Mathematics for Machine Learning: Linear Algebra

Mathematics for Machine Learning: Multivariate Calculus

Mathematics for Machine Learning: PCA

Imperial College
London

30 Sep, 2020

Vatsal Patel

has successfully completed the online, non-credit Specialization

Mathematics for Machine Learning

A sequence of 3 courses on the prerequisite mathematics for applications in data science and machine learning. Successful participants learn how to represent data in a linear algebra context and manipulate these objects mathematically. They are able to summarise properties of data sets and map them onto lower dimensional spaces with principal component analysis. Finally they can solve optimisation problems and use this skill to train models for describing data such as simple neural networks.

David Dye
Professor of Metallurgy
Department of
Materials
Imperial College London

Samuel J. Cooper
Lecturer
Dyson School of Design
Engineering
Imperial College London

Marc Deisenroth
Senior Lecturer
Department of
Computing
Imperial College London

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Verify this certificate at:
coursera.org/verify/specialization/4FY6HTFLGHUD



4 Courses

**Introduction to TensorFlow
for Artificial Intelligence,
Machine Learning, and Deep
Learning**

**Convolutional Neural
Networks in TensorFlow**

**Natural Language
Processing in TensorFlow**

**Sequences, Time Series and
Prediction**



6 Jul, 2020

Vatsal Patel

has successfully completed the online, non-credit Professional
Certificate

DeepLearning.AI TensorFlow Developer

Congratulations! You have completed all 4 courses of the DeepLearning.AI TensorFlow Developer Professional Certificate program. As part of this Professional Certificate program, you have learned: how to build and train neural networks using TensorFlow, how to improve network performance using convolutions as you train it to identify real-world images, how to teach machines to understand, analyze, and respond to human speech with natural language processing systems, and more! These, and other TensorFlow concepts, are going to be at the forefront of the coming transformation to an AI-powered future.

The online specialization named in this certificate may draw on material from courses taught on-campus, but the included courses are not equivalent to on-campus courses. Participation in this online specialization does not constitute enrollment at this university. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

Laurence Moroney is an
AI Advocate at Google
Research

Verify this certificate at:
[coursera.org/verify/professional-
cert/F4RVGGKYRMN6](https://coursera.org/verify/professional-cert/F4RVGGKYRMN6)



JOHNS HOPKINS
UNIVERSITY

5 Jun, 2020

Vatsal Patel

has successfully completed with honors

Introduction to the Biology of Cancer

an online non-credit course authorized by Johns Hopkins University and offered through
Coursera

Kenneth J. Pienta

Kenneth J. Pienta, M.D.
The Donald S. Coffey Professor of Urology
Professor of Oncology
The James Buchanan Brady Urological Institute
The Johns Hopkins University School of Medicine

COURSE
CERTIFICATE

WITH HONORS



Verify at coursera.org/verify/L6KMH55JSCNZ

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

Some online courses may draw on material from courses taught on campus but are not equivalent to on-campus courses. This certificate does not affirm that this learner was enrolled as a student at Johns Hopkins University in any way. It does not confer a JHU grade, course credit or degree; establish any relationship between this learner and JHU or other JHU affiliate; enroll or register this learner at JHU or other JHU affiliate or in any course offered by JHU; or entitle this learner to access or use the resources of JHU or other JHU affiliates beyond the online courses provided by Coursera.



AMERICAN MUSEUM
OF NATURAL HISTORY

12 Jul, 2020

Vatsal Patel

has successfully completed

The Science of Stem Cells

an online non-credit course authorized by American Museum of Natural History and
offered through Coursera

Dr. Zehra Dincer
Course Instructor

COURSE
CERTIFICATE



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participation in the course.