



4 Courses

**Custom Models, Layers, and  
Loss Functions with  
TensorFlow**

**Custom and Distributed  
Training with TensorFlow**

**Advanced Computer Vision  
with TensorFlow**

**Generative Deep Learning  
with TensorFlow**



Feb 7, 2021

**SILVIO SCHWARZ**

has successfully completed the online, non-credit Specialization

# TensorFlow: Advanced Techniques

Congratulations! You have completed all four courses of the TensorFlow: Advanced Techniques Specialization! With this Specialization, you've expanded your knowledge of the Functional API and are ready to build exotic non-sequential model types. You learned how to optimize training in different environments with multiple processors and chip types and have also been introduced to advanced computer vision scenarios such as object detection, image segmentation, and interpreting convolutions. You've explored generative deep learning including the ways AIs can create new content from Style Transfer to Auto Encoding, VAEs, and GANs. You are now equipped to build complex, custom models using TensorFlow.

*Laurence Moroney*

Laurence Moroney  
Lead AI Advocate  
Google

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.

Verify this certificate at:  
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3 Courses

**Build Basic Generative  
Adversarial Networks  
(GANs)**

**Build Better Generative  
Adversarial Networks  
(GANs)**

**Apply Generative  
Adversarial Networks  
(GANs)**



Feb 15, 2021

**SILVIO SCHWARZ**

has successfully completed the online, non-credit Specialization

# Generative Adversarial Networks (GANs)

Congratulations! You have completed all 3 courses of Generative Adversarial Networks - a DeepLearning.AI Specialization. As part of this Specialization, you have learned the classical machine learning skills and the state-of-the-art deep learning techniques needed to build GANs models. You are now equipped to design applications that perform image generation and image-to-image translation using GANs! These, and other generative applications, are going to be at the forefront of the coming transformation to an AI-powered future.

Sharon Zhou  
Course Instructor  
DeepLearning.AI

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4 Courses

Browser-based Models with TensorFlow.js

Device-based Models with TensorFlow Lite

Data Pipelines with TensorFlow Data Services

Advanced Deployment Scenarios with TensorFlow



Jan 27, 2021

**Silvio Schwarz**

has successfully completed the online, non-credit Specialization

# TensorFlow: Data and Deployment

In this specialization, you continued to develop your understanding of machine learning with TensorFlow: Data and Deployment. You have gone beyond basic modeling and learned how to train and run your models within a browser, optimize machine learning models for mobile devices, and create effective data pipelines with TensorFlow Data Services. Now that you've learned the various ways to deploy your models, you're well-prepared to take your models into the hands of real people on all kinds of devices!

Laurence Moroney  
Lead AI Advocate at  
Google

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4 Courses

Introduction to Machine Learning in Production

Machine Learning Data Lifecycle in Production

Machine Learning Modeling Pipelines in Production

Deploying Machine Learning Models in Production



Sep 9, 2021

**SILVIO SCHWARZ**

has successfully completed the online, non-credit Specialization

# Machine Learning Engineering for Production (MLOps)

Congratulations! You have completed all four courses of Machine Learning Engineering for Production (MLOps) Specialization. In this Specialization, you learned how to conceptualize and maintain integrated systems. You mastered well-established tools and methodologies to build production systems that can handle relentless evolving data and continuously run at maximum efficiency. You're now familiar with the capabilities, challenges, and consequences of machine learning engineering in production and are ready to level up your career by participating in the development of leading-edge AI technology and solving real-world problems.

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*Andrew Ng* *ML* *Deep Learning*

Andrew Ng,  
Founder,  
DeepLearning.AI

Robert Crowe  
TensorFlow Developer  
Engineer, Google

Verify this certificate at:  
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5 Courses

**Technical Support  
Fundamentals**

**The Bits and Bytes of  
Computer Networking**

**Operating Systems and You:  
Becoming a Power User**

**System Administration and  
IT Infrastructure Services**

**IT Security: Defense against  
the digital dark arts**



May 11, 2021

**SILVIO SCHWARZ**

has successfully completed the online, non-credit Professional  
Certificate

## Google IT Support

Those who earn the Google IT Support Professional Certificate have completed five-courses, developed by Google, that include hands-on, practice-based assessments and are designed to prepare them for entry-level roles in IT support. They are competent in foundational skills, including troubleshooting and customer service, networking, operating systems, system administration, and security.

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Verify this certificate at:  
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cert/U9C59W5MS826](https://coursera.org/verify/professional-cert/U9C59W5MS826)



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**



Jan 13, 2021

**Silvio Schwarz**

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.

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Laurence Moroney  
Lead AI Advocate  
Google

Andrew Ng  
Founder  
DeepLearning.AI

Verify this certificate at:  
[coursera.org/verify/professional-  
cert/WNXPGV8FR3AF](https://coursera.org/verify/professional-cert/WNXPGV8FR3AF)