

Google is committed to advancing racial equity for Black communities. [See how.](#)

(<https://google.com/racialequity>)

## Machine Learning Crash Course with TensorFlow APIs

(<https://developers.google.cn/machine-learning/crash-course/ml-intro>)

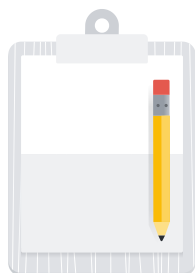
Google's fast-paced, practical introduction to machine learning

[Start Crash Course](#) (<https://developers.google.cn/machine-learning/crash-course/ml-intro>)

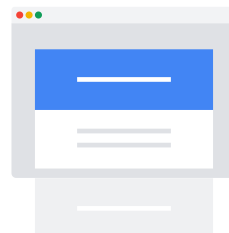
[View prerequisites](#) (<https://developers.google.cn/machine-learning/crash-course/prereqs-and-prework>)

A self-study guide  
for aspiring  
machine learning  
practitioners

Machine Learning Crash Course features a series of lessons with video lectures, real-world case studies, and hands-on practice exercises.



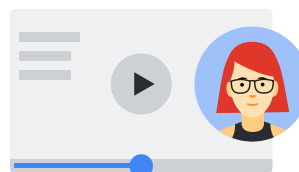
30+ exercises



25 lessons



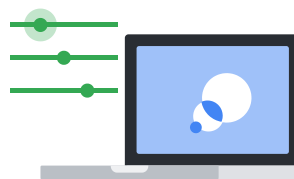
15 hours



Lectures from Google researchers



Real-world case studies



Interactive visualizations of algorithms  
in action

# Some of the questions answered in this course

Learn best practices from Google experts on key machine learning concepts.

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How does machine learning differ from traditional programming?

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What is loss, and how do I measure it?

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How does gradient descent work?

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How do I determine whether my model is effective?

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How do I represent my data so that a program can learn from it?

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How do I build a deep neural network?

# Ready to start practicing machine learning? (<https://developers.google.cn/machine-learning/crash-course/ml-intro>)

Learn and apply fundamental machine learning concepts with the Crash Course, get real-world experience with the companion Kaggle competition, or visit Learn with Google AI to explore the full library of training resources.

**Start Crash Course** (<https://developers.google.cn/machine-learning/crash-course/ml-intro>)

**Learn with Google AI** (<https://ai.google/education>)