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Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization

About this course: This course will teach you the "magic" of getting deep learning to work well. Rather than the deep learning process being a black box, you will understand what drives performance, and be able to more systematically get good results. You will also learn TensorFlow.

After 3 weeks, you will:

- Understand industry best-practices for building deep learning applications.
- Be able to effectively use the common neural network "tricks", including initialization, L2 and dropout regularization, Batch normalization, gradient checking,
- Be able to implement and apply a variety of optimization algorithms, such as mini-batch gradient descent, Momentum, RMSprop and Adam, and check for their convergence.
- Understand new best-practices for the deep learning era of how to set up train/dev/test sets and analyze bias/variance
- Be able to implement a neural network in TensorFlow.

This is the second course of the Deep Learning Specialization.

▲ Show less

Who is this class for: This class is for: - Learners that took the first course of the specialization: "Neural Networks and Deep Learning" - Anyone that already understands fully-connected neural networks, and wants to learn the practical aspects of making them work well.

Created by: deeplearning.ai





Taught by: Andrew Ng, Co-founder, Coursera; Adjunct Professor, Stanford University; formerly head of Baidu Al Group/Google Brain



Taught by: Head Teaching Assistant - Kian Katanforoosh, Adjunct Lecturer at Stanford University, deeplearning.ai, Ecole Centrale Paris



Taught by: Teaching Assistant - Younes Bensouda Mourri, Mathematical & Computational Sciences, Stanford University, deeplearning.ai

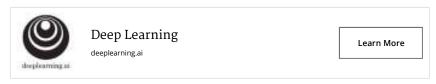
Basic Info	Course 2 of 5 in the Deep Learning Specialization
⊘ Level	Beginner

Ommitment	3 weeks, 3-6 hours per week			
Language	English, Subtitles: Chinese (Traditional), Chinese (Simplified)			
How To Pass	Pass all graded assignments to complete the course.			
☆ User Ratings	★★★★ Average User Rating 4.9 See what learners said			

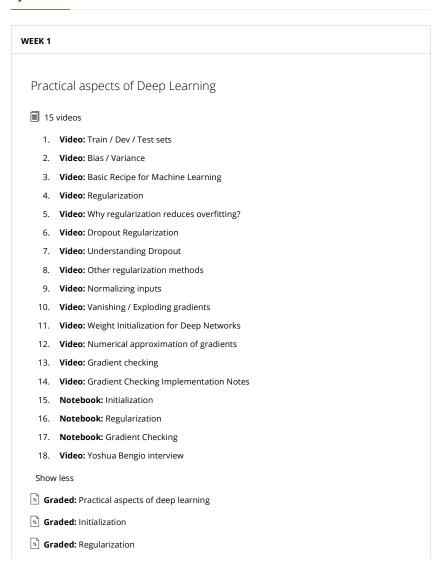
Course 2 of Specialization

Deep Learning Specialization

Master Deep Learning, and Break into Al



Syllabus



Graded: Gradient Checking WEEK 2 Optimization algorithms 11 videos 1. Video: Mini-batch gradient descent 2. Video: Understanding mini-batch gradient descent 3. Video: Exponentially weighted averages 4. Video: Understanding exponentially weighted averages 5. Video: Bias correction in exponentially weighted averages 6. Video: Gradient descent with momentum 7. Video: RMSprop 8. Video: Adam optimization algorithm 9. Video: Learning rate decay 10. Video: The problem of local optima Notebook: Optimization 12. Video: Yuanqing Lin interview Show less Graded: Optimization algorithms Graded: Optimization WEEK 3 Hyperparameter tuning, Batch Normalization and Programming Frameworks 11 videos 1. Video: Tuning process 2. Video: Using an appropriate scale to pick hyperparameters 3. Video: Hyperparameters tuning in practice: Pandas vs. Caviar 4. Video: Normalizing activations in a network 5. Video: Fitting Batch Norm into a neural network 6. Video: Why does Batch Norm work? 7. Video: Batch Norm at test time 8. Video: Softmax Regression Video: Training a softmax classifier Video: Deep learning frameworks Video: TensorFlow 12. Notebook: Tensorflow Show less Graded: Hyperparameter tuning, Batch Normalization, Programming Frameworks

Graded: Tensorflow

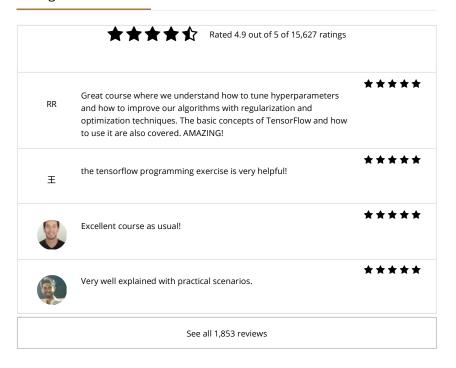
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	Certificates Earn official recognition for your work, and share your success with friends, colleagues,				
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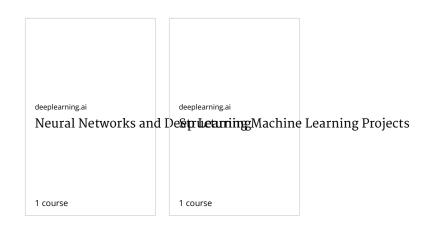
deeplearning.ai

deeplearning.ai is Andrew Ng's new venture which amongst others, strives for providing comprehensive AI education beyond borders.

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