Feedback

Introduction to Deep Learning: What Are Convolutional Neural Networks?

From the series: Introduction to Deep Learning

Shyamal Patel, MathWorks
Johanna Pingel, MathWorks

Explore the basics behind convolutional neural networks (CNNs) in this MATLAB® Tech Talk. Broadly, CNNs are a common deep learning architecture – but what exactly is a CNN? This video breaks down this sometimes complicated concept into easy-to-understand parts. You'll learn about 3 concepts: local receptive fields, shared weights and biases, and activation and pooling.

The video pulls together these three concepts and shows you how to configure the layers in a CNN.

You'll also learn about the 3 ways to train CNNs for image analysis. These include: 1.) Training the model from scratch; 2.) Using transfer learning (based on the idea that you can use knowledge of one type of problem to solve a similar problem); 3.) Using a pretrained CNN to extract features for training a machine learning model.

Learn more about using MATLAB for deep learning.

Video Transcript

Product Focus

- Deep Learning Toolbox
- Image Processing Toolbox
- MATLAB
- Computer Vision System Toolbox

Recorded: 24 Mar 2017

Other Resources

Deep Learning with MATLAB (5 Videos)
Deep Learning with MATLAB (Ebook)
Get Ready for AI with MATLAB (Article)

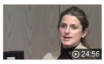
Series: Introduction to Deep Learning

What Is Deep Learning?
Explore deep learning fundamentals in this MATLAB Tech Talk. You'll learn why deep learning has become so popular, and you'll walk through 3 concepts: what deep learning is, how it is used in the real world, and how you can get started.

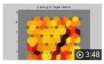
Machine Learning vs. Deep Learning
Learn about the differences between deep learning and machine learning in this MATLAB Tech Talk. Walk through several examples, and learn about how decide which method to use.

What Are Convolutional Neural Networks?
Explore the basics of convolutional neural networks (also called CNNs or ConvNets) in this MATLAB Tech Talk. You'll learn 3 concepts: local receptive fields, shared weights & biases, and activation & pooling. You'll also learn 3 ways to train CNNs.

Related Videos and Webinars



Optimal Neural Network for Automotive Product Development



Iris Flower Clustering with Neural Net Clustering App

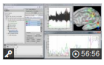
Getting Started with Deep Learning Toolbox

Wine Classification with Neural Net Pattern Recognition App

Maglev Modeling with Neural Time Series App

Deep Learning for Computer Vision with MATLAB

Deep Learning for Computer Vision with MATLAB (Highlights)



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Deep Learning for Computer Vision

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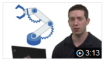
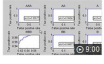
What are the Top 10 Features for Simulink and Stateflow in...

Understanding Bode Plots, Part 2: What Are They?



Understanding State Machines, Part 1: What Are They?



An Introduction to Classification