

ISE 469- DERİN ÖĞRENMEYE GİRİŞ

Başlıklar

1	Yapay zeka, makine öğrenmesi ve derin öğrenmeye genel bakış
2	Matematiksel temeller, Gradient descent algoritmaları, kayıp fonksiyonları, backpropagation.
3	Python ile tensor işlemleri, Keras derin öğrenme kütüphanesi
4	Çok etiketli (multi label) sınıflandırma, Regresyon
5	Veri ön işleme, aşırı uydurmanın (overfitting) önlenmesi, ağırlık regülerizasyonu, dropout
6	2 Boyutlu Konvolüsyon (conv2D) Sinir Ağları (convnets), pooling
7	Görüntü verilerinin zenginleştirilmesi, ön eğitilmiş (pretrained) ağlar

Başlıklar

8	İnce ayar, konvolüsyon filtrelerinin görselleştirilmesi
9	Metin verisi ile derin öğrenme, Emedding katmanları
10	Recurrent neural networks, LSTM ve GRU katmanları
11	1D convnets ile dizi işleme
12	Keras functional API, Çok girişli veya çok çıkışlı modeller
13	Üretken (generative) derin öğrenme
14	Derin öğrenmede güncel konular ile ilgili sunumlar

- **Projede sunumları (gruplar 1-2 kişi)**

Değerlendirme Sistemi

YARIYIL İÇİ ÇALIŞMALARI	SIRA	KATKI YÜZDESİ
AraSinav	1	55
ProjeTasarim	1	15
PerformansGoreviUygulama	1	10
PerformansGoreviUygulama	2	10
KisaSinav	1	10
Toplam		100
Yılıçının Başarıya Oranı		50
Finalin Başarıya Oranı		50
Toplam		100

Kaynaklar

Ders Notu

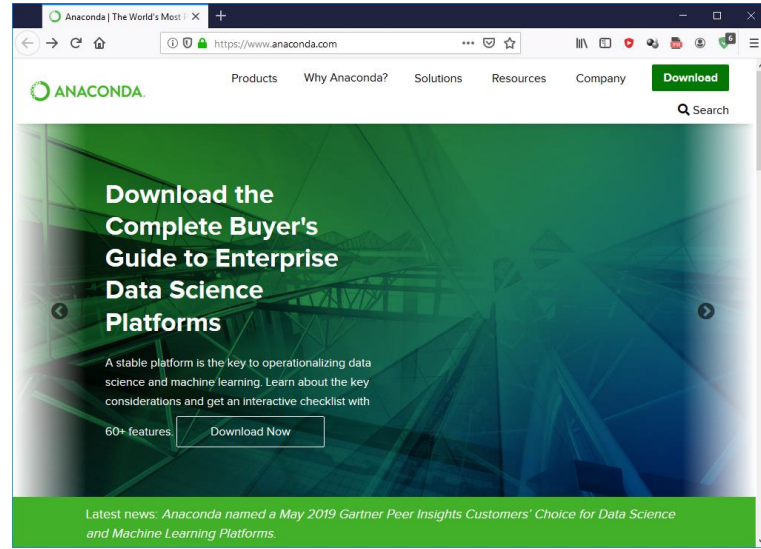
Haftalık yüklenen sunumlar.

Ders Kaynakları

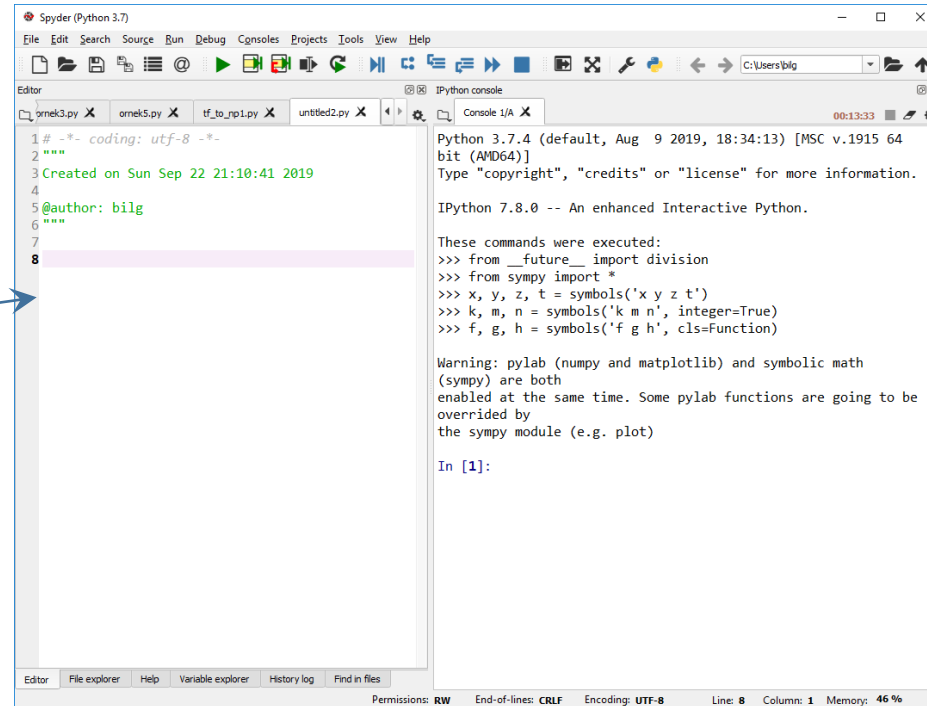
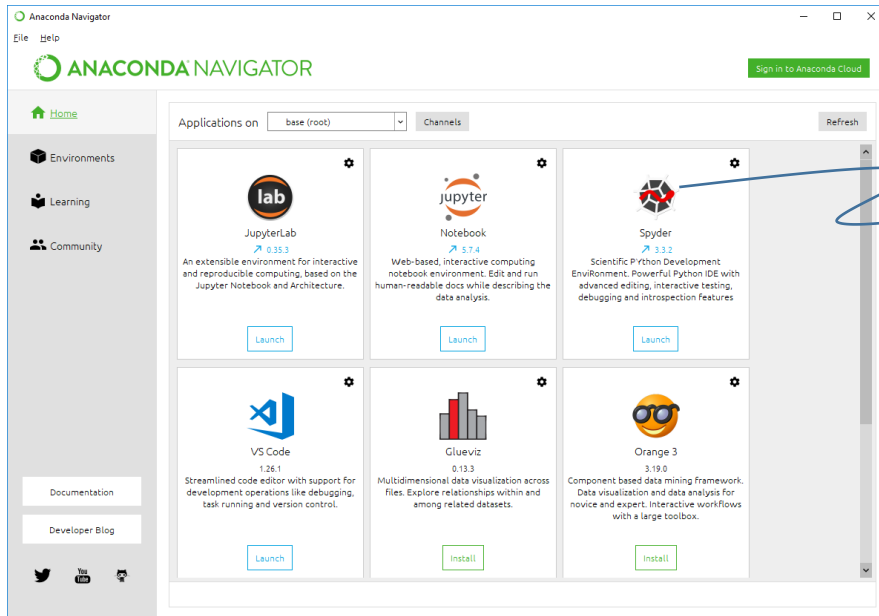
Chollet, Francois. *Deep learning with python*. Manning Publications Co., 2017.

Goodfellow, Ian, et al. *Deep learning*. Vol. 1. Cambridge: MIT press, 2016.

Araçlar



<https://www.anaconda.com>




Araçlar

The screenshot shows the Keras Documentation website in a web browser. The browser's address bar displays <https://keras.io>. The page has a dark blue header with the Keras logo and the text "Keras Documentation". Below the header is a search bar labeled "Search docs". The left sidebar contains a navigation menu with the following items: Home, You have just found Keras., Multi-backend Keras and tf.keras:, Guiding principles, Getting started: 30 seconds to Keras, Installation, Configuring your Keras backend, Support, Why this name, Keras?, Why use Keras, GETTING STARTED, Guide to the Sequential model, Guide to the Functional API, FAQ, MODELS, About Keras models, Sequential, Model (functional API), LAYERS, About Keras layers, Core Layers, GitHub, and Next. The main content area features the heading "Keras: The Python Deep Learning library" and a large red square with a white "K" logo. Below the logo, the text "You have just found Keras." is displayed. The main content area also includes a paragraph about Keras being a high-level neural networks API, a list of features, and a link to the documentation at [Keras.io](https://keras.io).

Home - Keras Documentation

Docs » Home [Edit on GitHub](#)

Keras: The Python Deep Learning library



Keras

You have just found Keras.

Keras is a high-level neural networks API, written in Python and capable of running on top of [TensorFlow](#), [CNTK](#), or [Theano](#). It was developed with a focus on enabling fast experimentation. *Being able to go from idea to result with the least possible delay is key to doing good research.*

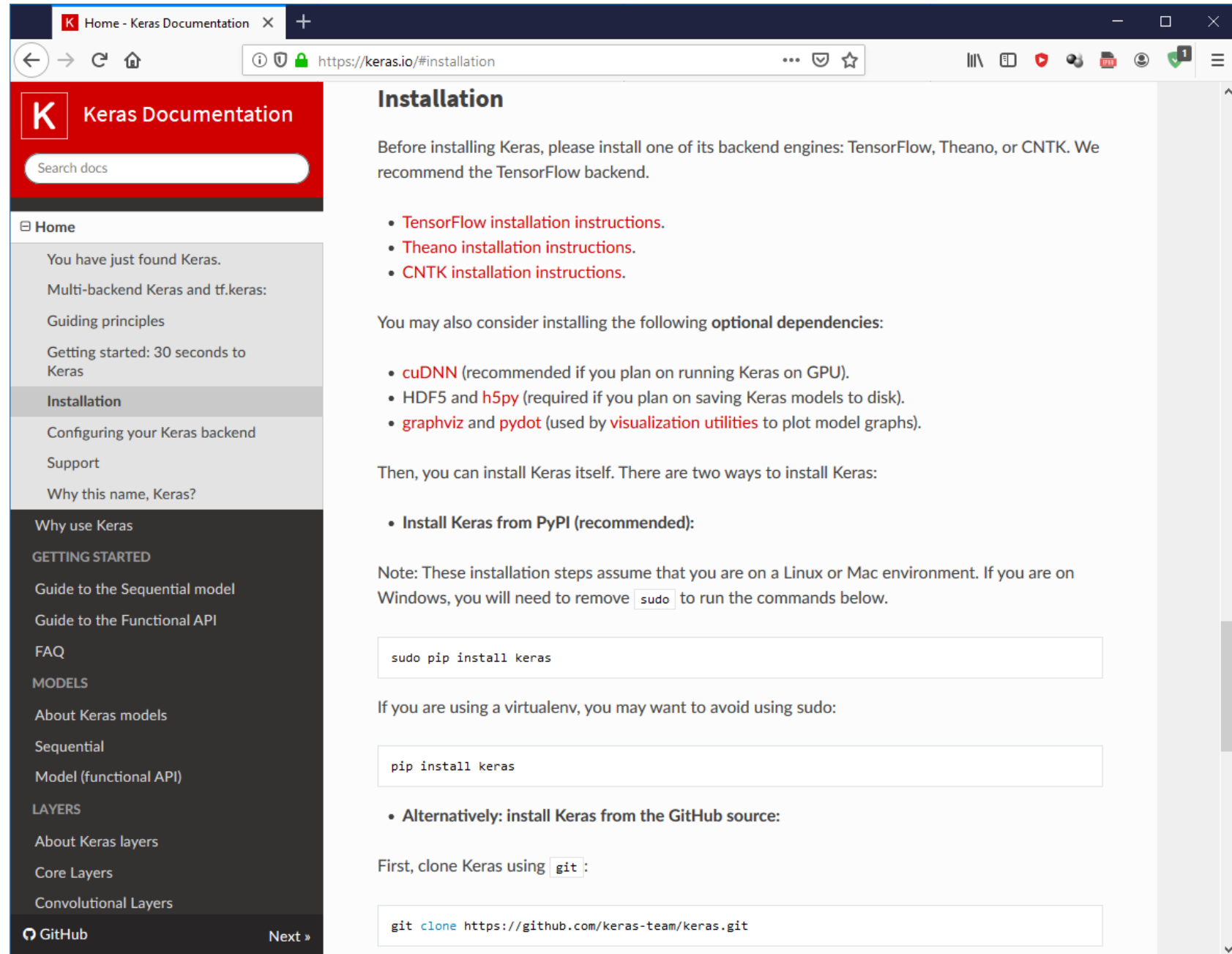
Use Keras if you need a deep learning library that:

- Allows for easy and fast prototyping (through user friendliness, modularity, and extensibility).
- Supports both convolutional networks and recurrent networks, as well as combinations of the two.
- Runs seamlessly on CPU and GPU.

Read the documentation at [Keras.io](https://keras.io).

Keras is compatible with: **Python 2.7-3.6.**

Araçlar



The screenshot shows a web browser window with the Keras Documentation page for installation. The browser's address bar shows the URL `https://keras.io/#installation`. The page has a red header with the Keras logo and a search bar. A left sidebar contains a navigation menu with categories like Home, Installation, Why use Keras, GETTING STARTED, MODELS, and LAYERS. The main content area is titled "Installation" and provides instructions on how to install Keras, including backend requirements and optional dependencies.

Keras Documentation

Search docs

- Home
- You have just found Keras.
- Multi-backend Keras and `tf.keras`:
- Guiding principles
- Getting started: 30 seconds to Keras
- Installation**
- Configuring your Keras backend
- Support
- Why this name, Keras?
- Why use Keras
- GETTING STARTED
- Guide to the Sequential model
- Guide to the Functional API
- FAQ
- MODELS
- About Keras models
- Sequential
- Model (functional API)
- LAYERS
- About Keras layers
- Core Layers
- Convolutional Layers
- GitHub
- Next »

Installation

Before installing Keras, please install one of its backend engines: TensorFlow, Theano, or CNTK. We recommend the TensorFlow backend.

- TensorFlow installation instructions.
- Theano installation instructions.
- CNTK installation instructions.

You may also consider installing the following **optional dependencies**:

- cuDNN (recommended if you plan on running Keras on GPU).
- HDF5 and h5py (required if you plan on saving Keras models to disk).
- graphviz and pydot (used by visualization utilities to plot model graphs).

Then, you can install Keras itself. There are two ways to install Keras:

- Install Keras from PyPI (recommended):**

Note: These installation steps assume that you are on a Linux or Mac environment. If you are on Windows, you will need to remove `sudo` to run the commands below.

```
sudo pip install keras
```

If you are using a virtualenv, you may want to avoid using sudo:

```
pip install keras
```

- Alternatively: install Keras from the GitHub source:**

First, clone Keras using `git`:

```
git clone https://github.com/keras-team/keras.git
```