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 önişleme, aşırı uydurmanın (overfitting) önlenmesi, ağırlık regülarizasyonu, dropout
6	2 Boyutlu Konvolüsyon (conv2D) Sinir Ağları (convnets), pooling
7	Görüntü verilerinin zenginleştirilmesi, ön eğitimli (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

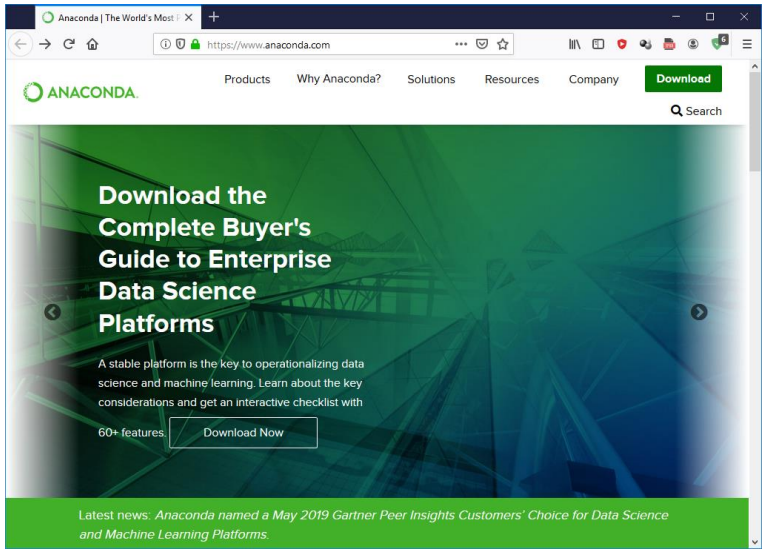
- **Projede sunumları (gruplar 1-2 kişi)**

Değerlendirme Sistemi

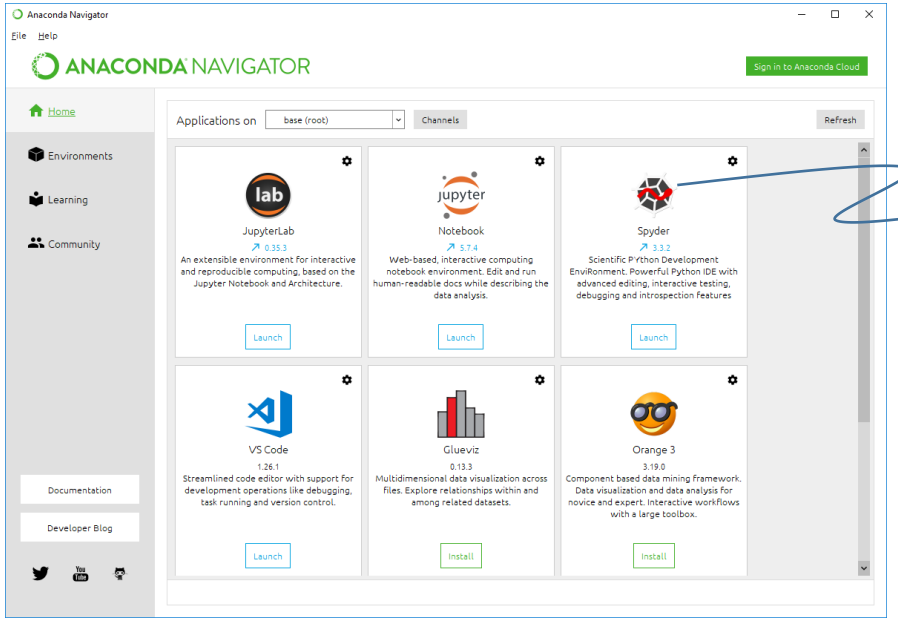
YARIYIL İÇİ ÇALIŞMALARI	SIRA	KATKI YÜZDESİ
AraSinav	1	55
ProjeTasarim	1	15
PerformansGoreviUygulama	1	10
PerformansGoreviUygulama	2	10
KisaSinav	1	10
Toplam		100
Yıliçinin Başarıya Oran		50
Finalin Başarıya Oran		50
Toplam		100

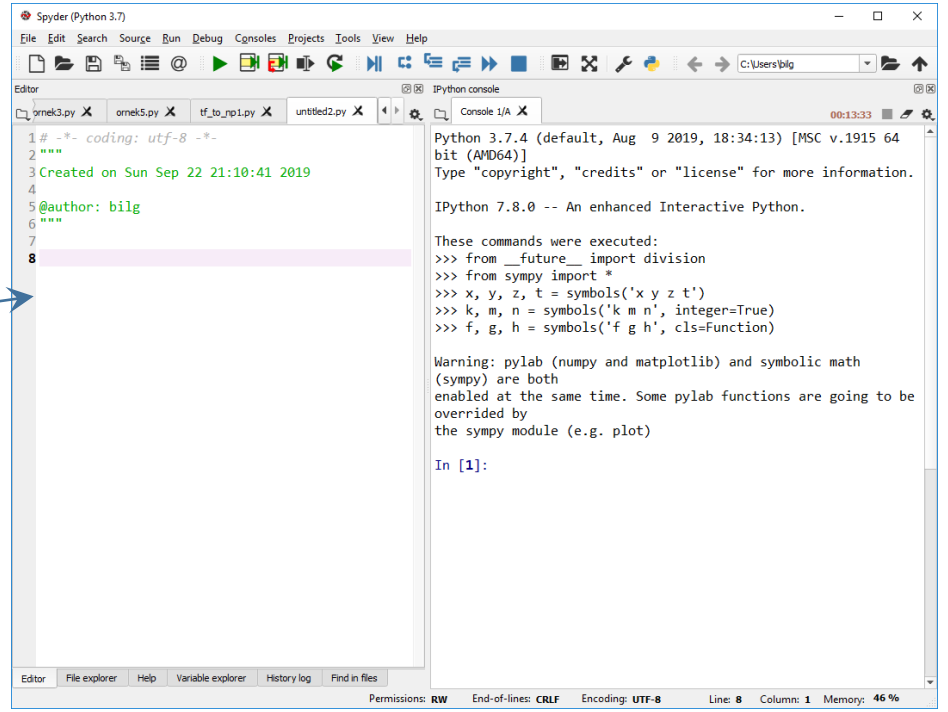
Kaynaklar	
Ders Notu	Haftalık yüklenen sunumlar.
Ders Kaynakları	Chollet, Francois. *Deep learning with python*. Manning Publications Co., 2017. Goodfellow, Ian, et al. *Deep learning*. Vol. 1. Cambridge: MIT press, 2016.

Araçlar



https://www.anaconda.com





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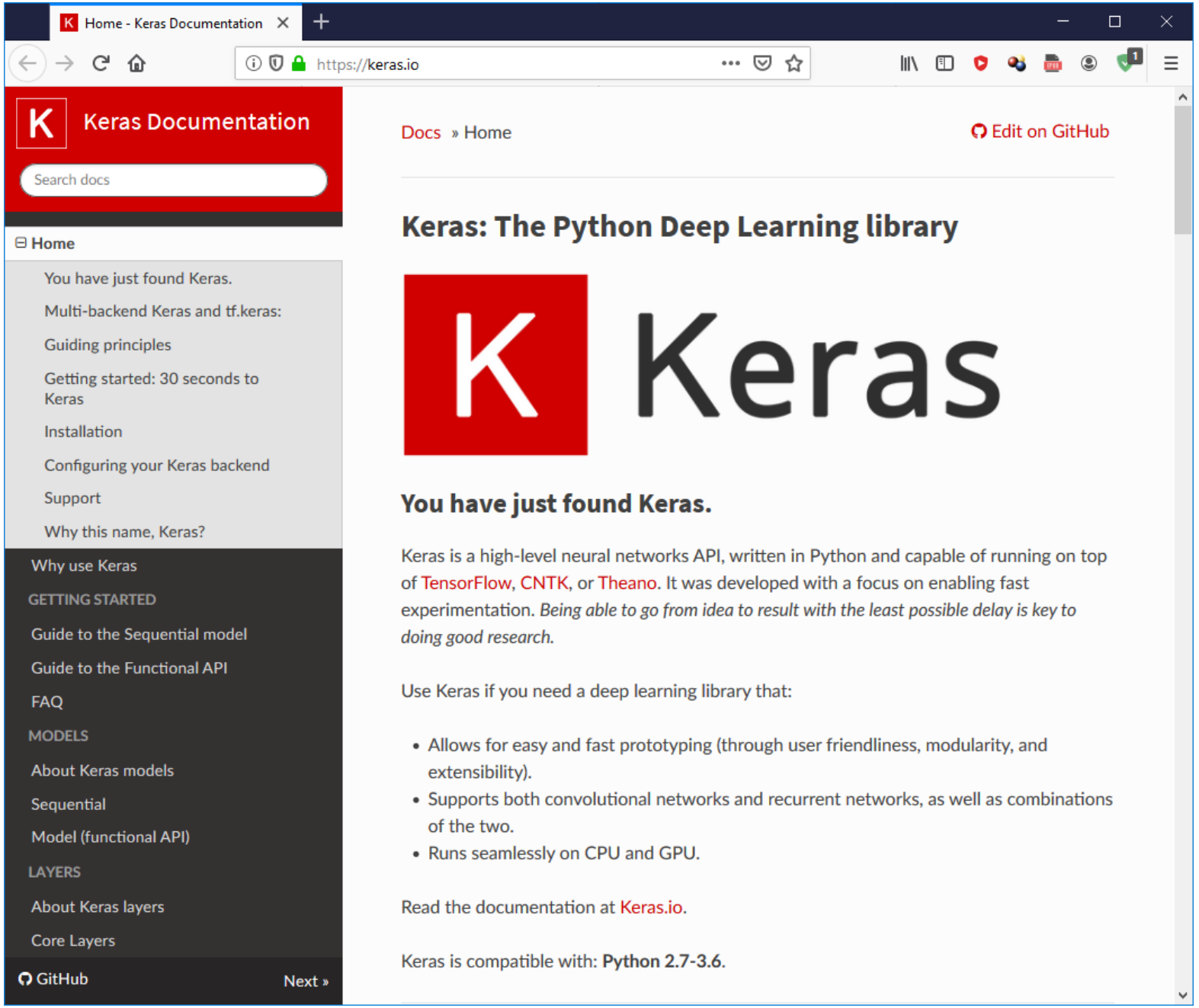
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Keras: The Python Deep Learning library
Keras
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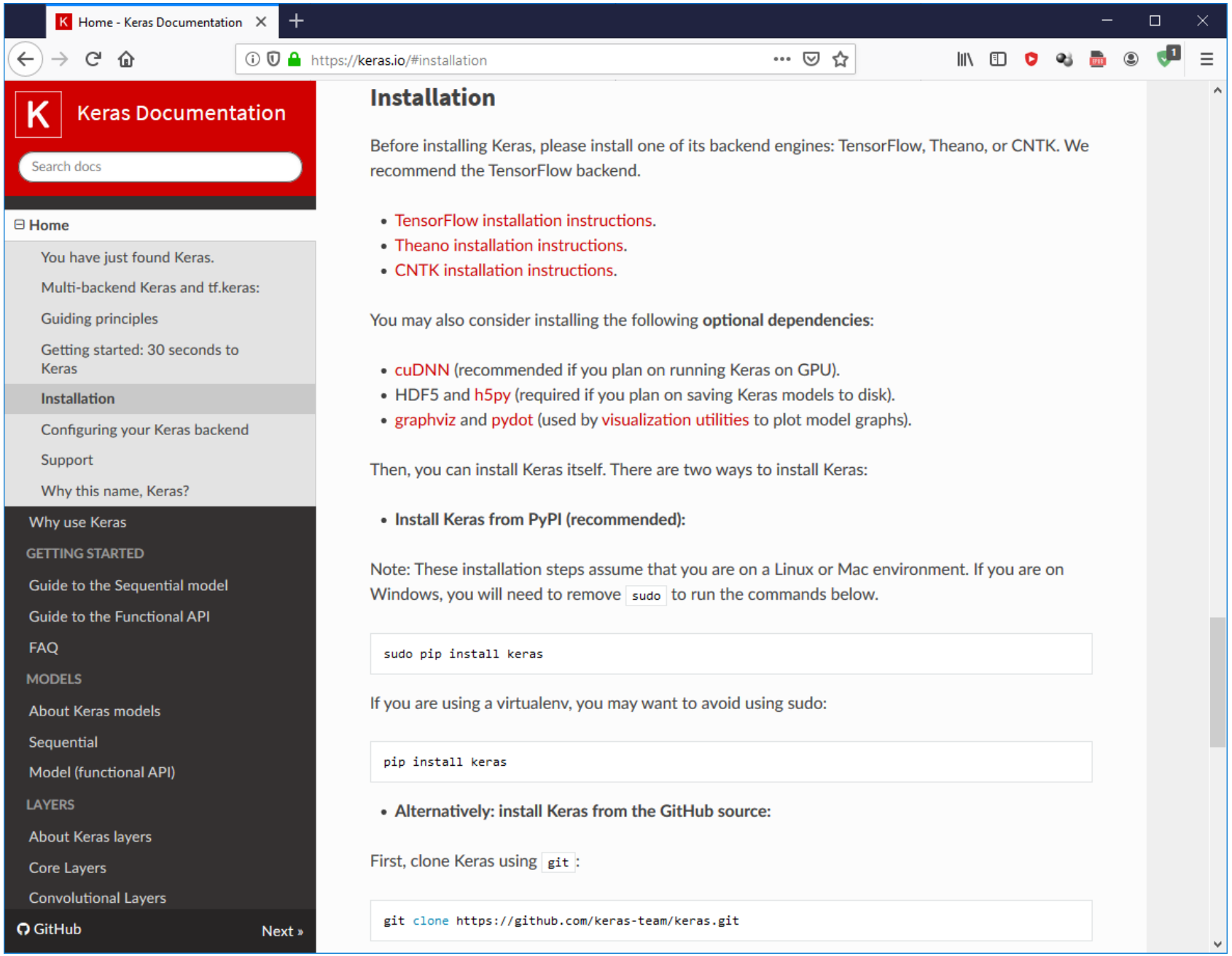
Keras is a high-level neural networks API, written in Python and capable of running on top of TensorFlow, CNTK, or Theano. It was developed with a focus on enabling fast experimentation. Being able to go from idea to result with the least possible delay is key to doing good research.
Use Keras if you 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.
Keras is compatible with: Python 2.7-3.6.

Araçlar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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