

# Yapay Zeka, Akıllı Şehirler ve İklim Değişikliği

Prof. Dr. Ümit D. ULUŞAR  
Akdeniz Üniversitesi  
Bilgisayar Müh. Böl. Başkanı



# Yapay Zeka

İnsanlar gibi **düşünen** sistemler  
İnsan gibi **davranan** sistemler  
Rasyonel **düşünen** sistemler  
Rasyonel **davranan** sistemler  
[Stuart Russell ve Peter Norvig,  
**Artificial Intelligence: A Modern  
Approach**]

Yapay zeka, **büyük veri kümelerinden öğrenme yeteneğine** dayanır. Temelde iki ana yaklaşım bulunur:

- **Makine Öğrenmesi dediğimiz gözlemler sonucunda elde edilen bilgilerden matematiksel modeller çıkartan, hesaplamalar yapılarak modeller oluşturan ve** bu modelleri kullanarak tahminlerde bulunan algoritmaların geliştirilmesi.
- **Derin Öğrenme dediğimiz ikinci türü insan beyninin işleyişine benzer bir biçimde çalışan, yapay sinir ağları adı verilen yapıları kullanır ve bunlar üstünden hesaplamalar yapar**

Şampiyonlar

Bilgisayarlar İnsana Karşı

# DeepBlue (1997)





# IBM Watson – Jeopardy 2011

World UK Science Cities Global development Football **Tech** Business Environment Obituaries

**Artificial intelligence (AI)**

This article is more than 8 years old

## IBM computer Watson wins Jeopardy clash

Supercomputer outwits US quiz show champions in epic head-to-head drive battle

Adam Gabbatt and agencies

@adamgabbatt

Thu 17 Feb 2011 10:54 GMT

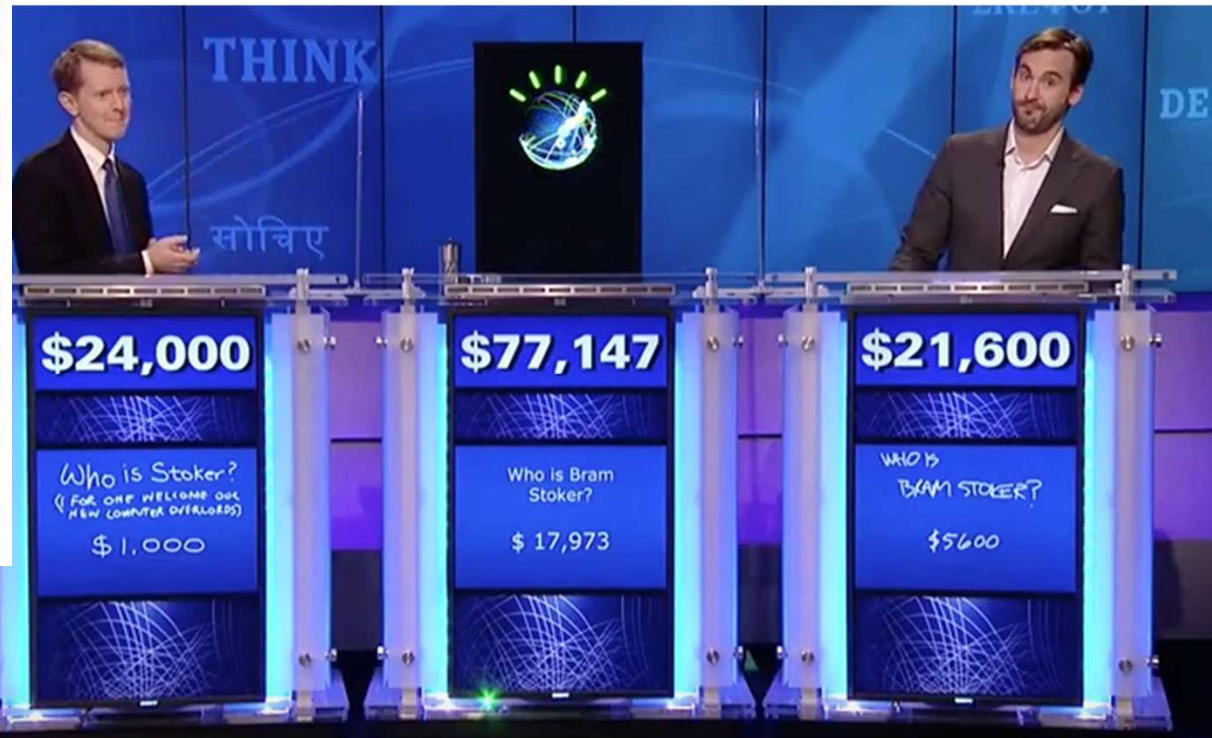


20

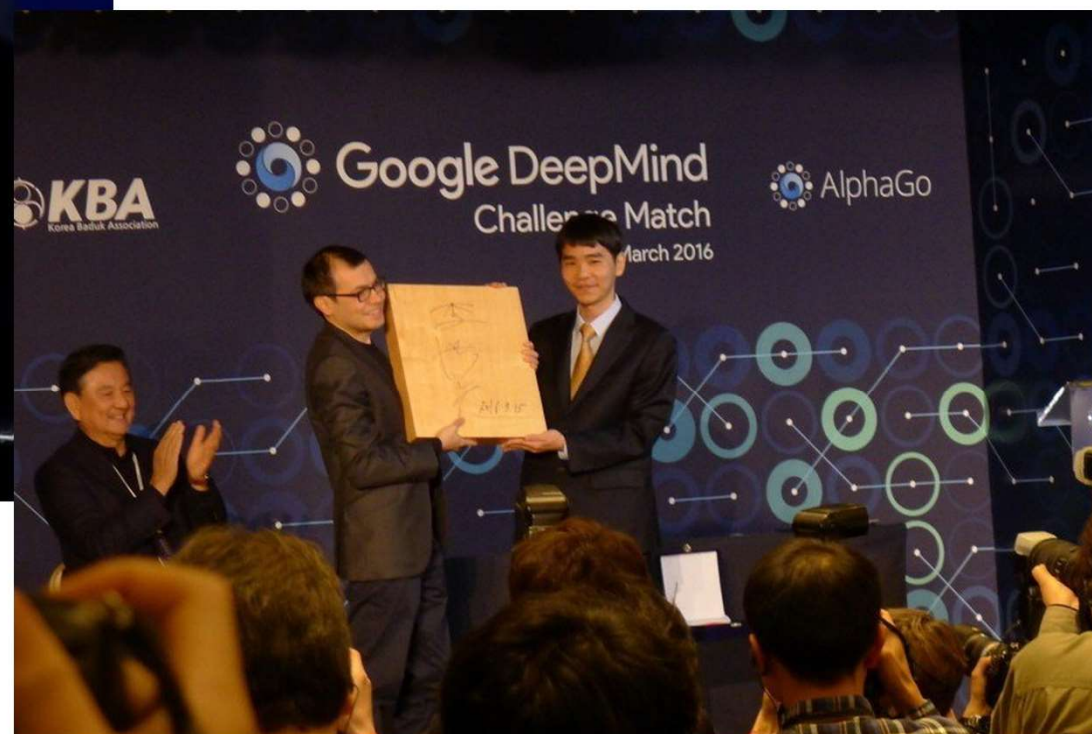


▲ Watson wins: Jeopardy host Alex Trebek, executive producer Harry Friedman and former champion Brad Rutter discuss the battle between man and machine. Photograph: Ben Hider/Getty

The 1984 film *The Terminator* foretold of an epic battle between man and machine, each striving for dominance. Little did the writers know how prescient their tale would be.

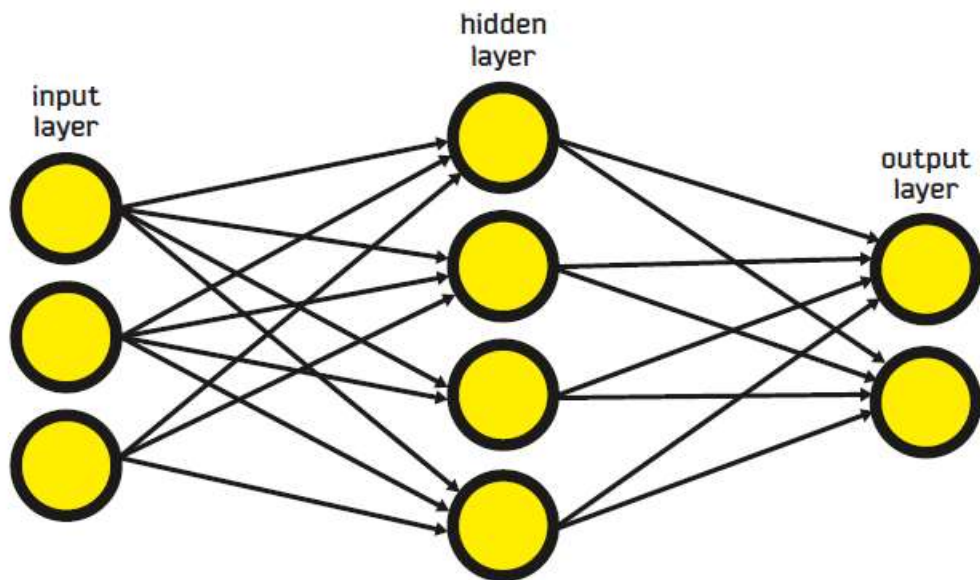


# Google's AlphaGo (March 2016)





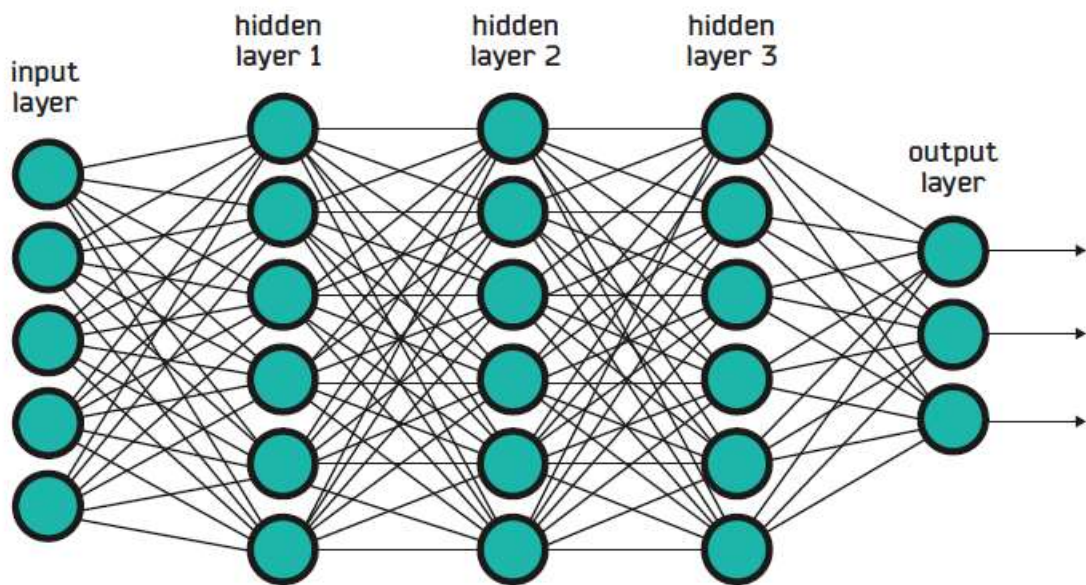
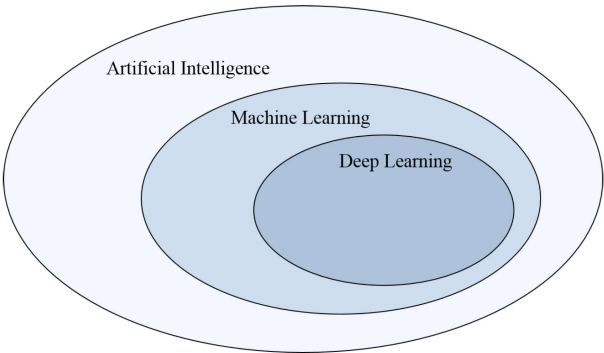




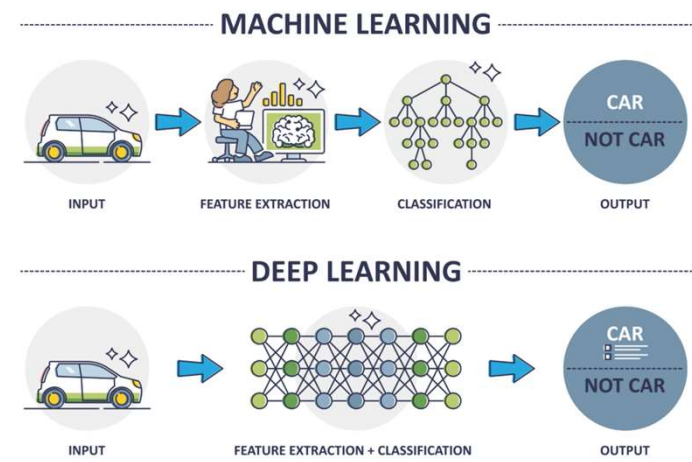
# Neural Network

Report No. 85-460-1  
 THE PERCEPTRON  
 A PERCEIVING AND RECOGNIZING AUTOMATON  
 (PROJECT PARA)  
 January, 1957

Frank Rosenb



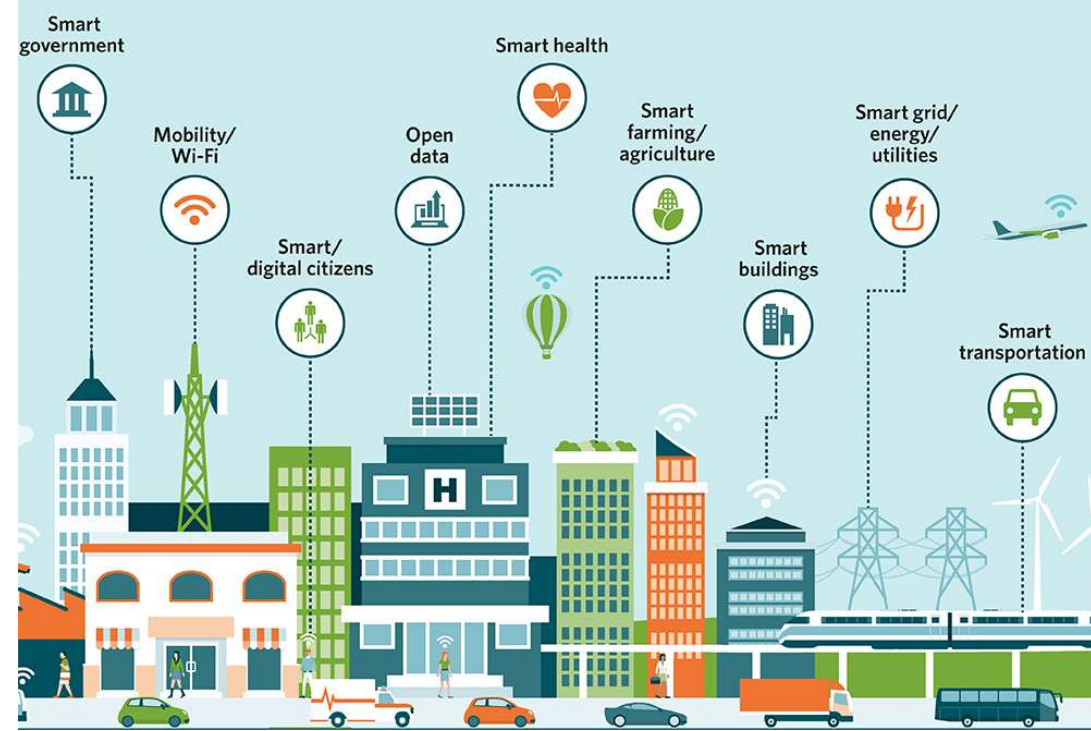
# Deep Neural Network





# Yapay Zekanın Son Uygulamaları

Makine Öğrenmesi,  
Doğal Dil İşleme,  
Bilgisayarlı Görme



# Görüntü İşleme ve Sınıflandırma

Resmin içinde bulunan nesnenin tanımlanması, insana benzer şekilde resmin anlaşılması.

Classification

Classification + Localization

Object Detection

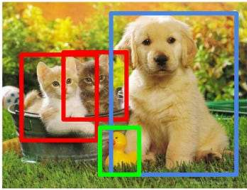
Instance Segmentation



CAT



CAT



CAT, DOG, DUCK



CAT, DOG, DUCK

Single object

Multiple objects

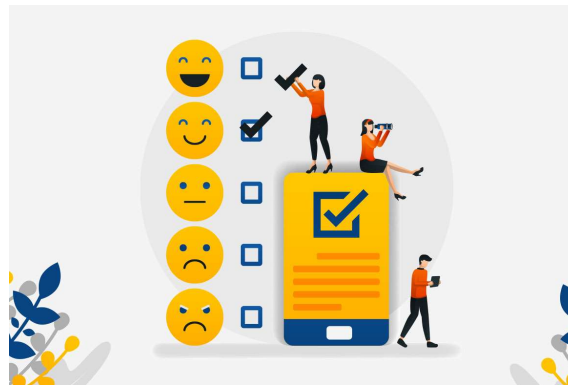
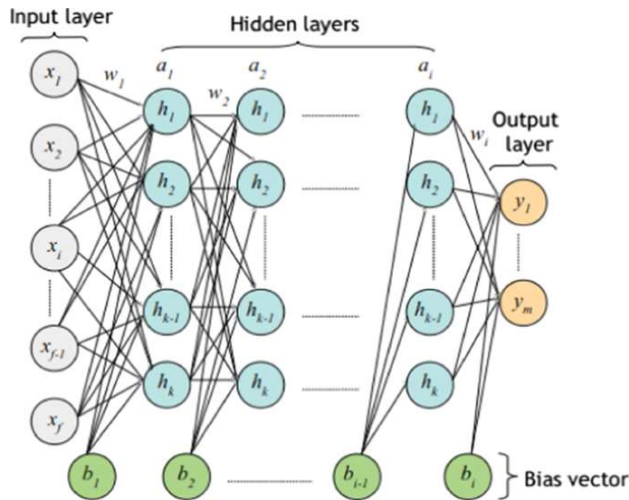
## Sürücüsüz Arabalar



# Doğal Dil İşleme

Doğal Dil İşleme (NLP), yapay zekanın insan dilini anlamasını, yorumlamasını ve üretmesini amaçlar.

NLP, **metin analizi**, **duygu tespiti**, çeviri ve sesli sanal asistanlar gibi unsurları kapsar.



chat.openai.com/c/cfe55ceb-f3c6-4f5f-b768-065caa8b5ae4

+ New chat

Today

- Read CSV File.
- Процессор Intel I9

Yesterday

- Software Project Management
- Change ListTile Icon Color
- EF Core Concurrency Handling

Previous 7 Days

- Twibot20 Dataset Processing
- Indoor Localization with MDE
- OneSignal C# Notification Exa
- Generative AI: Advanced Topic
- Optimizing KNN with PSO
- Navigate Safety Check Only.

MA: What is the next value for the following series 5 8 11 14

OpenAI: The given series follows an arithmetic progression with a common difference of 3. To find the next value, you add 3 to the previous term. Therefore, the next value in the series would be 17.

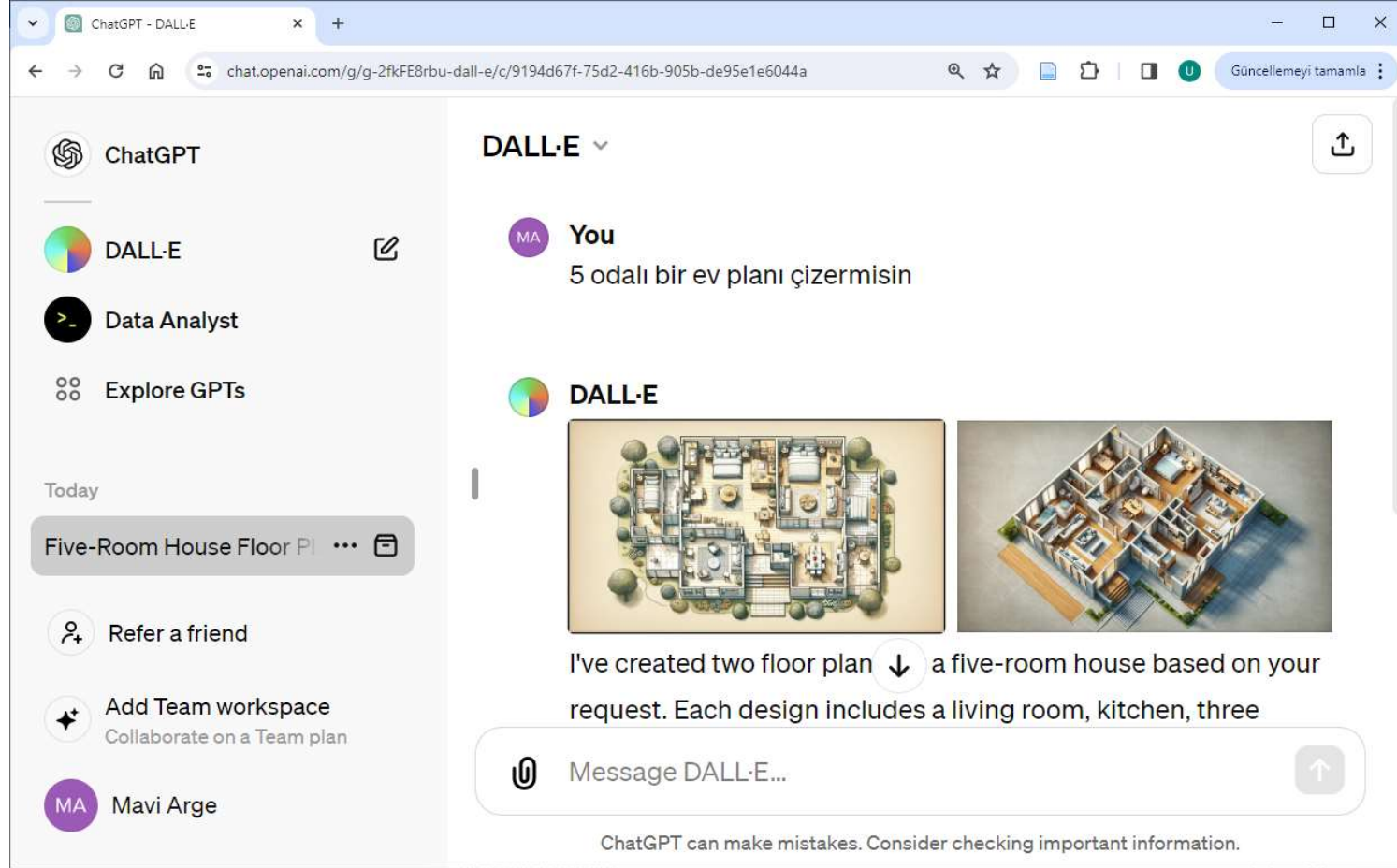
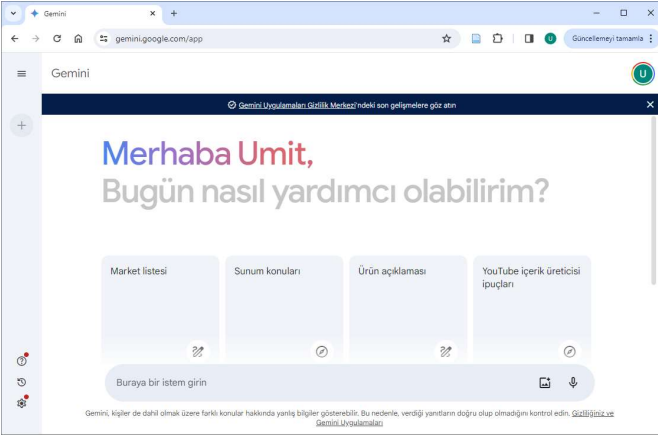
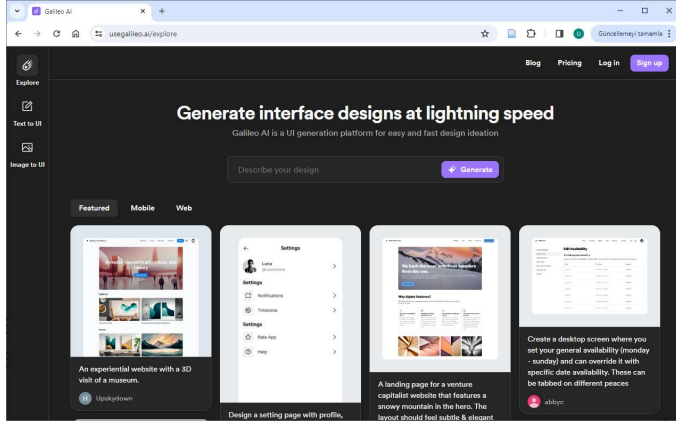
MA: For a triangle first two angles are 90 and 45. What is the third angle?

OpenAI: In a triangle, the sum of all three angles is always 180 degrees. Given that the first two angles are 90 degrees and 45 degrees, you can find the third angle by subtracting the sum of the two known angles from 180 degrees.  $180 - (90 + 45) = 180 - 135 = 45$  degrees. Therefore, the third angle of the triangle is 45 degrees.

Send a message...

tweet_text	emotion_vn_tweet_text_directed_at	is_there_an_emotion_directed_at_a_brand
@westey81 I have a 3S iPhone. After 3 hrs tweeting at #RSXW Austin, it was dead! I need to upgrade. Plug-in stations at #RSXW.	iPhone	Negative emotion
@svedese Know about #fludapp? Awesome iPad/iPhone app that you'll likely appreciate for its design. Also, they're giving free 1s at #RSXW	iPad or iPhone App	Positive emotion
@svedese Can't wait for #iPad2's also. They should sale them down at #RSXW.	iPad	Positive emotion
@saw I hope this year's festival isn't as crazy as this year's iPhone app. #RSXW	iPad or iPhone App	Negative emotion
@saxstate great stuff on Fr #RSXW. Marissa Mayer (Google), Tim O'Reilly (tech books/conferences) &amp; Matt Mullenweg (WordPress)	Google	Positive emotion
@saxstate#RSXW New iPad Apps for #RSXW! They're And Communication Are Showcased At The #RSXW Conference http://bit.ly/RSXW#RSXW	No emotion toward brand or product	No emotion toward brand or product
#RSXW is just starting. #CTIA is around the corner and #Google is only a hop skip and a jump from there, good time to be an Android fan	Android	Positive emotion
Beautifully smart and simple idea RT @madebymany @thenewsworld write about our #hollogram iPad app for #RSXW! http://bit.ly/RSXW#RSXW	iPad or iPhone App	Positive emotion
Counting down the days to #RSXW plus strong Canadian dollar means stock up on Apple gear	Apple	Positive emotion
Excited to meet the @thamesnewsites at #RSXW so I can show them my Sprint Galaxy S III running Android 2.1. #RT!	Android	Positive emotion
Find #amp; Start Impromptu Parties at #RSXW With @hurlerparty http://bit.ly/RSXW#RSXW I can't wait till the Android app comes out.	Android App	Positive emotion
Four square ups the game, just in time for #RSXW http://m.jm/gN7Jk. Still prefer @Google by far, best looking Android app to date.	Android App	Positive emotion
Get in line this #RSXW Google Calendar featuring top parties/show cases to check out. RT @thamesnewsites via @tuchafier -@tuchafier/RSXW#RSXW	Other Google product or service	Positive emotion
Great #RSXW iPad app from @madebymany. http://tinyurl.com/4eq92	iPad or iPhone App	Positive emotion
haha, awesomely cool iPad app by @madebymany http://bit.ly/RSXW#RSXW	iPad or iPhone App	Positive emotion
Holler Green for iPad on the iTunes App Store. - http://tinyurl.com/4eq92	No emotion toward brand or product	No emotion toward brand or product
I just noticed DST is coming this weekend. How many iPhone users will be an hour late at #RSXW come Sunday morning? #RSXW #iPhone	iPhone	Negative emotion
Just added my #RSXW flights to @Glanely. Matching people on planes/airports. Also downloaded the #GRAM iPhone app, nicely done.	iPad or iPhone App	Positive emotion
Much love #RSXW and FT! @thamesnewsites: Lovely review from Forbes for our #RSXW iPad app hollogram. - http://tinyurl.com/4eq92	iPad	Positive emotion
Need to buy an iPad2 while I'm in Austin at #RSXW. Not sure if I'll need to Q up at an Austin Apple store?	iPad or iPhone App	Positive emotion
Oh, My God. The #RSXW app for iPad is pure, unadorned awesomeness. It's easier to browse events on iPad than on the website!!!	Android App	Positive emotion
Okay, this is really it: yay new @FourSquare for #Android app!!!111 #hollogram. #RSXW	iPad or iPhone App	Positive emotion
Photo: Just installed the #RSXW iPhone app, which is really nice! http://tumblr.com/4613p6k47	Android App	Positive emotion
Really enjoying the changes in Gowalla 3.0 for Android! Looking forward to seeing what else they #amp; FourSquare have up their sleeves at #RSXW	Android App	Positive emotion
RT @taurusbook: I'm looking forward to the #RSXW Dallas pre-#RSXW party Wed., and hoping I'll win an iPad resulting from my shameless promotion. #Chevy iPad	iPad or iPhone App	Positive emotion
RT #haha, awesomely cool iPad app by @madebymany http://bit.ly/RSXW#RSXW (via @michaelpietro)	Other Google product or service	Positive emotion
someone started an #Austin @RSXW#RSXW group in google groups, pre-#RSXW. great idea	iPad or iPhone App	Positive emotion
The new #RSXW looks like it is going to rock. Update for iPhone and Android should push tonight http://bit.ly/RSXW#RSXW #KeepAustinWeird	Android App	Positive emotion
They were right, the @gowalla 3 app on Android is awesome! Nice job by the team there. #RSXW	iPad or iPhone App	Positive emotion
Very smart from @madebymany #hollogram iPad app for #RSXW! http://tinyurl.com/4eq92 (now have my vantage at home now)	iPad or iPhone App	Positive emotion
You must have this app for your iPad if you are going to #RSXW http://itunes.apple.com/us/app/hollogram/id420666439?mt=8-hollogram	iPad or iPhone App	Positive emotion
Here at #RSXW friends, @thamesnewsites for #RSXW! Love and see cda star for #Android. (link)	No emotion toward brand or product	No emotion toward brand or product
Anyone at #RSXW want to sell their old iPad?	No emotion toward brand or product	No emotion toward brand or product
Anyone at #RSXW who bought the new iPad want to sell their older iPad to me?	No emotion toward brand or product	No emotion toward brand or product
#RSXW. Check RT @thamesnewsites to Launch Major New Social Network Called Circle, Possibly Today (link)	iPad	Positive emotion
That's cool! RT @thamesnewsites to Launch Major New Social Network Called Circle, Possibly Today (link)	No emotion toward brand or product	No emotion toward brand or product

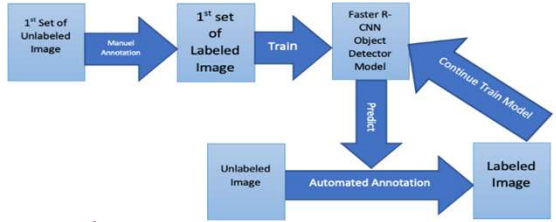




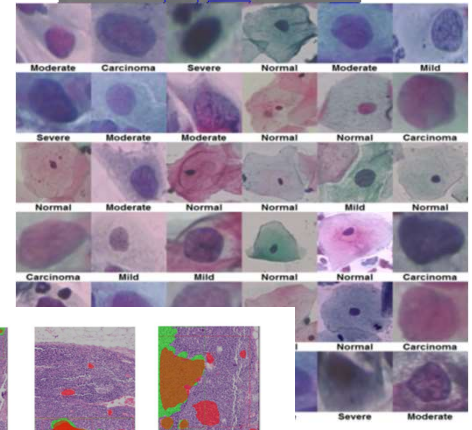
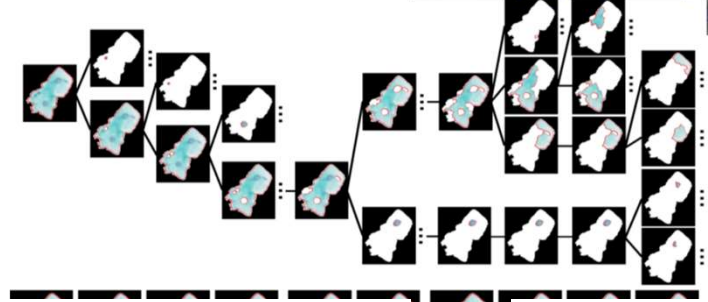
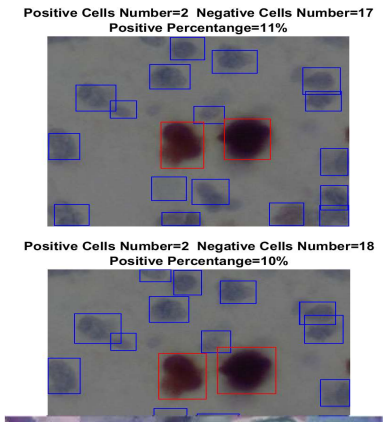
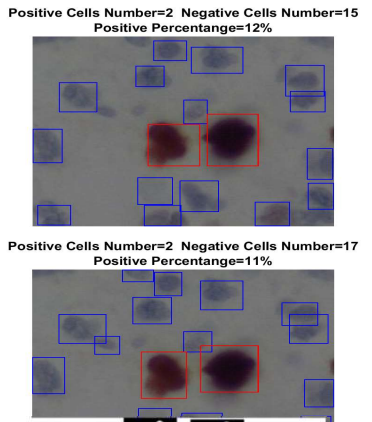
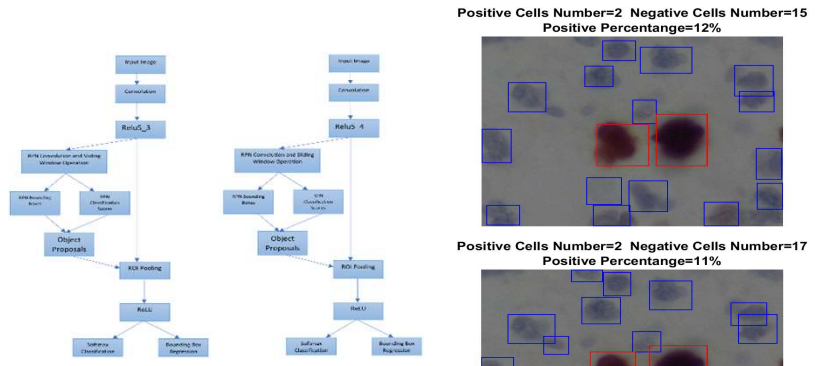
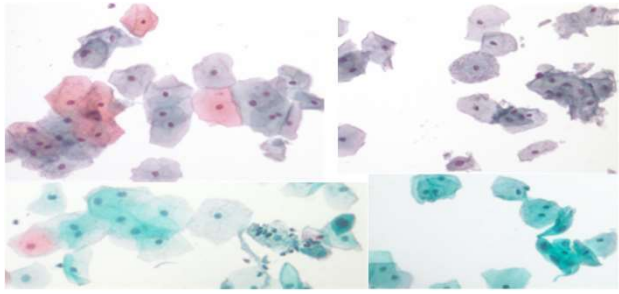
# Tasarım

# Fusion Planet: Dijital Patolojide Bilgisayar Bilimsel Çözümlerinin Dünü, Bugünü ve Geleceği

Arş. Gör. Taha Yiğit ALKAN, Doç. Dr. Havva Serap TORUN, Dr. Öğr. Üyesi Hüseyin Gökhan AKÇAY



## GLİOMLARDA KI67 MARKING



## PAP SMEAR

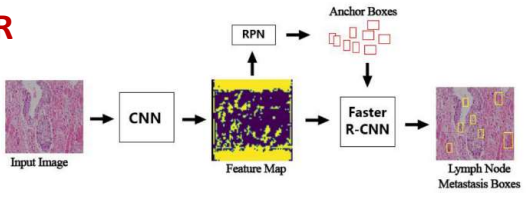


Figure 3.10. Faster R-CNN architecture

## LYMPH NODE METASTASES

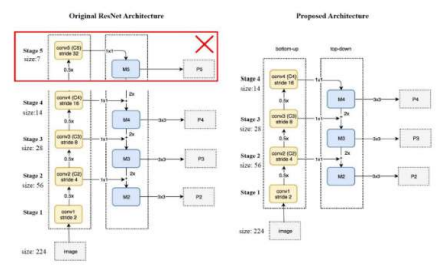


Figure 3.24. Removing stage 5 from the model.

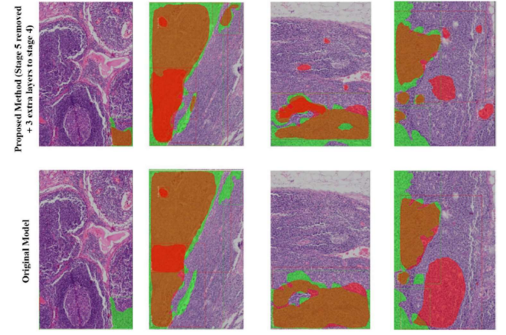
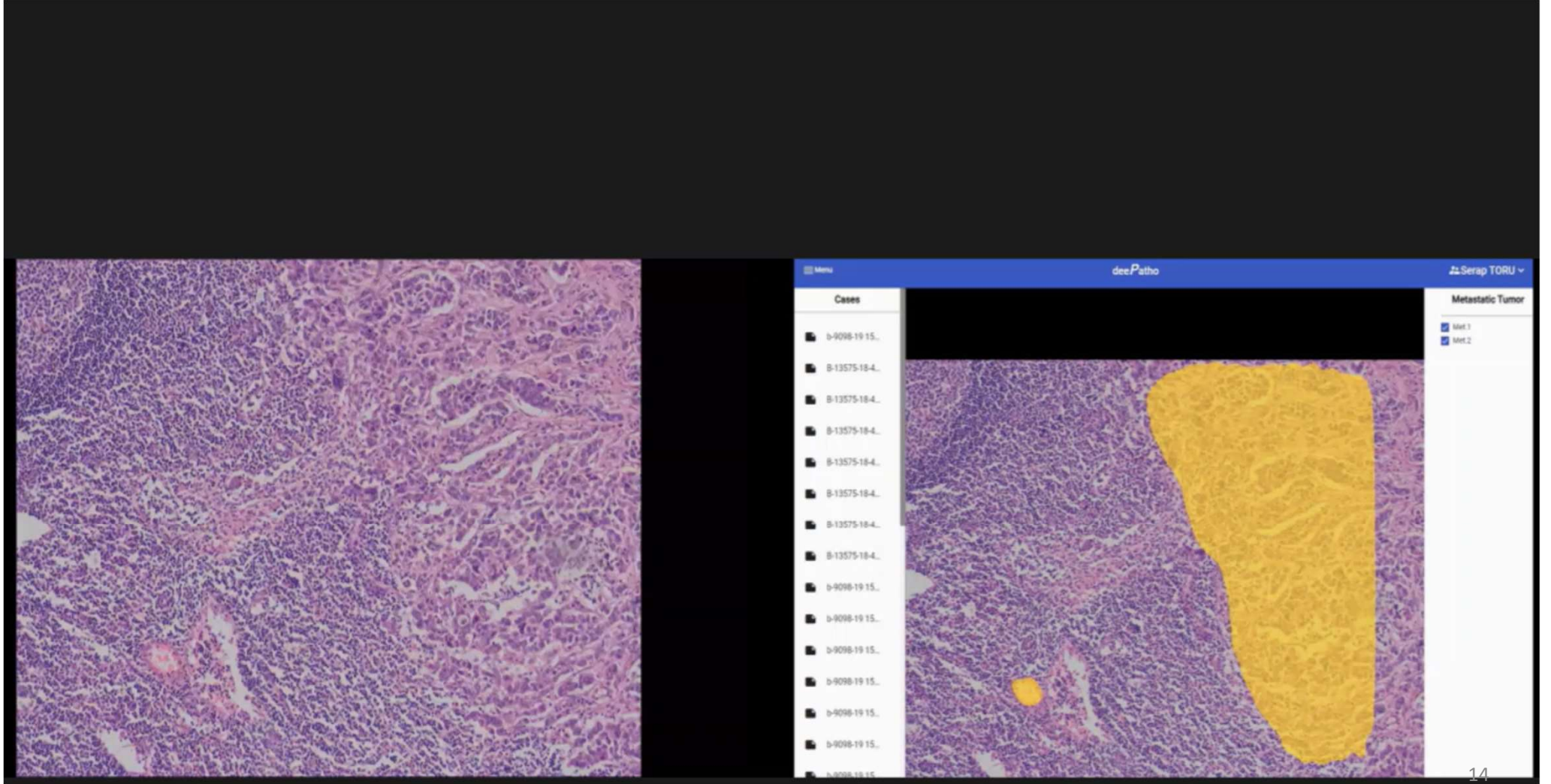


Figure 4.2.b. Test result comparison



# Fusion Planet: Dijital Patolojide Bilgisayar Bilimsel Çözümlerinin Dünü, Bugünü ve Geleceği

Arş. Gör. Taha Yiğit ALKAN, Doç. Dr. Havva Serap TORUN, Dr. Öğr. Üyesi Hüseyin Gökhan AKÇAY





# Akdeniz Üniversitesi Yapay Zeka Araştırmaları

- <https://avesis.akdeniz.edu.tr/arastirma-grubu/yapayzeka>



Yapay Zeka Araştırmaları

Anasayfa

Hakkımızda

Araştırma Alanları

Grup Üyeleri

İletişim



**ÜMİT DENİZ ULUŞAR**

Grup Başkanı



**ÖMER HALİL ÇOLAK**

Akademik Personel



**ALPER ÖZCAN**

Akademik Personel



**MUSTAFA BERKAY YILMAZ**

Akademik Personel



**ÖVÜNÇ POLAT**

Akademik Personel



**TANER DANIŞMAN**

Akademik Personel



**ALPER BİLGE**

Akademik Personel



**MURAT AK**

Akademik Personel



**HÜSEYİN GÖKHAN AKÇAY**

Akademik Personel

# Akdeniz Üniversitesi Yapay Zeka ve Veri Mühendisliği

<https://ai.akdeniz.edu.tr/>

English    

 Akdeniz Üniversitesi / Mühendislik Fakültesi  
**Yapay Zeka ve Veri Mühendisliği**



Ana Sayfa Hakkımızda ▾ Eğitim Öğretim ▾ Personel ▾ Araştırma ▾ İletişim Bölüm Başkanına Mesaj

**AKDENİZ ÜNİVERSİTESİ**  
Yapay Zeka ve Veri Mühendisliği

**AKDENİZ ÜNİVERSİTESİ**  
Bilgisayar Mühendisliği Bölümü

**ÇİFT ANADAL İLE  
KARİYERİNİZİ GÜÇLENDİRİN**  
"Geleceğin İçin Doğru Tercih"

**Yapay Zeka ve Veri Mühendisliği ile Bilgisayar Mühendisliği  
Arasında Çift Anadal İmkanı**

**AKDENİZ ÜNİVERSİTESİ**  
"Eğitimde ve Bilimde Öncü Üniversite"

# Yapay Zeka, Akıllı Şehirler ve İklim Değişikliği

- İklim değişikliğine uyum sağlayan akıllı şehir teknolojileri
- Yenilikçi yapay zeka uygulamaları:
  - Su yönetimi
  - Enerji tasarrufu
  - Hava durumu tahminleri





# Yapay Zeka ile Sürdürülebilirlik

- İklim modelleme algoritmaları
- Akıllı tarım uygulamaları
- Sera gazı emisyonlarının analizi



# Teşekkürler

Prof. Dr. Ümit D. ULUŞAR  
umituluser@akdeniz.edu.tr

