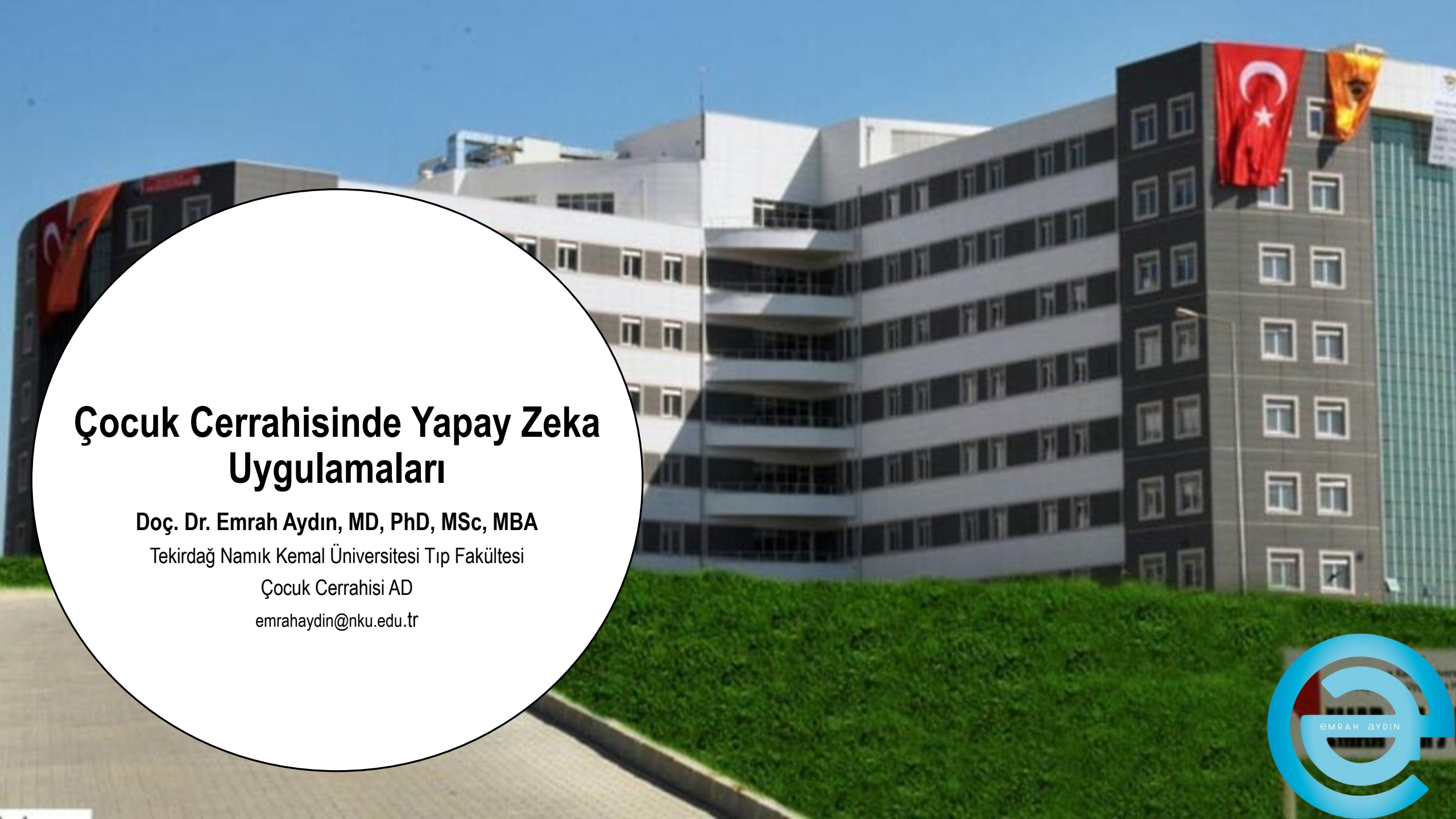


Çocuk Cerrahisinde Yapay Zeka Uygulamaları

Doç. Dr. Emrah Aydın, MD, PhD, MSc, MBA

Tekirdağ Namık Kemal Üniversitesi Tıp Fakültesi

Çocuk Cerrahisi AD

emrahaydin@nku.edu.tr

Tubitak 219S270

Koç Üniversitesi Tohum Fonu

Tubitak 2209-A

Tubitak 2219

Fetalist®

Belirsizlik modelleme

Büyük veri

İstatistiksel çıkarım

Görüntü işleme

Doğal Dil işleme

Makine öğrenmesi

SCIENTIFIC REPORTS

OPEN

Optimization of Pulmonary Vasculature Tridimensional Phenotyping in The Rat Fetus

Received: 13 July 2018
Accepted: 11 December 2018
Published online: 04 February 2019

Emrah Aydin[1,2], Brittany Levy[1], Marc Oria[1], Hussam Nachabe[1], Foong-Yen Lim[1] & Jose L. Peiro[1]

Comparative, functional, developmental, and some morphological studies on animal anatomy require accurate visualization of three-dimensional structures. Nowadays, several widely applicable

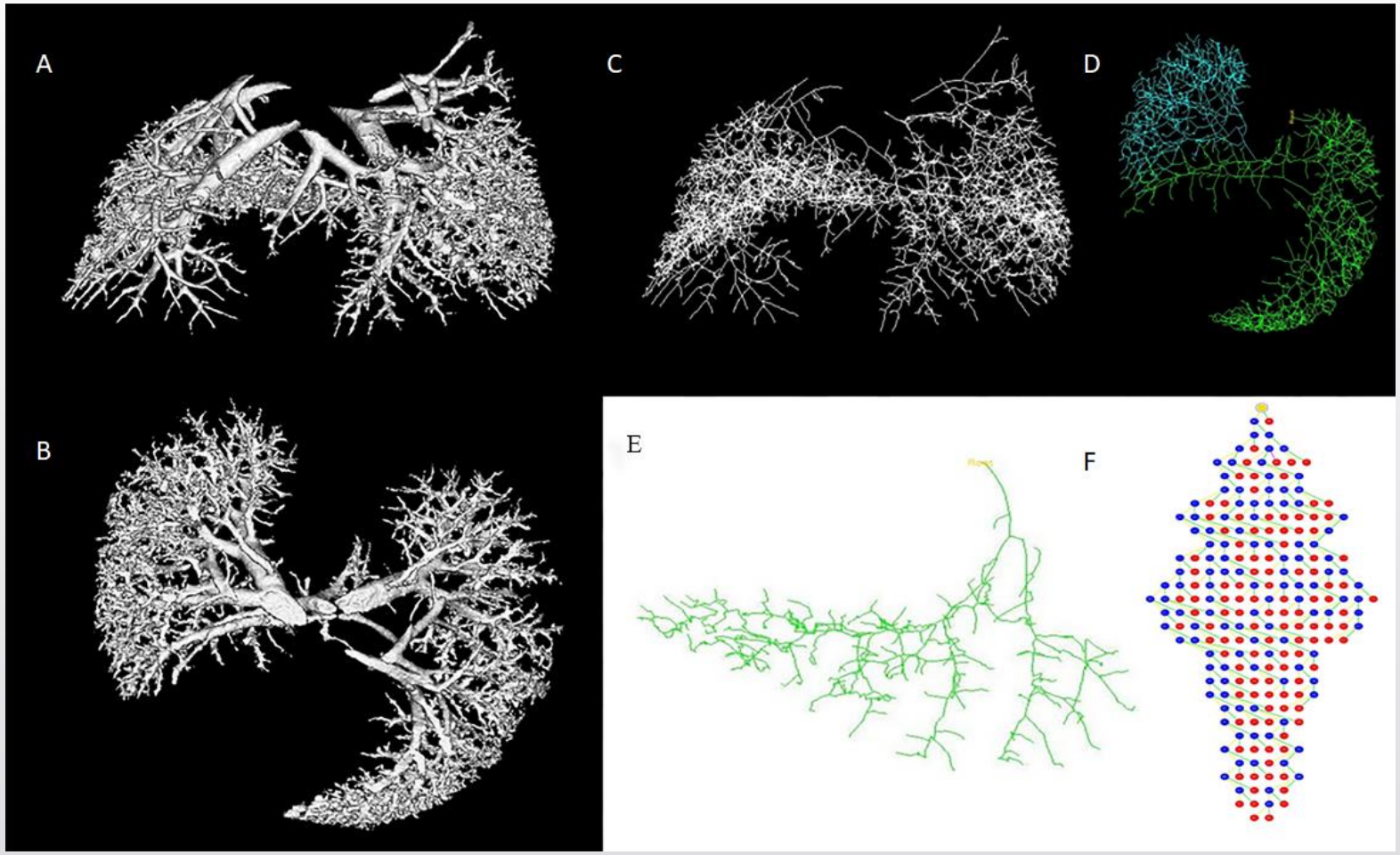
E17-19-21

Cildin parsiyel soyulması

%4 PFA 24 saat

%25 Lugol 72 saat

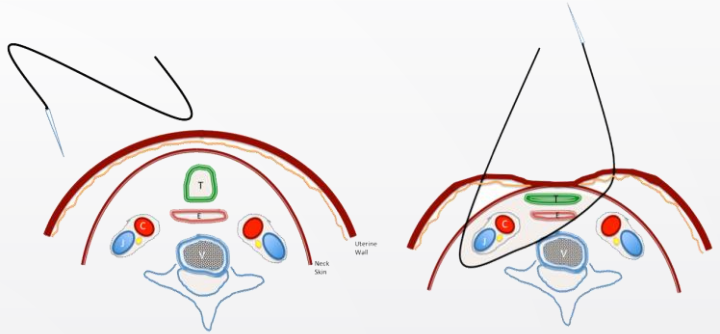
µBT


A
C
D
B
E
F

Fetal tracheal occlusion in mice: a novel transuterine method

Emrah Aydin, MD,[a,] Rashika Joshi, PhD,[b] Marc Oria, MD,[a] Brian Michael Varisco, MD,[b] Foong-Yen Lim, MD,[a] and Jose Luis Peiro, MD, PhD[a]*

[a] *The Center for Fetal, Cellular and Molecular Therapy, Cincinnati Fetal Center, Division of Pediatric General and Thoracic Surgery, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*
[b] *The Division of Critical Care Medicine, Department of Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio*



C57BL/6 fare

16,5 gebelik gününde TO

18,5 gebelik gününde sonlandırma

Reversible Fetal Tracheal Occlusion in Mice: A Novel Minimal Invasive Technique

Emrah Aydın, MD, MBA,[a,b,c,*] *Nilhan Torlak, PhD candidate,*[b] *Alkim Yildirim,*[a] *and Elif Gökçen Bozkurt*[a]

[a] *Department of Pediatric Surgery, Koç University School of Medicine, Istanbul, Turkey*
[b] *Cellular and Molecular Medicine, Koç University Graduate School of Health Sciences, Istanbul, Turkey*
[c] *Koç University Research Center for Translational Medicine (KUTTAM), Istanbul, Turkey*

Özgün Araştırma / *Original Article*

DOI: 10.4274/haseki.2966
Med Bull Haseki 2016;54:62-6

Nitrofen Kullanılarak Oluşturulmuş Konjenital Diyafragma Hernisi Modelinde Trakeal Oklüzyonun Akciğerlerin Gelişimine Etkisinin İncelenmesi

To Analyse Effect of Tracheal Occlusion in the Development of Lung in Nitrofen Induced Congential Diaphragmatic Hernia Model

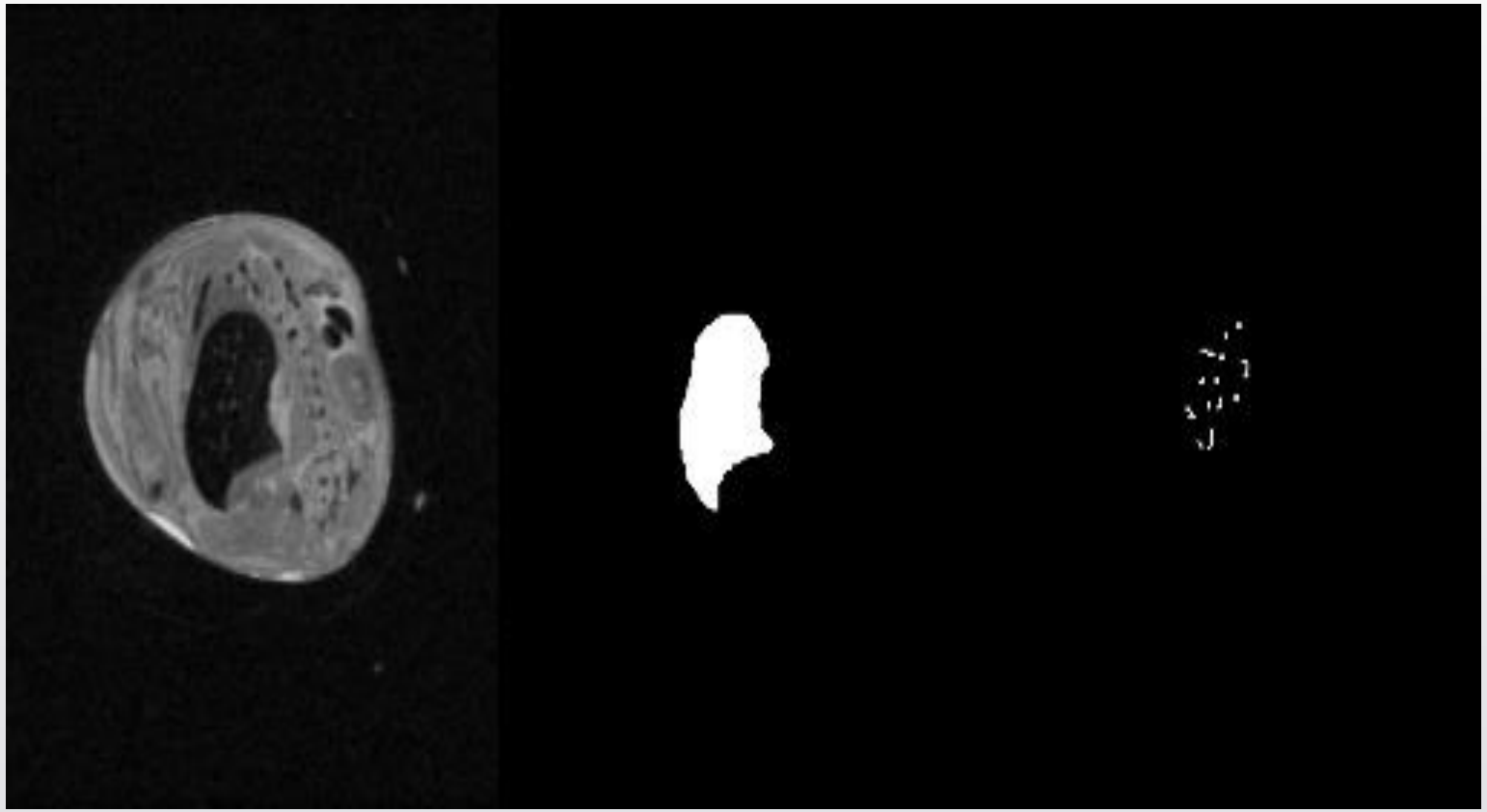
Emrah Aydın, Emre Yener*, Nil Üstündağ*

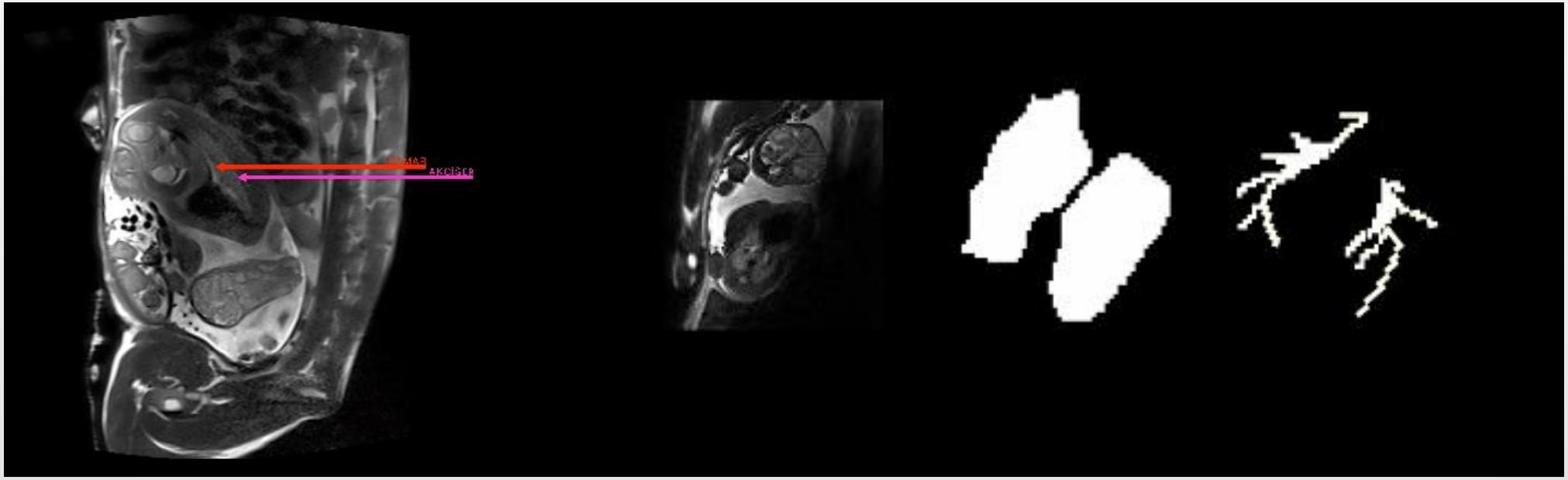
Bahçelievler Devlet Hastanesi, Çocuk Cerrahisi Kliniği, İstanbul, Türkiye
**İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi, Patoloji Anabilim Dalı, İstanbul, Türkiye*

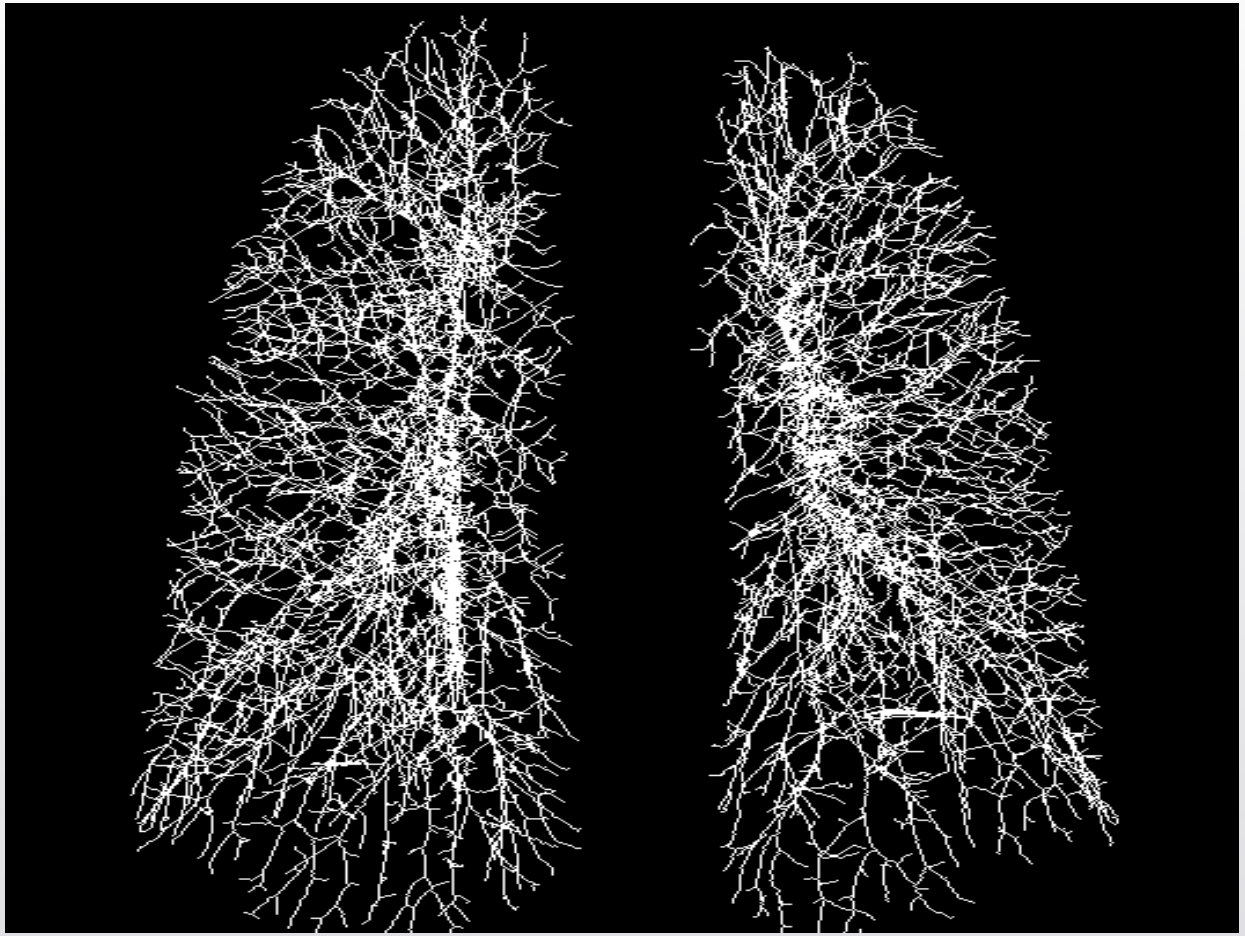
9,5 gebelik gününde 100mg Nitrofen

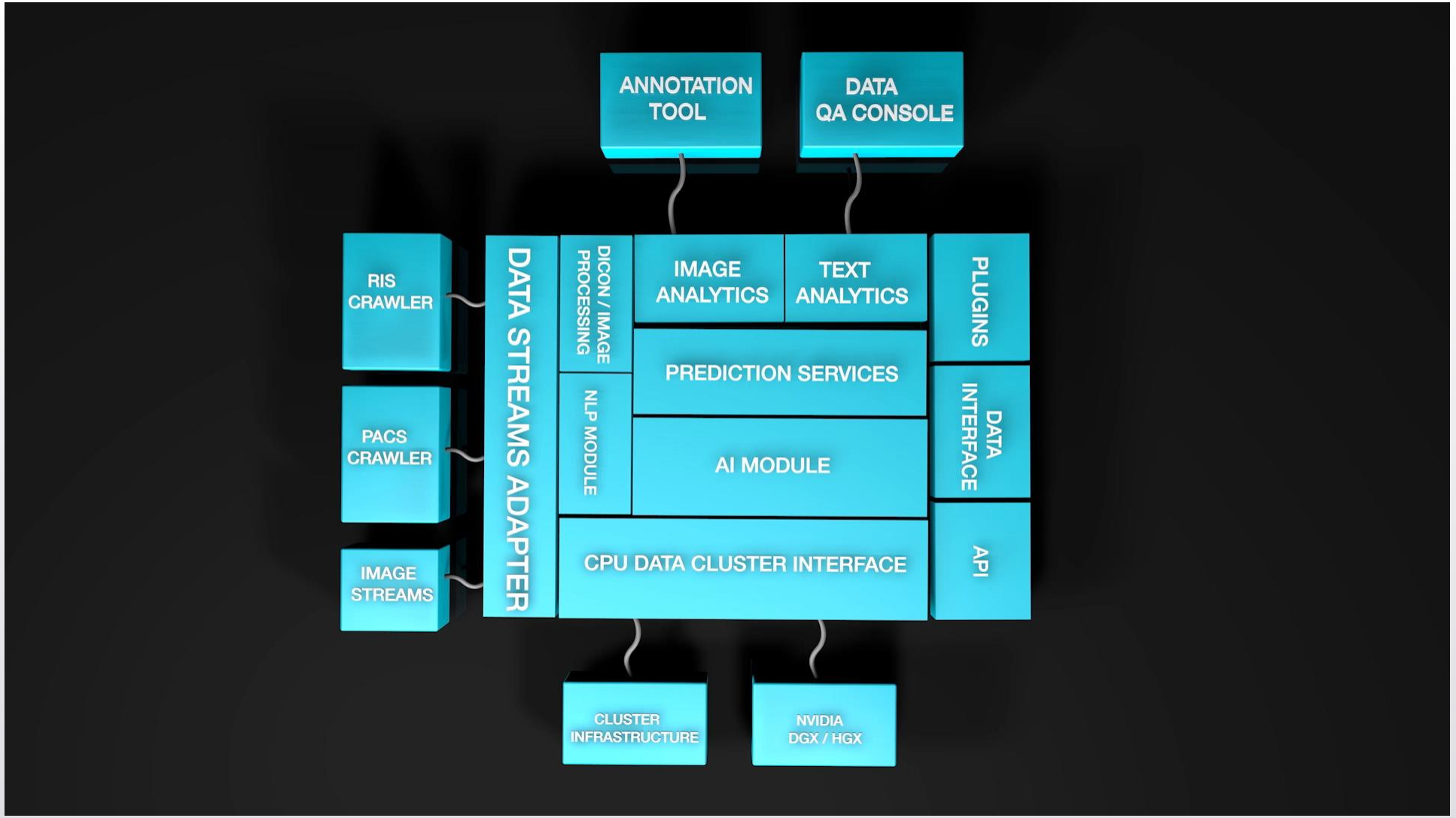
18,5 gebelik gününde TO

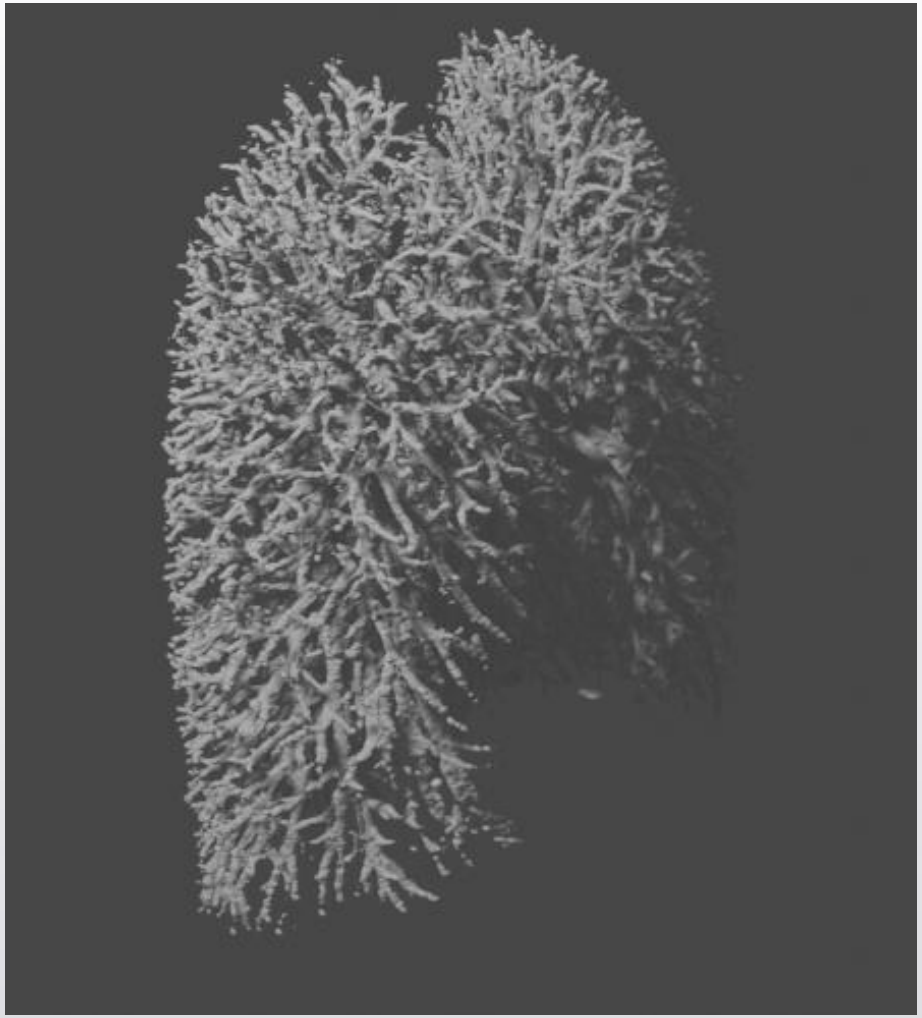
22,5 gebelik gününde sonlandırma

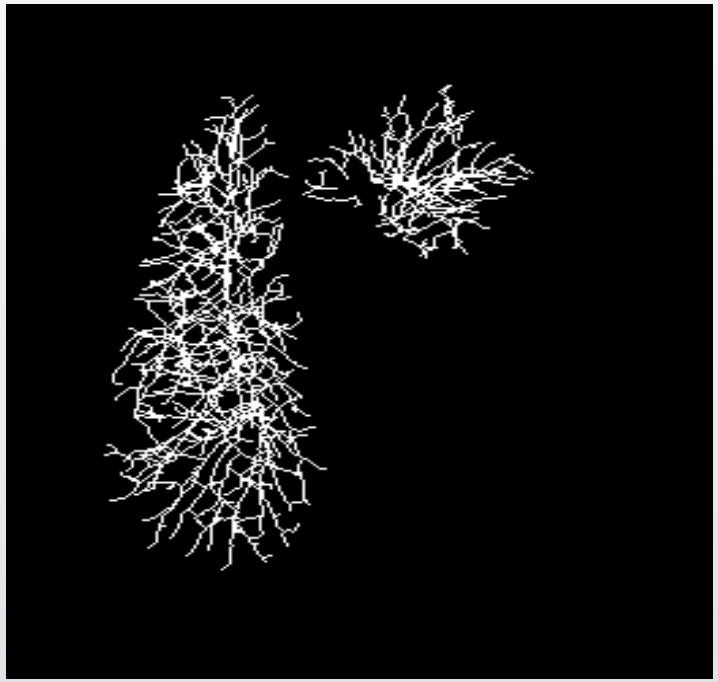


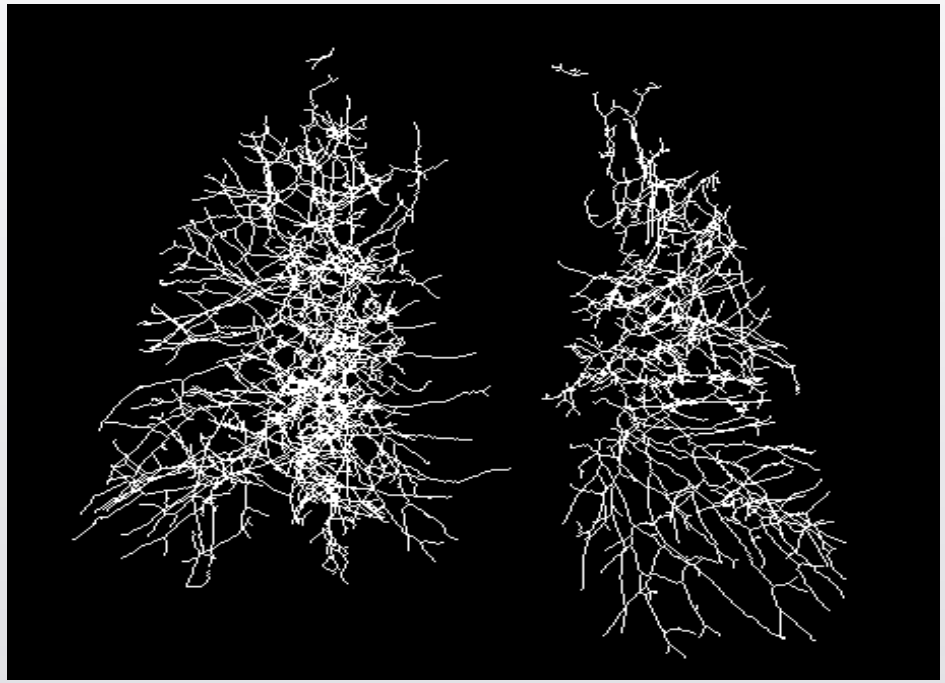

AKCİĞER




ANNOTATION TOOL
DATA QA CONSOLE
RIS CRAWLER
PACS CRAWLER
IMAGE STREAMS
DATA STREAMS ADAPTER
DICON / IMAGE PROCESSING
NLP MODULE
IMAGE ANALYTICS
TEXT ANALYTICS
PREDICTION SERVICES
AI MODULE
CPU DATA CLUSTER INTERFACE
PLUGINS
DATA INTERFACE
API
CLUSTER INFRASTRUCTURE
NVIDIA DGX / HGX







Çocukluk çağında en sık acil karın cerrahi sebebi
%1-5 mortalite
%10 morbidite
Alvarado Apandisit Skorlaması
Pediatrik Apandisit Skorlaması

Sadece yaş ve tam kan sayımı ile

Apandisit nedeni ile ameliyat olmuş hastaları tespit edebilir miyiz?

Perfore apandisitleri tespit edebilir miyiz?

IRB 2017/2549

2010 – 2016

Geriye dönük

7244 hasta

Dışlama kriterleri

- Eşlik eden hastalık
- Tam kan sayımı veya patoloji raporu eksik olanlar

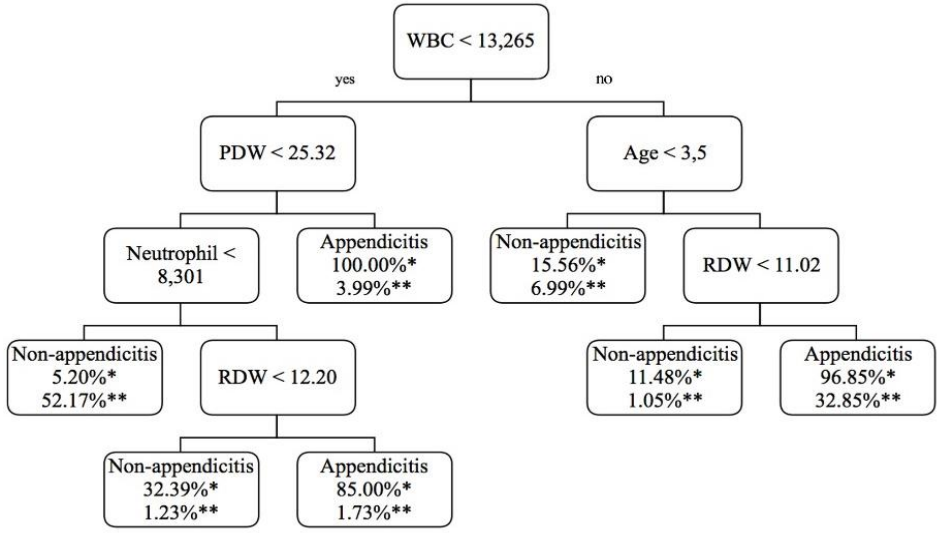
SPSS 26.0.0 (Chicago, IL)

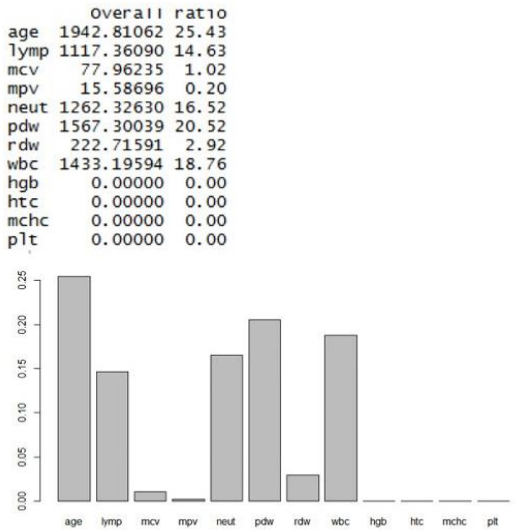
R 3.4.0

	n (%)
Grup 1	
Sünnet	3055 (42.2)
Fıtık	353 (4.9)
İnmemiş testis	110 (1.5)
Grup 2	
Karın ağrısı	323 (4.5)
Kabızlık	149 (2.1)
Grup 3	
İnvajinasyon	254 (3.5)
Grup 4	
Akut batın	3000 (41.4)
Grup 4a: False	169 (5.6)
Grup 4b: Supuratif apandisit	1272 (42.4)
Grup 4c: Gangranöz apandisit	1205 (40.2)
Grup 4d: Perfore apandisit	354 (11.8)

	Grup 1	Grup 2	Grup 3	Grup 4
	n=3518	n=472	n=254	n=3000
Cinsiyet (erkek)	3472 (98.7%)	247 (52.3%)	156 (61.4%)	2085 (69.5%)
Yaş	3.16 ± 3.11	8.08 ± 4.39	2.97 ± 2.7	11.29 ± 3.99
WBC	9768 ± 3470	9869 ± 3941	9346 ± 3002	17071 ± 4765
LYMP	4.33 ± 5.39	3.24 ± 1.91	4.2 ± 1.99	2.31 ± 1.92
NEUT	4.3 ± 3.07	5.7 ± 3.88	3.92 ± 2.52	10.18 ± 5.9
HGB	12.28 ± 1.42	13.03 ± 1.21	12.16 ± 1.59	12.71 ± 1.33
HTC	37.23 ± 8.59	38.64 ± 3.34	36.79 ± 4.42	37.76 ± 3.89
RDW	13.01 ± 1.75	10.99 ± 0.4	12.74 ± 1.52	13.64 ± 2.23
MCV	77.53 ± 14.31	93.46 ± 1.85	78.6 ± 8.09	81.09 ± 5.2
MCHC	33.16 ± 1.59	32.93 ± 1.13	33.06 ± 1.53	33.54 ± 5.49
PLT	322167 ± 92786	312422 ± 88184	322512 ± 89600	312740 ± 97863
MPV	7.07 ± 1.46	6.9 ± 1.3	7.1 ± 1.49	7.7 ± 1.38
PDW	17.95 ± 3.71	19.23 ± 1.46	18.02 ± 3.17	31.84 ± 16.01

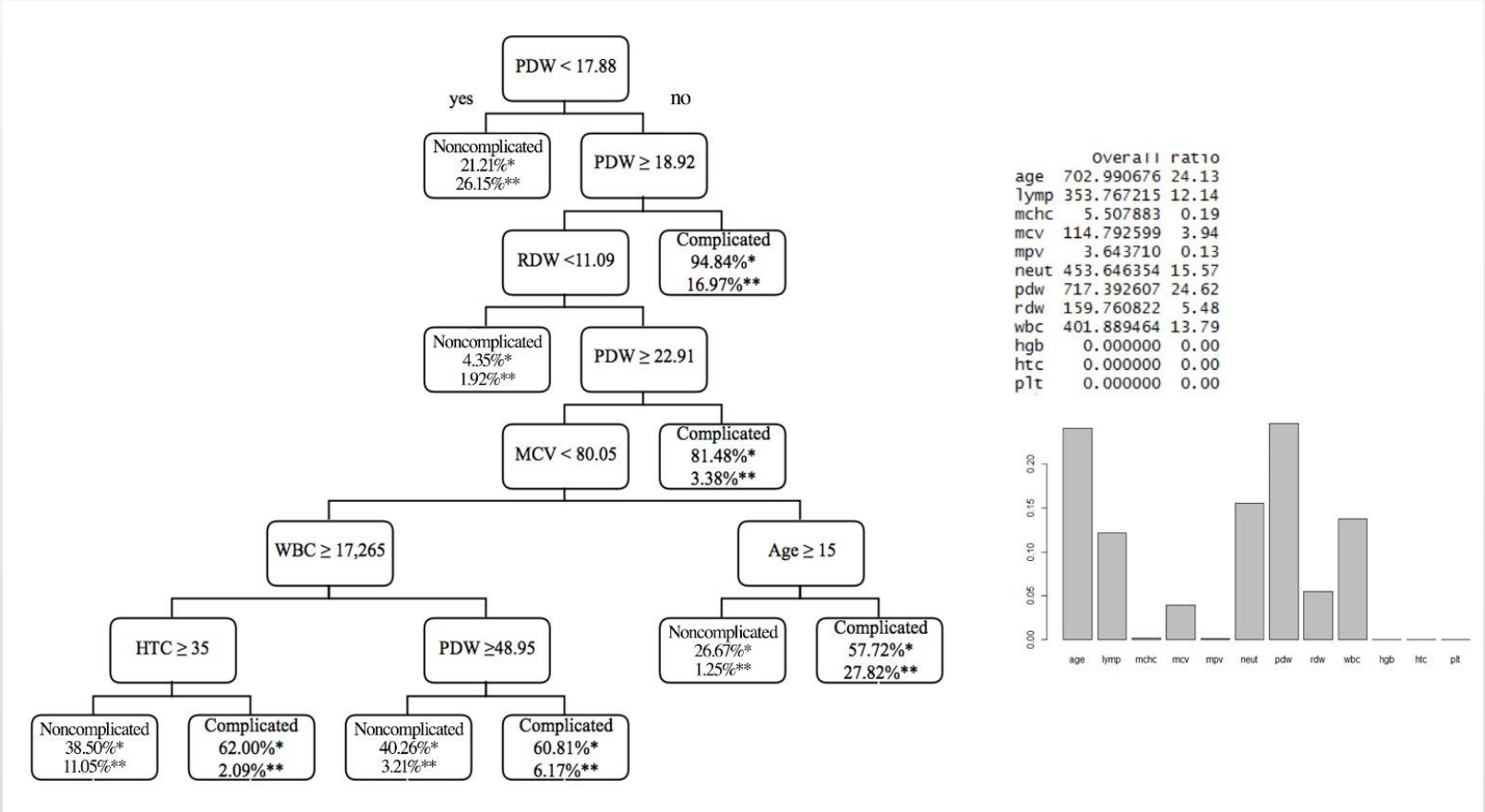
	AUC	Accuracy	Sensitivity	Specificity
RF	99.67%	97.45%	97.79%	97.21%
KNN	98.68%	95.58%	95.08%	95.93%
NB	98.71%	94.76%	94.06%	95.25%
DT	93.97%	94.69%	93.55%	96.55%
SVM	96.76%	91.24%	90.32%	91.86%
GLM	96.83%	90.96%	90.66%	91.16%





NB denotes naïve Bayes algorithm, GLM generalized linear model, SVM support vector machine, RF random forest algorithm, DT decision tree algorithm, KNN k^{th} nearest neighbor algorithm, and AUC area under the receiver operating characteristic curve. If the condition in the box is satisfied than the next level on the left (yes) should be followed while if the condition is not satisfied the next level on the right (no) should be followed. * Indicates the percentage of patients who have the disease, and ** indicates the percentage of patients that fall into that branch.

	AUC	Accuracy	Sensitivity	Specificity
DT	71.16%	71.67%	71.31%	71.92%




```
      Overall ratio
age  702.990676 24.13
lymp 353.767215 12.14
mchc   5.507883  0.19
mcv  114.792599  3.94
mpv    3.643710  0.13
neut 453.646354 15.57
pdw  717.392607 24.62
rdw  159.760822  5.48
wbc  401.889464 13.79
hgb    0.000000  0.00
htc    0.000000  0.00
plt    0.000000  0.00
```


NB denotes naïve Bayes algorithm, GLM generalized linear model, SVM support vector machine, RF random forest algorithm, DT decision tree algorithm, KNN k^{th} nearest neighbor algorithm, and AUC area under the receiver operating characteristic curve. If the condition in the box is satisfied than the next level on the left (yes) should be followed while if the condition is not satisfied the next level on the right (no) should be followed. * Indicates the percentage of patients who have the disease, and ** indicates the percentage of patients that fall into that branch.

Geliştirilmiş olan model hastane sistemlerine entegre edilebilen, anlamlandırılması kolay, veri sayısının ve kalitesinin artması ile başarı derecesi yükselecek bir modeldir.

Sağlık alanında yapay zeka uygulamaları hızla gelişen bir alan olarak dikkat çekmektedir.

Sağlık ile yapay zeka uygulamalarının iş birliği sağlık istatistiklerinin güçlenmesini destekleme potansiyeline sahiptir.

Tarih boyunca bilinen en eski ve yaygın hastalıklardan biri olan apandisit kendine düşen payı alacaktır.