# Welcome to Akdeniz University Computer Engineering Department

2023 - 2024

Orientation Meeting for New Students

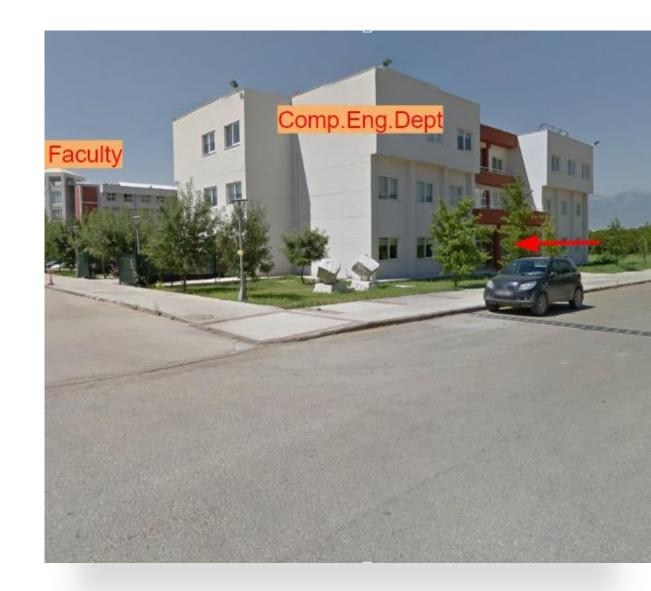
Prof. Dr. Ümit Deniz ULUŞAR Department Head

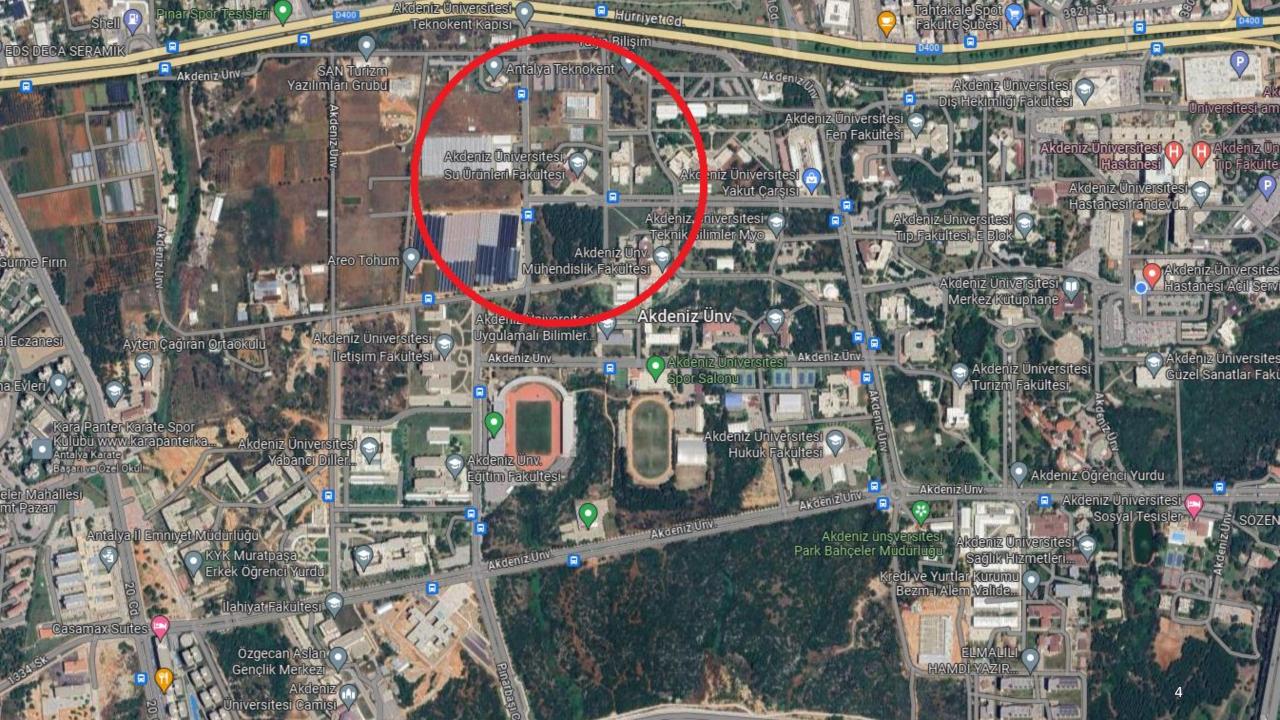
# AGENDA

- Welcome and Introduction
- Overview of the Computer Engineering Department
- Academic Programs and Curriculum
- Facilities and Resources
- Clubs and Extracurricular Activities
- Q&A

# Computer Engineering Department?

- The Department of Computer Engineering at Akdeniz University was established in 2011.
- The Computer Engineering program has been recognized as the top department according to the results of the central entrance exam, showcasing the high level of academic excellence and competitiveness within our institution.
- Our institution takes pride in being the only department with MUDEK accreditation, reflecting our commitment to maintaining the highest standards of quality in engineering education.





#### **AKDENIZ'DE ZIRVEDE OLURSUN**



"Geleceğin İçin Doğru Tercih"

Akdeniz Üniversitesi Bilgisayar Mühendisliği Bölümü Yıllara Göre Taban Başarı Sırası

2023 Yılı Taban Başarı Sırası 24400

> Yıllara Göre **Taban Puan**



462,7

2020

484,1

491,2

2021 2020





#### 2023 YILINDA "MÜDEK AKREDİTASYON" HEDEFİ

2019

Hayallerinin Ötesinde



MÜDEK, mühendislik programlarının akreditasyonu konusundan Yükseköğretim Kalite Kurulu tarafından ulusal bir kalite güvence kuruluşu olarak tanınmaktadır.



MÜDEK, Avrupa Mühendislik Eğitimi Akreditasyonu Ağı **ENAEE** (European Network for **Accreditation of Engineering** Education) asil üyesidir.



Akdeniz Üniversitesi Mühendislik Fakültesi Bilgisayar Mühendisliği Bölümü, MÜDEK tarafından 01.05.2023 - 30.09.2025 tarihleri arasında geçerli olmak üzere 2 yıllığına akredite edilmiştir.

MÜDEK, EUR-ACE Etiketi vermek üzere **ENAEE** tarafından yetkilendirilmiştir.



MÜDEK, Washington Accord üyesidir.





#### **Faculty Members**



Prof.Dr. Ümit Deniz Uluşar



Phone: +90 (242) 310 6382

Email: umitulusar@akdeniz.edu.tr

Ph.D.: University of Arkansas

M.Sc.: Bogazici University

B.Sc.: Marmara University

**Research Interests** 

- Wireless Sensor Networks
- Software Engineering
- Medical Signal and Image Processing
- Cloud/Edge Computing



Prof.Dr. Melih Günay



Phone: +90 (242) 310 6324

Email: mgunay@akdeniz.edu.tr

Ph.D.: North Carolina State University

M.Sc.: North Carolina State University

B.Sc.: Istanbul Technical University

**Research Interests** 

- Emerging Web Technologies
- Big Data Management and Cloud
- Data Science, Data Mining, NLP
- Robotics and IoT



Assoc.Prof.Dr. Alper Bilge



Phone: +90 (242) 227 4400 / 4311

Email: abilge@akdeniz.edu.tr

Ph.D.: Anadolu University

M.Sc.: Anadolu University

B.Sc.: Anadolu University

- Recommender Systems
- Artificial Intelligence
- Information Filtering
- Privacy



Asst.Prof.Dr. Murat Ak



Phone: +90 (242) 310 6352

Email: muratak@akdeniz.edu.tr

Ph.D.: Bilkent University
M.Sc.: Bilkent University
B.Sc.: Bilkent University

#### Research Interests

- Cryptography and Provable Security
- Network/Internet Security
- Theoretical Computer Science
- Block Chain Technologies



Assoc.Prof.Dr. Taner Danışman



Phone: +90 (242) 227 4400 / 4392

Email: tdanisman@akdeniz.edu.tr

PostDoc: Lille 1 University Science and Technology

Ph.D.: Dokuz Eylül University

M.Sc.: Dokuz Eylül University

B.Sc.: Dokuz Eylül University

Research Interests

- Computer Vision and Image Processing
- Digital Design / Computer Organization
- Face/Speech Recognition
- Parallel Computing and Operating Systems



Asst.Prof.Dr. Mustafa Berkay Yılmaz



Phone: +90 (242) 227 4400 / 4349

Email: berkayyilmaz@akdeniz.edu.tr

PostDoc: Télécom SudParis, École de technologie

supérieure ÉTS

Ph.D.: Sabancı University

M.Sc.: Sabancı University

B.Sc.: Bahçeşehir University

- Biometrics
- Pattern Recognition
- Computer Networks
- Human-Computer Interaction



Asst.Prof.Dr. Hüseyin Gökhan Akçay



Phone: +90 (242) 227 4400 / 4349

Email: hgakcay@akdeniz.edu.tr

Ph.D.: Bilkent University
M.Sc.: Bilkent University
B.Sc.: Bilkent University

Research Interests

- Remote Sensing
- Computer Vision and Image Processing
- Algorithms
- Machine and Deep Learning



Asst.Prof.Dr. Joseph William Ledet



Phone: +90 (242) 227 4400 / 4304

Email: josephledet@akdeniz.edu.tr

Ph.D.: Auburn University

M.Sc.: University of Louisiana at Lafayette

B.Sc.: Louisiana State University

Research Interests

- Software Engineering
- Model Driven Engineering SysML
- Computer Architecture
- Natural Language Processing



Asst.Prof.Dr. Alper Özcan



Phone: +90 (242) 227 4400 / 4352

Email: alperozcan@akdeniz.edu.tr

Ph.D.: Istanbul Technical University

M.Sc.: Istanbul Technical University

B.Sc.: Istanbul Technical University

- Social Network Analysis
- Bioinformatics
- Virtual and Augumented Reality
- Web and Text Mining

#### Research Assistants



Manolya Atalay



Phone: +90 (242) 227 4400 / 4354

Email: manolyaatalay@akdeniz.edu.tr

Ph.D.: Middle East Technical University (On Going)

M.Sc.: Akdeniz University

B.Sc.: Dokuz Eylül University

#### Research Interests

- Cryptography
- IoT Security
- Artificial Intelligence
- Neural Networks



**Erdinç Türk** 



Phone: +90 (242) 227 4400 / 4354

Email: erdincturk@akdeniz.edu.tr

Ph.D.: Akdeniz University (On Going)

M.Sc.: Akdeniz University

B.Sc.: Akdeniz University

#### Research Interests

- Internet of Things
- Biomedical Signal Processing
- Computer Vision
- Embedded Systems



Melih Öz



Phone: +90 (242) 227 4400 / 4354

Email: melihoz@akdeniz.edu.tr

Ph.D.: Akdeniz University (On Going)

M.Sc.: Akdeniz University

B.Sc.: Akdeniz University

- Machine Learning
- Biomedical Image Processing
- Computer Vision



Taha Yiğit Alkan



Phone: +90 (242) 227 4400 / 4354

Email: yigitalkan@akdeniz.edu.tr

Ph.D.: Akdeniz University (On Going)

M.Sc.: Akdeniz University

B.Sc.: Suleyman Demirel University

#### Research Interests

- Data Mining
- Information Systems
- Software Engineering
- Design Patterns
- Deep Learning



Berk Ercin



Phone: +90 (242) 227 4400

Email: berkercin@akdeniz.edu.tr

M.Sc.: Akdeniz University (On Going)

B.Sc.: Kastamonu University

#### Research Interests

- Artificial Intelligence



Barış Doruk Başaran



Phone: +90 (242) 227 4400

Email: dorukbasaran@akdeniz.edu.tr

Ph.D.: Akdeniz University (On Going)

M.Sc.: Akdeniz University

**B.Sc.:** Akdeniz University

- Data Mining
- Data Science
- Artificial Intelligence
- Machine Learning

# Curriculum

- 240 ECTS for graduation
- 30 ECTS per semester

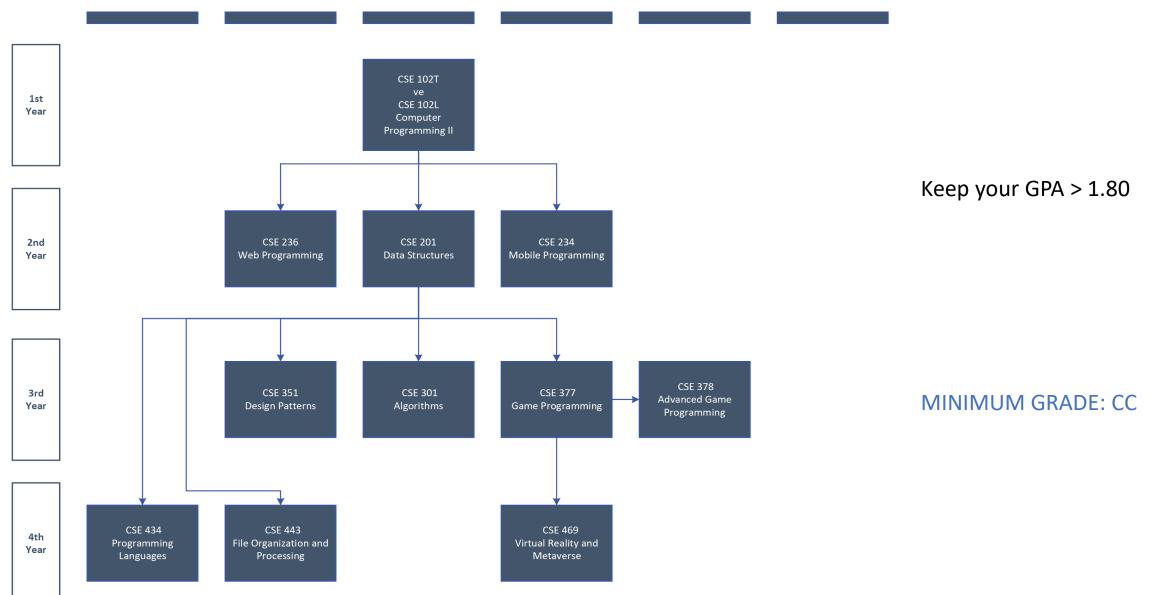




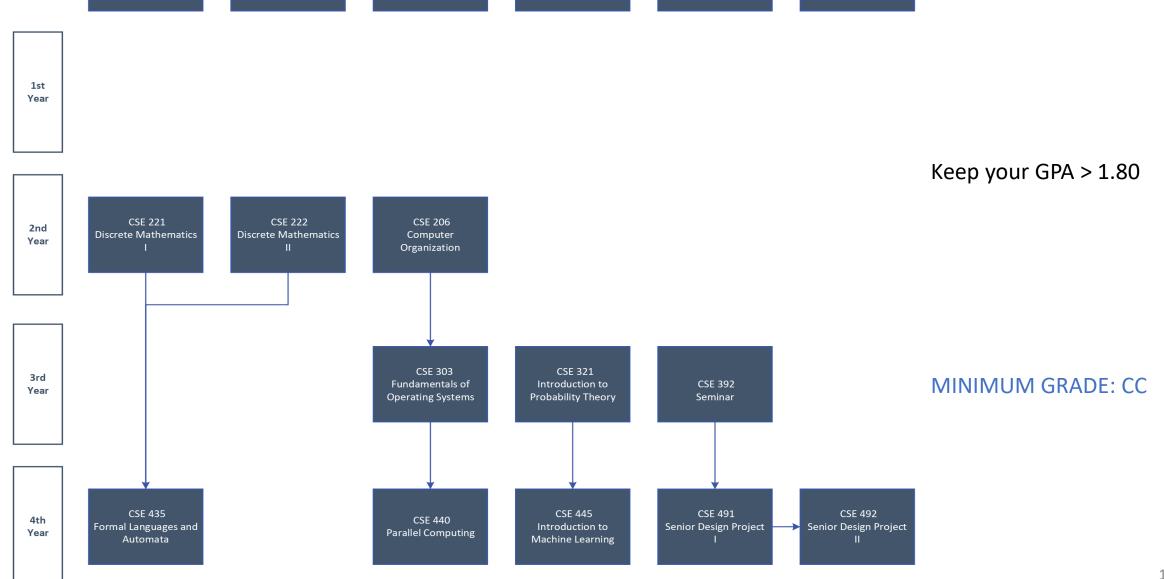
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Course Code	Course Name	T+A+L	Compulsory/Elective	ECTS
i CSE 101L	Computer Programming I Laboratory	0+2+0	Compulsory	4
i CSE 101T	Computer Programming I	3+0+0	Compulsory	4
i CSE 105	Introduction to Computer Science	2+0+0	Compulsory	2
i CSE 111	Physics for Computer Science I	2+2+0	Compulsory	6
i CSE 181	Natural Sciences	4+0+0	Compulsory	6
i MAT 163	Mathematics for Engineering I	4+2+0	Compulsory	6
i TDB 101	Turkish Language I	2+0+0	Compulsory	2
			Total ECTS	30
	2.Semester Course Pla	in		
Course Code	Course Name	T+A+L	Compulsory/Elective	ECTS
i CSE 102L	Computer Programming II Laboratory	0+2+0	Compulsory	4
i CSE 102T	Computer Programming II	3+0+0	Compulsory	4
i CSE 112	Physics for Computer Science II	2+2+0	Compulsory	6
i CSE 122	Statistics for Engineering	3+1+0	Compulsory	6
i KPD 102	Career Planning	1+0+0	Compulsory	2
i MAT 164	Mathematics for Engineering II	4+2+0	Compulsory	6
i TDB 102	Turkish Language II	2+0+0	Compulsory	2
			Total ECTS	30

# Connected Courses Part 1



# Connected Courses Part 2



# Advisor

• There will be also a seperate meeting with academic advisors

30

18

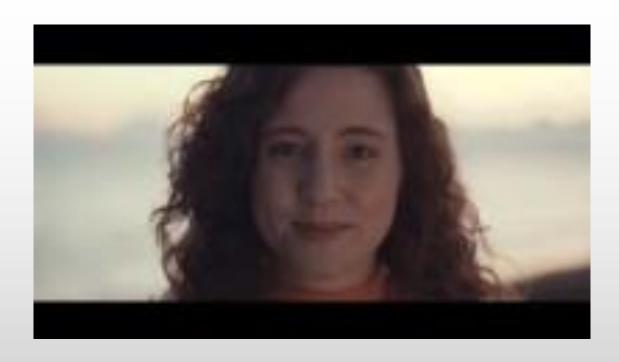
# Academic Calendar

oidb.akdeniz.edu.tr/tr/yariyillik\_onlisans\_ve\_lisans\_egitim\_ogretim\_takvimi-8179

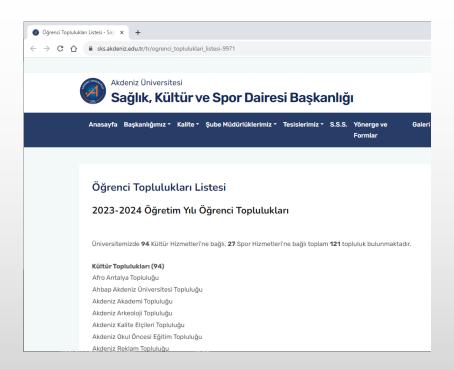
18 Ağustos 2023	Özel Öğrenci Başvurusu İçin Son Gün	26 Ocak 2024		
25-29 Eylül 2023	Katkı Payı/Öğrenim Ücretleri Yatırma ve Kayıt Yenileme Süresi	12-16 Şubat 2024		
29 Eylül 2023	Öğrenime Ara İzni Başvurusu İçin Son Gün	16 Şubat 2024		
02 Ekim 2023	Derslerin Başlaması	19 Şubat 2024		
02-06 Ekim 2023	Ders Bırakma ve Ders Ekleme Süresi (Ekle-Çıkar)	19-23 Şubat 2024		
09 Ekim 2023	Şubelere Ayrılan Derslerin Rektörlüğe Bildirilmesinin Son Günü	26 Şubat 2024		
20 Ekim 2023	Dersten Çekilmenin Son Günü 0:			
05 Ocak 2024	Ara Sınav Sonuçlarının ve Diğer Yıl/Yarıyıl İçi Ölçme Araçları Sonuçlarının Otomasyon Sistemine Girilmesinin Son Tarihi	31 Mayıs 2024		
05 Ocak 2024	Derslerin Sona Ermesi	31 Mayıs 2024		
08-19 Ocak 2024	Yarıyıl Sonu Sınavları	03-14 Haziran 2024		
22 Ocak 2024	Yarıyıl Sonu Sınav Sonuçlarının Otomasyon Sistemine Girilmesinin Son Günü	20 Haziran 2024		
20-27 Ocak 2024	Yıl/Yarıyıl Sonu İkinci Sınavı(Bütünleme) Başvuru Tarihleri	15-22 Haziran 2024		
29 Ocak-02 Şubat 2024	Yıl/Yarıyıl Sonu İkinci Sınavı(Bütünleme) Tarihleri	24-28 Haziran 2024		
05 Şubat 2024	Yıl/Yarıyıl Sonu İkinci Sınavı(Bütünleme) Sonuçlarının Otomasyon Sistemine Girilmesinin Son Günü	01 Temmuz 2024		

# Issues Workflow





# Facilities – Campus



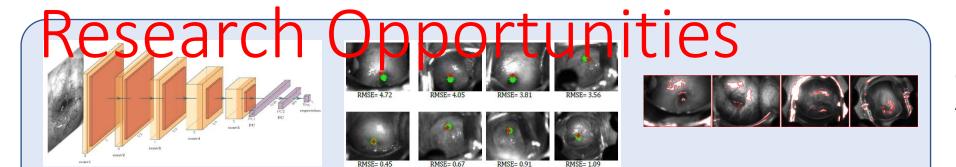
# Resources – Campus

Department Website http://cse.akdeniz.edu.tr https://muhendislik.akdeniz.edu.tr Library https://kutuphane.akdeniz.edu.tr/ SKS https://sks.akdeniz.edu.tr/ IT Department http://bidb.akdeniz.edu.tr/ Student Affairs https://oidb.akdeniz.edu.tr/ International Relations Office https://uio.akdeniz.edu.tr/ E-Kampus https://ekampus.akdeniz.edu.tr/

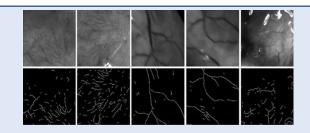
# E-Kampus and Eduroam

- Students can connect to the eduroam wireless network using the @ogr.akdeniz.edu.tr
   Enter your student number and verification code at http://ekampus.akdeniz.edu.tr/hesap/sifre.aspx and click the Verify button.
- Your Eduroam account is: studentnumber@ogr.akdeniz.edu.tr For new applications, your Eduroam user will be active immediately. Your user will be approved within 1 day to use Office365, Microsoft Azure and Imagine services.
- Eduroam connection settings can be found at: https://eduroam.akdeniz.edu.tr/tr/eduroam\_baglanti\_ayarlari -8051

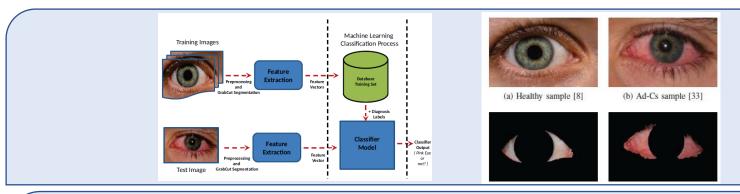




Cervical Neoplasia Detection Assoc. Prof. T. Danışman



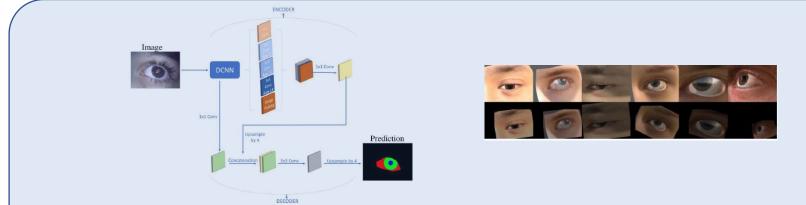
# **Vessel Segmentation for Cancer Detection**



# **Automatic red-eye detection** (Adenoviral Conjunctivitis)

Automated detection of adenoviral conjunctivitis disease from facial images using machine learning

M Gunay, E Goceri, T Danisman



#### **Automatic Eye Segmentation**

The Use of Synthetic Data to Facilitate Eye Segmentation Using Deeplabv3+ Melih Öz,\*, Taner Danışman, Melih Günay, Esra Zekiye Şanal, Özgür Duman and Joseph William Ledet

### A Hybrid Densenet121-unet Model For Brain Tumor Segmentation From MR Images

N Cinar, A Ozcan, M Kaya Biomedical Signal Processing and Control 76, 103647, March 2022

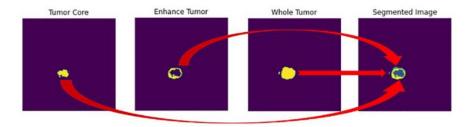


Fig. 7. After the brain MR images are trained with the proposed architecture, postprocessing is performed. In this process, images divided into 64x64 size pieces are combined using coordinate data and converted back to their original size.

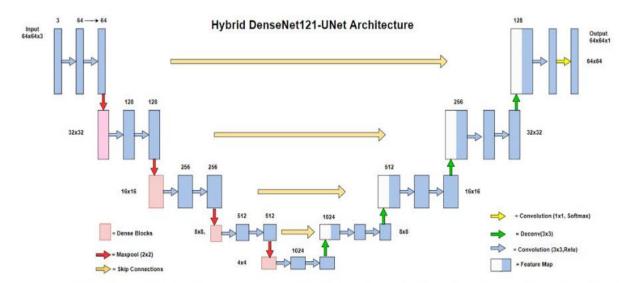


Fig. 6. The proposed hybrid DenseNet121-UNet architecture consists of 2 parts. In the first part, the DenseNet121 model is used as an encoder. In the second part, the UNet model is used as a decoder.

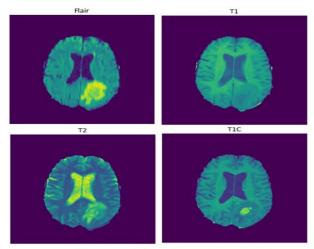
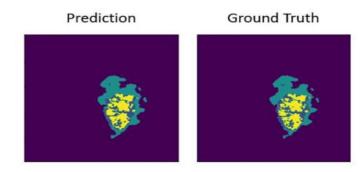


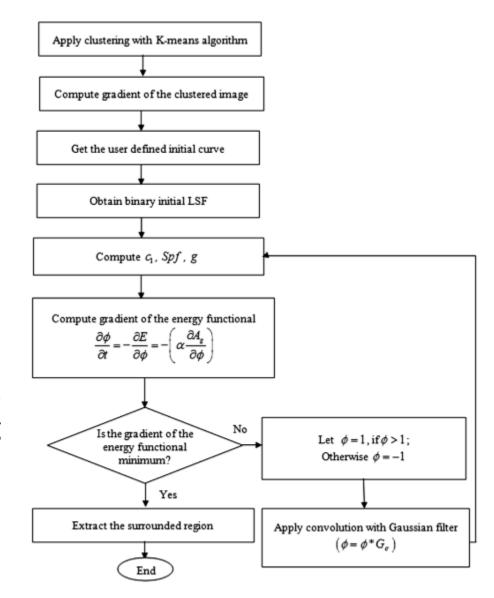
Fig. 1. The four modalities of MR images illustrated, including T1-weighted (T1), T2-weighted (T2), T1-contrasted (T1C) and Fluid attenuated in version recovery (Flair).



# Automated Detection Of Facial Disorders (ADFD): A Novel Approach Based-on Digital Photographs

Evgin Goceri & Melih Gunay (2018)
Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization

Areas of interest were separated and classification of dermatological disorders was performed using K-Means clustering and image processing.







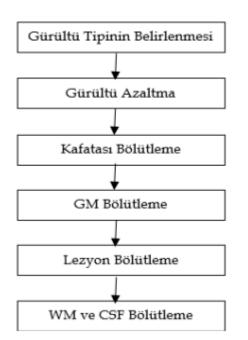




Automated Skull, Tissue, and Lesion Segmentation from MR Head Images: A Probabilistic and Stable Approach

Evgin GÖÇERİ, Melih GÜNAY, Utku ŞENOL

Akdeniz Üniversitesi



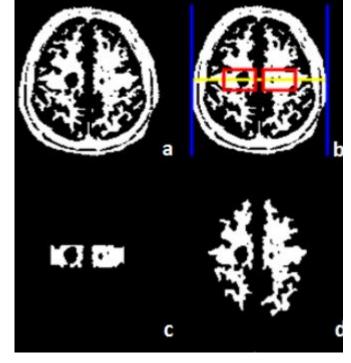
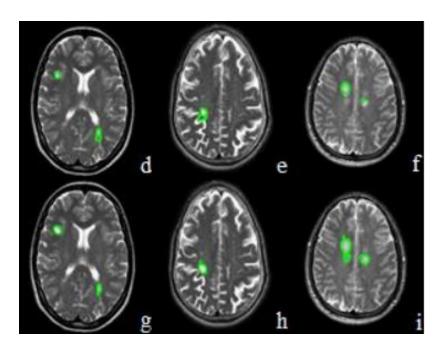


Image obtained by classification

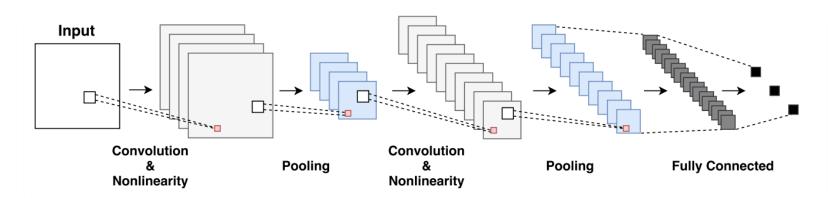


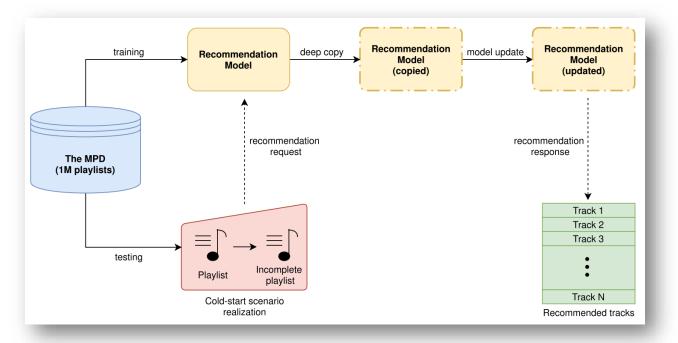
Lesion images obtained by SIGSDDK method

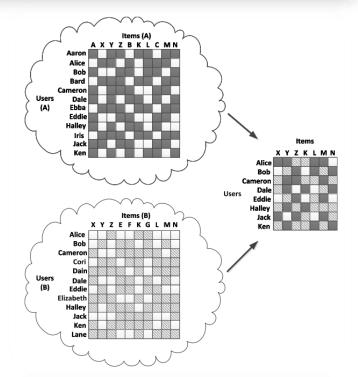
Recommendation Systems: Creation of deep neural network models that recommend new tracks to music listeners using hidden semantic information.

Alleviating the cold-start playlist continuation in music recommendation using latent semantic indexing

Yürekli, A., Kaleli, C. & Bilge, A. Alleviating the cold-start playlist continuation in music recommendation using latent semantic indexing. Int J Multimedia Information Retrieval 10, 185–198 (2021).





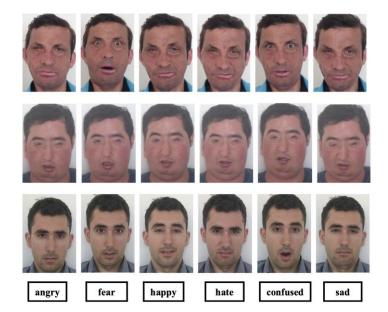


#### Artificial Intelligence Assisted Emotional Expression Detection in Facial Transplant Patients

Bedeloglu, Merve, Topcu, Cagdas; Akgul, Arzu; Doger, Ela Naz; Sever, Refik; Ozkan, Ozlenen; Ozkan, Omer; Uysal, Hilmi; Polat, Ovunc; Colak, Omer Halil

**Table 1** Healthy group results (Region: Eye-mouth combination, Method specific: gabor-lbp-gaborlbp combination)

%	angry	fear	happy	hate	neutral	confused	sad
angry	97.778				2.222		
fear		93.333				6.667	
happy			100				
hate				100			
neutral					100		
confused						100	
sad							100



#### Why Important:

Evaluation of the Recovery Process

Determination of Rehabilitation Procedures

**Table 2** Case 1 transplant patient results (Region: Eye-mouth combination, Method specific: gabor-lbp-gaborlbp combination)

%	angry	fear	happy	hate	neutral	confused	sad
angry	10						90
fear		80				20	
happy		10	20	20	10	10	30
hate				10			90
neutral	10		30	10	30	10	10
confused	10	20		10		30	30
sad							100

**Table 3** Case 2 transplant patient results (Method: Gabor, Region specific: eye-mouth-eyemouth combination)

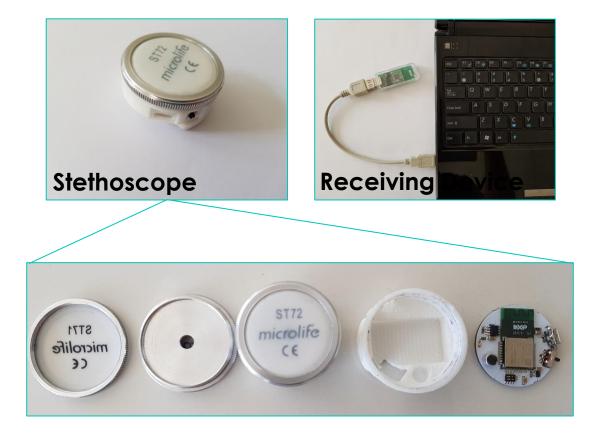
%	angry	fear	happy	hate	neutral	confused	sad
angry	20	20	20		30	10	
fear		20	80				
happy		20	70			10	
hate		80		10	10		
neutral	10	10	10	20	20	30	
confused		20	10	20		40	10
sad		60	20			10	10

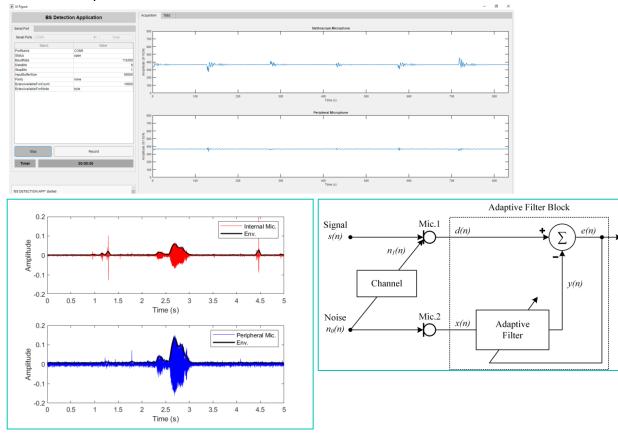


#### IoT-Driven Electronic Stethoscope for Automatic Detection of Bowel Sounds

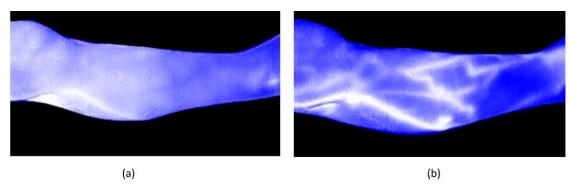
- Turk, E., Ulusar, U.D., Ogunc, G., Canpolat, M., Yaprak, M. (2021). Active Noise Cancellation for IoT-Driven Electronic Stethoscope: A Comparative Study of Adaptive Filters. In: Ever, E., Al-Turjman, F. (eds) Forthcoming Networks and Sustainability in the IoT Era. FoNeS-IoT 2020. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 353. Springer, Cham. https://doi.org/10.1007/978-3-030-69431-9\_2
- □ Ulusar, U.D., Turk, E., Oztas, A.S., Savli, A.E., Ogunc, G., Canpolat, M. (2019). IoT and Edge Computing as a Tool for Bowel Activity Monitoring. In: Al-Turjman, F. (eds) Edge Computing. EAI/Springer Innovations in Communication and Computing. Springer, Cham. <a href="https://doi.org/10.1007/978-3-319-99061-3\_8">https://doi.org/10.1007/978-3-319-99061-3\_8</a>
- Ulusar, U.D.: Recovery of gastrointestinal tract motility detection using Naive Bayesian and minimum statistics. Comput. Biol. Med. 51, 223–228 (2014). https://doi.org/10.1016/j.compbiomed.2014.05.013

We have developed an IoT-guided Electronic Stethoscope specifically designed to monitor continuous bowel activity of hospitalized patients after abdominal surgery. Active Noise Cancellation methods used for noise reduction have been developed. Naive Bayesian and Minimum Statistics used for recognition of intestinal activity.

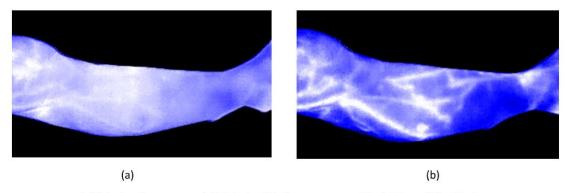




# Monitoring Peripheral Artery Disease with Thermal Imaging/Image Processing and Artificial Intelligence Algorithms



Şekil 1: Ameliyat öncesi (a) Dinlenim (b) Efor sonrası sıcaklık dağılımı görüntüleri



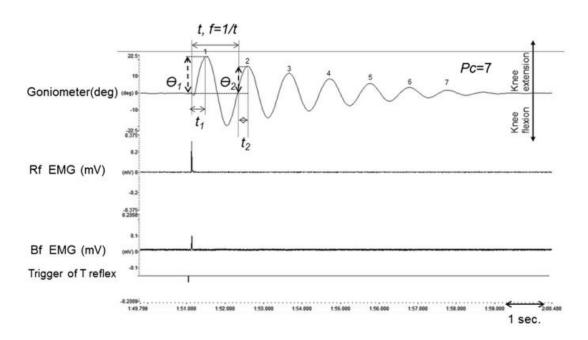
Sekil 2: Ameliyat sonrası (a) Dinlenim (b) Efor sonrası sıcaklık dağılımı görüntüleri

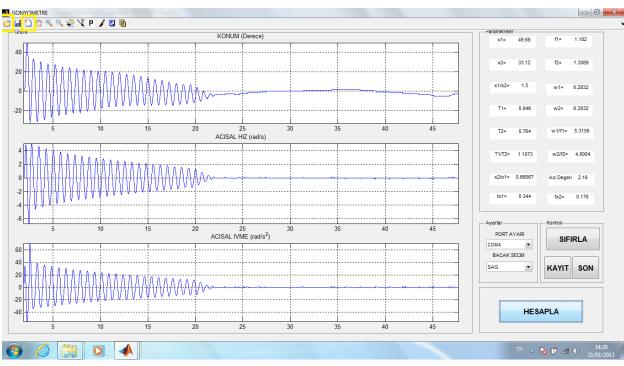
- Pre-treatment image is taken,
- After the treatment image is taken,
- The difference/ratio between the images is detected,
- Detected differences are trended,
- The trend is evaluated with artificial intelligence,
- It gives a warning when there is a significant difference between the beginning and the beginning,
- Prospective monitoring and planning is carried out by following the trend.

# Signal Processing and Artificial Intelligence in Neurology

In this way, feature extraction was made from pendulum signals over goniometer for neurological disorders.

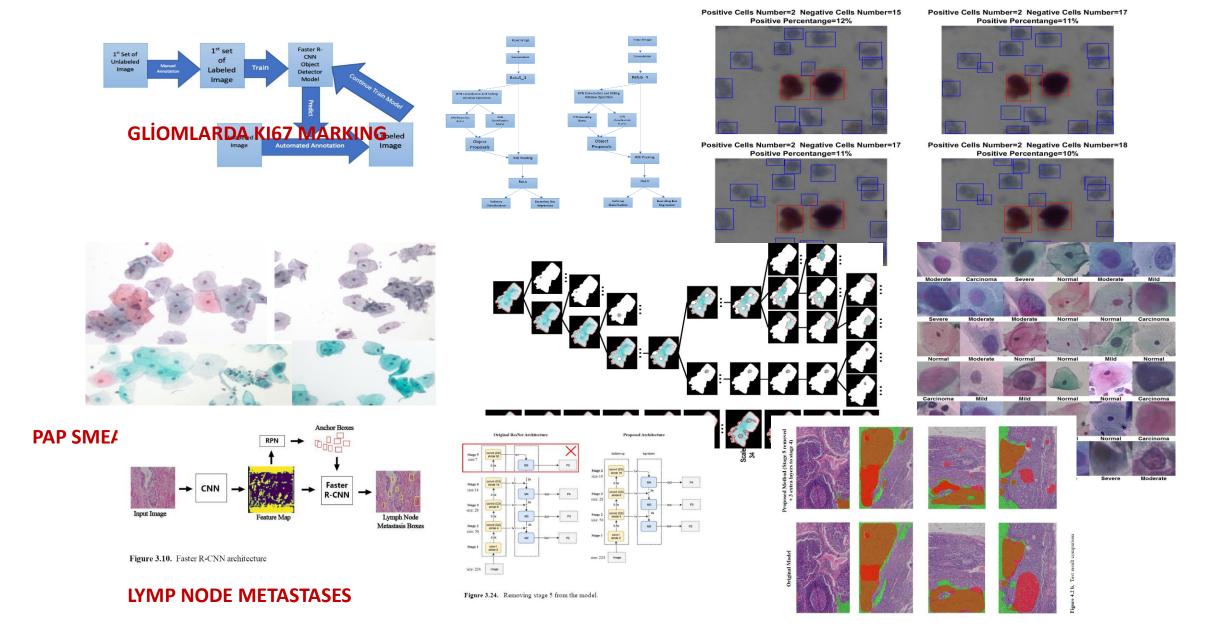






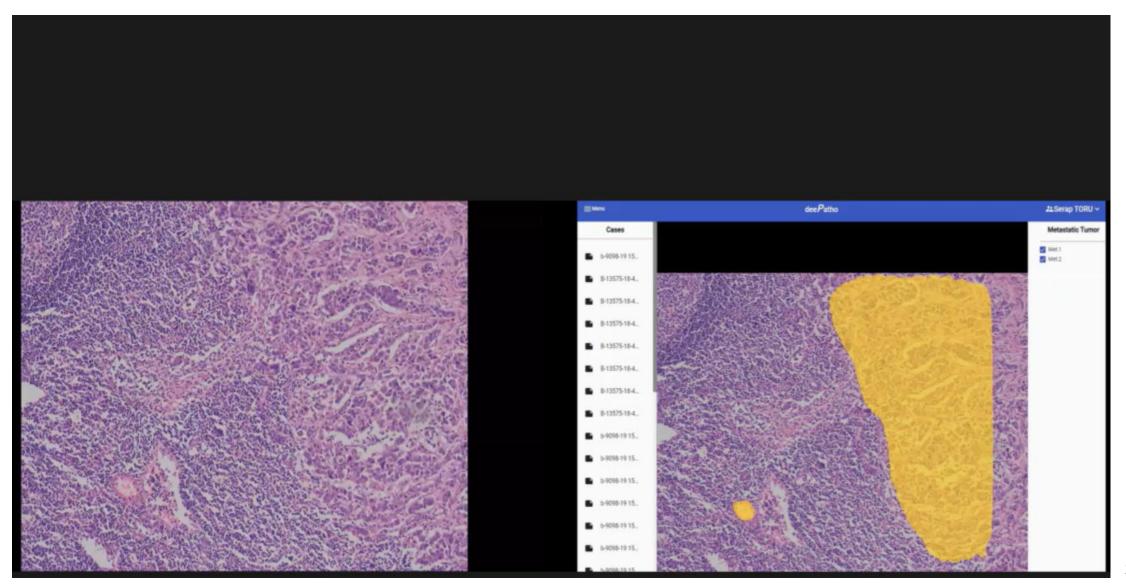
#### Fusion Planet: Past, Today and Future of Computer Scientific Solutions in Digital Pathology.

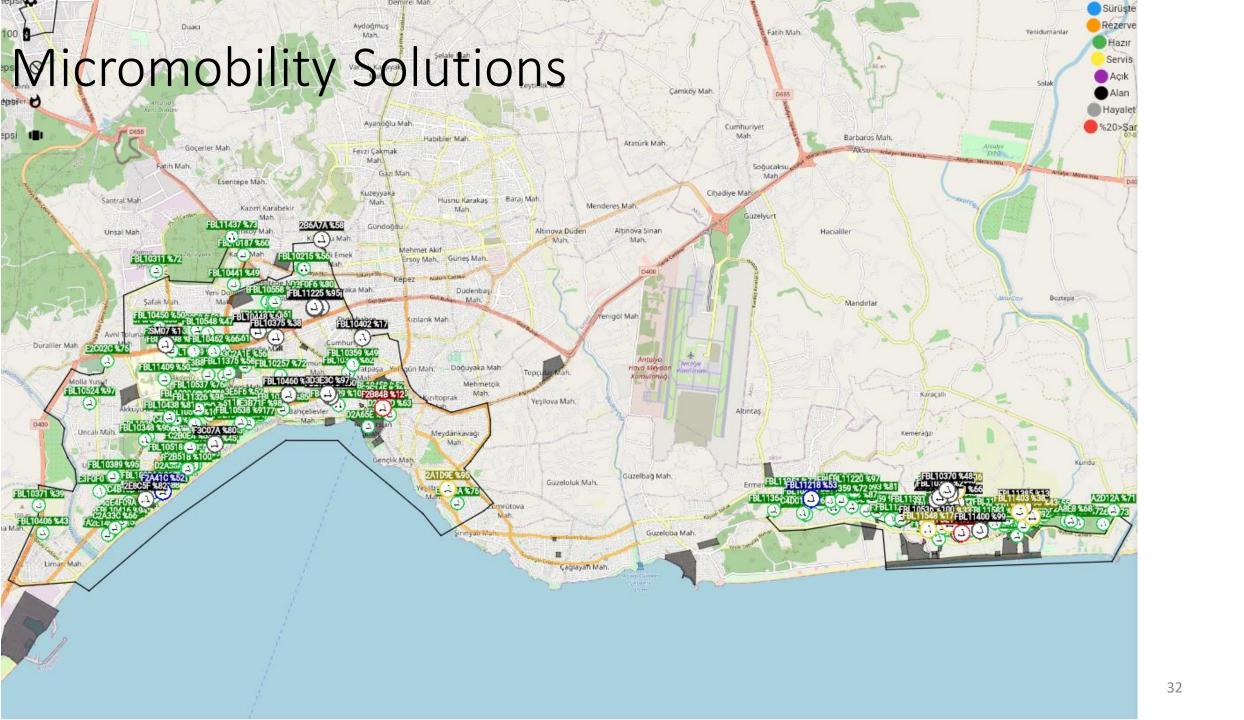
Arş. Gör. Taha Yiğit ALKAN, Doç. Dr. Havva Serap TORUN, Dr. Öğr. Üyesi Hüseyin Gökhan AKÇAY



Fusion Planet: Past, Today and Future of Computer Scientific Solutions in Digital Pathology. ICOFMEP'21

Taha Yiğit ALKAN, Assoc. Prof. Havva Serap TORUN, Asst. Prof. Hüseyin Gökhan AKÇAY





# Questions?

Email: cse@akdeniz.edu.tr

https://www.instagram.com/cseakdeniz/

https://twitter.com/akdenizcse

https://www.youtube.com/@akdenizcse

https://www.linkedin.com/company/akdeniz-university-

computer-engineering-department/





## Congratulations

- It is quite a bit accomplishment < 24500
- You are not here by luck. You worked hard.
- You had determination and motivation and support of your family...



## Congratulations

- As not easy to get in also not easy to get out because;
- We are not here to give you grades/diplomas but education and skills
- We are interested in you getting the best job, Doing the best in your job.
- At the end. It is up to you...You must discover what are you good at.
- All of you can do at least one thing well.

# Graduating is not everything

- There is work but there is not enough skilled employees, so companies are having hard time finding employees
- We are having hard time recommending students to industry.
- A good employee is not the best coder always for us

# Opportunities

- We hope you will use the opportunities exist @ Akdeniz to develop
- Academically
- Emotionally
- Independently
- Professionally
- By becoming part of the community...
- Active in student organizations
- Learn from mentors (2nd 3rd and 4th year)
- Artistic, Leadership skills

# So.... Some practical advice

- Work hard from DAY 1
- Contact your Advisor if any concerns and questions
- AIM Erasmus \* Grades and English matters
- Take TOEFL, SAT, YDS, ALES ...
- Get Busy NEXT and every Summer
- Visit Library Frequently
- Finish your school in Time.
- Be part of projects of Faculty, Visit Teknokent for volunteer work

# More Practical Advice

- Each course is important. There is a reason why we teach Physics,
   Calculus
- English is critical for you both in profession and in everyday life ...
- Use of Turkish/English is what gets you a good job/promotion
- Participate in artistic activities.. Without art and aesthetics, you will be limited ...
- Be professional always and respect others
- Keep your GPA > 1.80