



**WELCOME**

# Who are we?

# About The Faculty Numbers & Departments

UNDERGRADUATE STUDENTS	GRADUATE STUDENTS	ACADEMIC STAFF
6000+	1100+	100+

- Software Engineering
- Computer Engineering
- Artificial Intelligence Engineering
- Electrical and Electronics Engineering
- Mechatronics Engineering
- Industrial Engineering
- Energy Systems Engineering
- Biomedical Engineering
- Management Engineering
- Civil Engineering
- Molecular Biology and Genetics
- Mathematics

# About The Faculty

## Our Research Focus



# About The Department

## Our Purpose

We are dedicated to raising engineers who can reveal user needs, design and develop software, use information technologies while solving real life problems in the industry and keep up with rapid changes in this field.

# About The Department

## Our Objectives

The objectives of our department is to ensure that our graduates

- work in information technologies, engineering, consultancy and R&D staff of national or international companies,
- take part in original research activities in graduate programs of universities in Turkey or abroad,
- lead software projects at national or international level,
- establish information companies by using their entrepreneurial skills.

# About The Department

## Academic Staff



**Assoc. Prof. Dr.  
Yücel Batu SALMAN  
(Department Head)**



**Assoc. Prof. Dr.  
Pınar SARISARAY  
BÖLÜK**



**Assoc. Prof. Dr.  
Ayla Gülcü**



**Assist. Prof. Dr.  
Tamer UÇAR**



**Assist. Prof. Dr.  
Betül ERDOĞDU  
ŞAKAR**



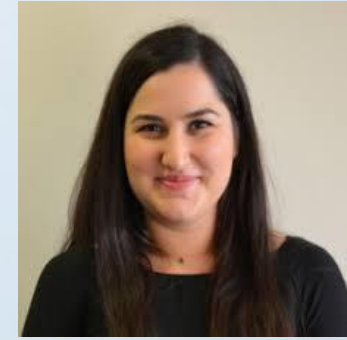
**Assist. Prof. Dr.  
Özge YÜCEL KASAP**



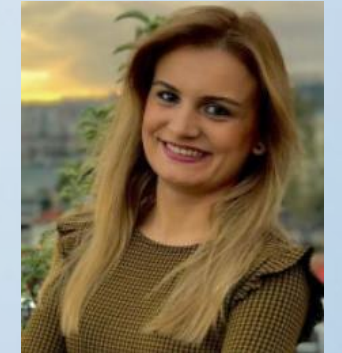
**Instructor  
Duygu ÇAKIR**



**Research Assist.  
Sevgi CANPOLAT**



**Research Assist.  
Merve ARITÜRK**



**Research Assist.  
Simga AKAY TEMUR**

# Assoc. Prof. Dr. Yücel Batu SALMAN

## (Department Chair)



### Contact Information

Email:	batu.salman@eng.bau.edu.tr
Telephone:	+90 212 381 5690
Office No:	

### CV (link):

<http://akademik.bahcesehir.edu.tr/web/yucelbatusalman>

### Research Interests

- Human Computer Interaction
- Mobile Interaction Design
- User Experience
- Object Tracking
- Computer Vision
- Mobile Computing
- Project Management

### Courses

- SEN3003 - Software Project Management (Undergraduate)
- SEN3304 – Human Computer Interaction (Undergraduate)
- SEN3006 - Software Architecture (Undergraduate)



# Assoc. Prof. Dr. Pinar SARISARAY BÖLÜK



## Contact Information

Email:	pinar.sarisaray@eng.bau.edu.tr
Telephone:	+90 212 381 0579
Office No:	D528

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/pinarsarisarayboluk>

## Research Interests

- Wireless Networks
- Wireless Sensor Networks
- Network Security
- Programming Languages (java, C++, C#, MATLAB, C/C++)
- Online Social Networks

## Courses

- SEN2201 - Computing Systems (Undergraduate)
- SEN2006 - MS C# Laboratory (Undergraduate)
- BLG5625 - Linux ve Bilgisayar Ağları (Graduate)

# Assoc. Prof. Dr. Ayla GÜLCÜ



## Contact Information

Email:	ayla.gulcu@eng.bau.edu.tr
Telephone:	+90 212 381 0000
Office No:	D545

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/aylagulcu>

## Research Interests

- Meta learning and Few-shot learning
- Data mining & Machine learning
- Neural architecture search
- Meta-heuristics
- Multi-objective combinatorial optimization
- Reinforcement learning

## Courses

- Introduction to Data Mining
- Python Programming Language
- Introduction to Data Science

# Assist. Prof. Dr. Tamer UÇAR



## Contact Information

Email:	tamer.ucar@eng.bau.edu.tr
Telephone:	+90 212 381 0575
Office No:	D532

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/tamerucar>

## Research Interests

- Data Mining
- Recommender Systems
- Medical Data Analysis
- Big Data Analysis

## Courses

- SEN1001 - Introduction to Programming (Java) (Undergraduate)
- SEN2104 - Database Management Systems (Undergraduate)
- SEN3004 - Web Programming (Undergraduate)
- SEN4406 - Advances in Web Programming (Undergraduate)
- YZM5610 - Bilgi Teknolojilerinde Proje Yönetimi (Graduate)
- YZM5511 - Bilgi Sistemleri Analiz ve Tasarımı (Graduate)

# Assist. Prof. Dr. Betül ERDOĞDU ŞAKAR



## Contact Information

Email:	betul.erdogdu@eng.bau.edu.tr
Telephone:	+90 212 381 0589
Office No:	D521

## CV (link):

<http://akademik.bahcesehir.edu.tr/web/yucelbatusalman>

## Research Interests

- Data Mining
- Machine Learning
- Social Network Analysis
- Big Data Analysis

## Courses

- SEN2211 - Data Structures and Algorithms I  
(Undergraduate)
- SEN2212 - Data Structures and Algorithms II  
(Undergraduate)
- SEN4018 - Data Science with Python  
(Undergraduate)

# Assist. Prof. Dr. Özge YÜCEL KASAP



## Contact Information

Email:	ozge.yucelkasap@eng.bau.edu.tr
Telephone:	+90 212 381 0577
Office No:	D528

## CV (link):

<http://akademik.bahcesehir.edu.tr/web/ozgeyucelkasap>

## Research Interests

- Data Mining
- Recommendation Systems
- Programming Languages (Java, Python,C#)
- Big Data Analysis

## Courses

- SEN1001 - Introduction to Programming (Java)  
(Undergraduate)
- SEN1011 - Introduction to Programming (Python)  
(Undergraduate)

# Instructor Duygu ÇAKIR



## Contact Information

Email:	duygu.cakir@eng.bau.edu.tr
Telephone:	+90 212 381 0550
Office No:	D544

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/duygucakir>

## Research Interests

- Computer Vision
- Deep Learning
- Facial Expression Recognition
- Facial Action Unit Detection

## Courses

- SEN1001 - Introduction to Programming (Java) (Undergraduate)
- SEN1011 - Introduction to Programming (Python) (Undergraduate)
- SEN1002 - Object Oriented Programming (JAVA) (Undergraduate)
- SEN3301 - Computer Graphics and Animation (Undergraduate)

# Research Assist. Sevgi CANPOLAT



## Contact Information

Email:	sevgi.canpolat@eng.bau.edu.tr
Telephone:	+90 212 381 5660
Office No:	D Block, 4th Floor, Open Office

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/serkanayvaz>

## Research Interests

- Deep Learning in Computer Vision
- Convolutional Neural Networks for Visual Recognition
- Natural Language Processing
- Image Processing

## Courses

- SEN1001 - Introduction to Programming (Java) (Undergraduate - Lab)
- SEN1002 - Object Oriented Programming (JAVA) (Undergraduate - Lab)
- SEN2104 - Database Management Systems (Undergraduate - Lab)
- SEN2211 - Data Structures and Algorithms I (Undergraduate - Lab)

# Research Assist. Merve ARITÜRK



## Contact Information

Email:	merve.ariturk@eng.bau.edu.tr
Telephone:	+90 212 381 5663
Office No:	D Block, 4th Floor, Open Office

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/merveariturk>

## Research Interests

- Deep Learning
- Neural Network
- Artificial Intelligence
- Natural Language Processing
- Autonomous Vehicle

## Courses

- SEN1001 - Introduction to Programming (Java) (Undergraduate - Lab)
- SEN1011 - Introduction to Programming (Python) (Undergraduate - Lab)
- SEN2211 - Data Structures and Algorithms I (Undergraduate - Lab)
- SEN2212 - Data Structures and Algorithms II (Undergraduate - Lab)



# Research Assist. Simge AKAY TEMUR



## Contact Information

Email:	simge.akay@eng.bau.edu.tr
Telephone:	+90 212 381 0553
Office No:	D Block, 4th Floor, Open Office

**CV (link):** <http://akademik.bahcesehir.edu.tr/web/simgeakaytemur>

## Research Interests

- Machine Learning
- Deep Learning
- Computer Vision
- Facial Expression Analysis

## Courses

- SEN1001 - Introduction to Programming (Java) (Undergraduate - Lab)
- SEN1011 - Introduction to Programming (Python) (Undergraduate - Lab)
- SEN2211 - Data Structures and Algorithms I (Undergraduate - Lab)
- SEN1002 - Object Oriented Programming (JAVA) (Undergraduate - Lab)

# Administrative Staff

## Department Secretary

### Dursun ARSLAN



#### Contact Information

Email:	dursun.arslan@eng.bau.edu.tr
Telephone:	+90 212 381 5658
Office No:	D308

He receives petition requests on academic issues and transmits them to the relevant units.

# Our Graduates

Our graduates find job opportunities in every institution from different sectors that require automation systems that benefit from software and similar technologies in addition to software development-oriented companies.

Details of the BAU alumni association can be found at:  
<https://mezun.bau.edu.tr/>

# Courses

- Must Courses
- Departmental Elective Courses
- Non-departmental Elective Courses
- General Education Elective Courses

Please visit the following website for the full course list for your program

<https://akts.bau.edu.tr/>

# Courses

## Must Courses

- Introduction to programming (Java)
- Object oriented programming (Java)
- Programming languages
- Computing Systems
- Data structures and algorithms
- Database management systems
- Software engineering analysis and design
- Software security
- Software project management
- Software architecture
- Human computer interaction
- Software verification and validation
- Capstone Project (2 semesters)
- Math courses
- Physics, Chemistry

# Courses

## Departmental Elective Courses

- Data science with Python
- GUI programming with Python
- Advanced programming with python
- Web programming
- Unix programming
- Computer graphics and animation
- Introduction to game programming
- Introduction to data mining
- Big data
- Text mining
- Social network analysis
- COOP courses

# Tools you will use throughout your academic life

## Online Education Platforms

- Microsoft Teams
- Itslearning
  - <https://buei.itslearning.com/>
- SAP
  - <https://st.bau.edu.tr/>

## Software Development Tools

- Eclipse
- Oracle Sql Developer
- Microsoft Visual Studio
- Processing

# Laboratories

Apart from the computer labs that our students use in their daily work, our main laboratories are

- Big Data Education and Research Center
- Cyber Security Center
- BAU-Stanford Robotics Laboratory
- Machine Learning Research Laboratory





# CO-OP

CO-OP is a university and business world collaboration project started in November 2008, which enables BAU students to meet the professional world and also enables the business world to enter the university's corridors.



<https://coop.bau.edu.tr/en/>

# CO-OP



Branded Courses: Courses whose syllabi are created by BAU's partner firms and whose instructors are among their professional staff.

- Netaş
- Yapı Kredi Bank
- N11
- Samsung
- Vodafone
- Doğuş Technology
- Wissen Academy
- Application Development For Android Devices
- Application Development For IOS Devices
- Software Testing
- Data Warehouse
- Agile Project Management
- Mobile Telecommunications

# Summer Training (Internship)

The aim of summer training (internship) is to enable students to apply their theoretical knowledge into real life systems. Students are also expected to have learned the basic duties and responsibilities of professional engineers during their internship periods.

- There will be one summer training period being 30 working days starting at the end of the third class.
- Internship must be related to Software Engineering.

# Summer Training (Internship)

- At the end of the training, students must write their internship reports using the report template and the essentials of report writing.
- Grading basis of Summer Training course is Pass/Fail.
- Details of the internship procedures can be found at:

<https://bau.edu.tr/icerik/15858-staj>

# Capstone Project Course

As an outcome of an engineering education, a student should be able to solve and communicate a complex engineering problem in an interdisciplinary environment.

## Stages of Capstone Project

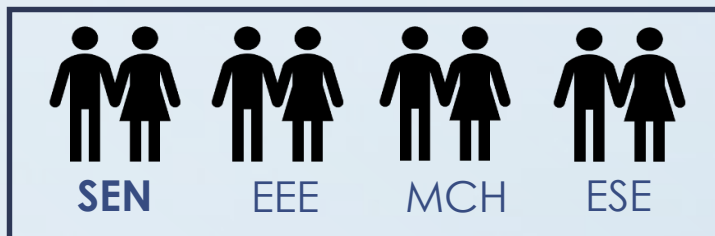
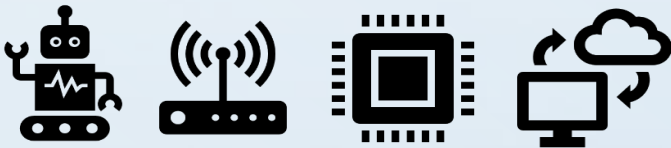
4991 Capstone Project - I

Team-building  
and design

4992 Capstone Project - II

Materialization  
and evaluation

Graduation



Web-site: [capstone.eng.bau.edu.tr](http://capstone.eng.bau.edu.tr)

# Capstone Project Student Projects

## SMART MIRROR

Omar Al Omir - M-Ahmed Almosadeer - Husein Al-Nabi - Othman Sayegh  
Basim Kattar - Saf Nadea - Mustafa Fatima - Çoşkun Cenk Akbaşođlu  
Prof. Dr. Erkan Ertürk - Asst. Prof. Betül Endođlu Şakar - Asst. Prof. Tarkan Aydın  
Faculty of Engineering and Applied Sciences,  
Departments of Software Engineering, Computer Engineering and Mechanical Engineering, Bahçeşehir University.

**ABSTRACT**  
Smart mirror is a digital transparent mirror with a display background, including intelligent features which serve the daily life needs, virtual assistant, widgets and news feeder all infused in, compromising the flexibility to add and remove additional features according to the interest of the user (e.g. weather forecast, sports scores etc.) and programmed with an interface which is easy to visualize and to use.

**SMART MIRROR FLOWCHART**

**MAIN COMPONENTS**  
LED Monitor, 2 way mirror, frame, Raspberry Pi, Camera pi, Microphone, Speakers, (P8 & DHT11) Sensors.

**HOW IT WAS BUILT**  
The Smart Mirror is powered by a raspberry pi microcontroller enclosed in a wooden compartment and is displayed on a 23inch full HD monitor. The entire project was divided into parts: emotion recognition which permits the mirror to display quotes according to the user's emotion, facial recognition to identify users and show appropriate messages as a compliment, building the casing and integrating the sensors with the Raspberry pi. The core software gets data from the external APIs, sensors and camera then displays it to the user.



## Skin Cancer Detector Application "Diagnose Me"

Cansu Aksu, Mehmet Batikan Gündođdu, Omar Khanati, Burhan Cem Sezerođlu, Derya Tanyıldız, Atabek Uçuncu  
Supervisors: Serkan Ayvaz, Bora Büyüksaraç, Tarkan Aydın  
Faculty of Engineering and Applied Sciences,  
Departments of Computer, Software and Biomedical Engineering  
Bahçeşehir University.

**ABSTRACT**  
"Diagnose Me" is an Android app that takes an image of an area that the user desires and informs the user whether the uploaded image of the area is cancerous or not. The system is trained with Convolutional Neural Network and developed to reduce death rate caused by skin cancer by increasing early diagnosis rate.

**Why CNN?**  
In this project, the app requires only an image to make the system predict if the area is malignant or benign. CNN has convolution layers which can detect unique features of a cancerous skin image and is used widely for image analysis.

**System's Mechanism**  
When the "Diagnose Me" button gets hit, the uploaded image is sent to a web server which contains the CNN model. Our model takes the image and according to what it has learnt, it gives a result. As an output, this result is shown to the user.

**Conclusion**  
Our CNN model can successfully recognize a cancerous skin image with the accuracy of 75%. Since using the app is pretty straightforward, people of all ages will be able to use it without having any trouble or guidance. Even though our accuracy rate is quite good, we always encourage people to see a doctor for the precise results.

## CAPSTONE PROJECT EXHIBITION

Faculty of Engineering and Natural Sciences  
MAY 2019

**BAU**  
BAHÇEŞEHİR UNIVERSITY



## Flex Sensor Glove Interpreter for Turkish Sign Language

Zülfü Can, Kemal Burak Kayhan, Barış Doruk  
Advisers: Dr Andrew Beddall, Dr Serkan Ayvaz  
Faculty of Engineering and Applied Sciences,  
Department of Electrical and Electronics Engineering, Bahçeşehir University.

**Abstract**  
The glove has been designed for the translate sign language as a text. The glove, which turns the signals it receives from the flex sensors quickly and accurately, contributes to the development and design of projects in engineering and other fields.

**Scope of the Project**

**Flow Chart**

```

    graph LR
      A[ARDUINO MEGA] --> B[Flex Sensors]
      B --> C[Moves on glove]
      C --> D[BT Module]
      D --> E[Website]
  
```

**Main Components**  
Arduino Mega, Flex Sensors, Bluetooth Module

**Working Principle**  
Gestures and movements are captured by the flex sensors on each finger. The signals are converted to digital states that are interpreted as finger positions relating to known Turkish Sign. The results are presented on a dynamically on a website for any user to view.

**Conclusion**  
The Sign Language Translator Glove that we designed can successfully translates the numbers from 0 to 10 in sign language. It may be adapted to also translates letters.

<https://bau.edu.tr/haber/16009-2019-2020-akademik-yili-capstone-bitirme-projesi-kitapcigi>



# Double Major / Minor Programs

## Double Major:

- If you complete a double-major, you will be graduating with two separate diplomas instead of one.
- You should be at the beginning of your 3rd, 4th, or 5th semester
- You should have a minimum GPA of 3.00
- You should be within the top %20 amongst your classmates in terms of GPA.

## Minor:

- Completing a minor program grants you a certificate, not a diploma.
- You are supposed to pass six previously-determined courses of a particular degree to get the minor certificate.
- In order to apply for a minor degree, you should be at the beginning of your 3rd, 4th, 5th, or 6th semester
- You should have a minimum GPA of 2.50.

# Education Abroad

- BAU International Berlin – University of Applied Sciences (**Germany**)
- BAU International Academy of Rome (**Italy**)
- BAU Hong Kong Campus (**Hong Kong**)
- BAU Silicon Valley Campus (**USA**)
- BAU International University Washington DC (**USA**)

Details of the BAU Global:

<http://international.bahcesehir.edu.tr/exchange/>



# Erasmus

159 ERASMUS partner universities  
25 different countries



Austria (5)	Finland (1)	Republic of Ireland (1)	Poland (13)	United Kingdom (8)
Belgium (5)	France (22)	Italy (8)	Portugal (3)	
Bulgaria (4)	Germany (33)	Latvia (4)	Romania (2)	
Croatia (1)	Greece (8)	Lithuania (5)	Slovenia (2)	
Czech Republic (1)	Holland (10)	Malta (1)	Spain (10)	
Denmark (6)	Hungary (2)	Norway (1)	Sweden (13)	

# World Exchange

45 World Exchange partner universities  
24 different countries.



Australia (2)	Czech Republic (1)	India (1)	Pakistan (1)
Brazil (1)	England (4)	Republic of Ireland (1)	Scotland (2)
Canada (1)	France (2)	Italy (3)	South Korea (5)
Chile (1)	Germany (1)	Japan (4)	Spain (4)
China (2)	Ghana (1)	New Zealand (1)	Thailand (1)
Costa Rica (3)	Hong Kong (1)	Norway (1)	USA (11)

# Student Clubs

- Software and Informatics Club
- IEEE
- Sailing Club
- Energy Club
- Molecular Biology and Genetics Club
- Engineering and Technology Club
- Biomedical Club
- Industrial Engineering Club
- Aeronautics and Space Club
- ...

<https://bau.edu.tr/icerik/8474-ogrenci-dekanligi-kulupler-listesi>

# Academic Calendar

It is the calendar for the announcement of registration renewal, exam dates, deadlines for academic issues and the dates of major events that will take place on campus.

To reach the Academic Calendar:

<https://bau.edu.tr/content/2513-academic-calendar>



**BAHÇEŞEHİR UNIVERSITY**

**FACULTY OF ENGINEERING AND  
NATURAL SCIENCES**

**SOFTWARE ENGINEERING DEPARTMENT**

**THANK YOU 😊**

