


Arda Bakici

+971 50 851 4653 | arda.bakici@nyu.edu | ardabakici.com | [in Arda Bakici](https://www.linkedin.com/in/ArdaBakici) | [ArdaBakici](https://github.com/ArdaBakici)




EDUCATION

- **New York University Abu Dhabi** 2027
Computer Science and Mathematics Double Major Abu Dhabi, UAE
- **Classes Taken:** *Computer Programming for Engineers (C++)*, *Multivariable Calculus*, *Linear Algebra*, *Discrete Mathematics*, *Data Structures*, *ODE(ongoing)*, *Real Analysis(ongoing)*, *Algorithms(ongoing)*, *Probability & Statistics(ongoing)*, *Computer Systems Organization(ongoing)*
 - Sophomore - GPA: 4.00/4.00
- **Bahcesehir 50th Year Science and Technology High School** 2023
Secondary Education - Turkish Curriculum Izmir, Turkey
 - GPA: 99.77/100




EXPERIENCE

- **4th Dimension - FRC Robotics High School Team**  2019 - 2023
Head of Programming Crew, Mentor Izmir, Turkey
 - From 2019 to 2021, developed, designed and implemented software systems for our robot which included PID subsystems, feedforward, state machine structures, motion profiling, and odometry. Using these created autonomous routines for our robot to complete given tasks. More info at github.com/ArdaBakici/FRC
 - Mentored the team from 2021 to 2023, teaching new programming crew members and providing guidance and support in both software and mechanical design for the robot.

PROJECTS

- **VisiCell: [Web and mobile based application for counting cells using machine learning]** 2022
Tools: [Python, Pytorch, React Native, CVAT] 
 - Created a novel dataset consisting of 792 images of trypan blue-stained MCF7 breast cancer cells, labeled as dead or alive with bounding boxes. Trained Scaled YOLOv4 models on this dataset, achieving an accuracy of 0.958 in the mAP.5 metric. Created a user-friendly web and cross-platform mobile application using Flask and React Native for accessibility and usability. Paper available at ardabakici.com/papers/visicell.pdf.
- **Labtoolkit: [Classical image processing-based project developed to facilitate cell counting]** 2021
Tools: [Python, Flask, OpenCV] 
 - Developed an original classical image processing pipeline for detecting live and dead cells, utilizing techniques such as Non-local Means denoising, guided image filtering, CLAHE, Otsu thresholding, morphological operations, distance transform, watershed segmentation, and contour counting. Achieved 71% accuracy in live cell detection and 53% accuracy in dead cell detection.
- **Parking-in.tech: [IoT-based solution developed to solve the parking problem in cities]** 2021
Tools: [Python, Flask, Arduino, RestAPI, SQLite] 
 - Designed and implemented a Flask-based web server to monitor and display occupancy status for smart parking lots. Developed a client application for communication with the microcontroller to update server data. Integrated REST APIs to retrieve traffic congestion information from HereMaps, optimizing user navigation to parking lots with minimal traffic.

HONORS AND AWARDS

- **1st Place in Turkey** 2022
Artificial Intelligence in Healthcare Disease Detection with Computer Vision Category High School Level, TEKNOFEST 
 - Developed a machine learning model network comprising of six YOLOv4-P6 models for detection of appendicitis, cholecystitis, pancreatitis, kidney and bladder stone, diverticulitis, aortic aneurysm and dissection from abdominal CT scans. Achieved 0.743 accuracy at mAP.5 metric for all diseases combined on a dataset given by Ministry of Health. Achieved first place in a national competition among high school teams in Turkey.
- **3rd Place in Turkey** 2022
High School Students Polar Research Projects Competition Physical Sciences Category, Scientific and Technological Research Council of Turkey 
 - Trained and evaluated ten regression models to predict glacier mass change in Antarctica over the next decade, utilizing five independent variables, including CO₂ emissions, sea level (in mm), air pressure, and temperature changes. Employed the Prophet procedure to forecast independent variables for the next ten years, subsequently predicting glacier mass change with the developed regression models. Achieved a Root Mean Square Error of 45.98 using the Ridge regression model.
- **3rd Place in Turkey** 2023
Artificial Intelligence in Healthcare Disease Detection with Computer Vision Category High School Level, TEKNOFEST 
 - Trained two EfficientNet-B3 models to predict BI-RADS categories and breast density from mammograms. Achieved an accuracy of 0.6713 on a given test dataset of 3,972 patients. Competed successfully against other high school teams in Turkey.