

Fast attendance

Made by Алға Қазақстан

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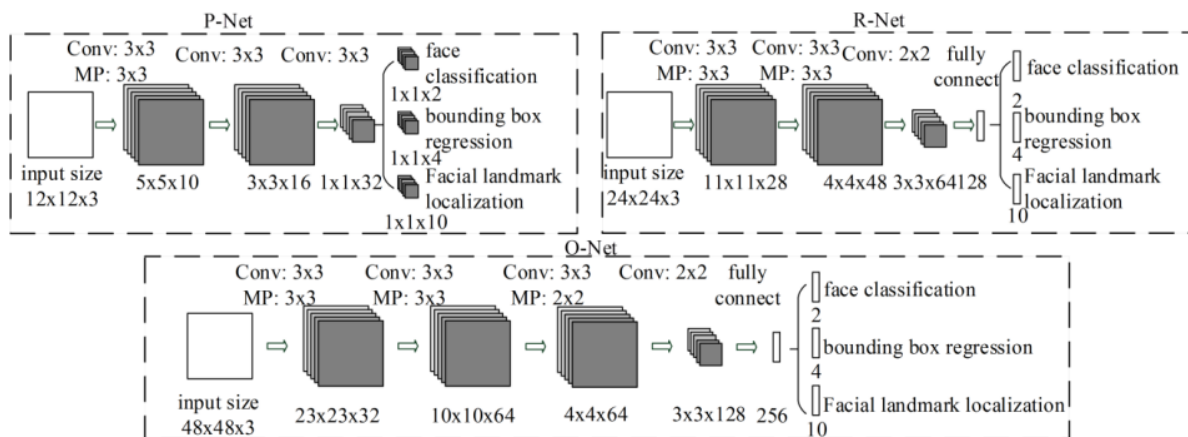
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[Link to the github repository](#)

Hello! We are Team Алға Қазақстан, and we would like to present our final results in the project.

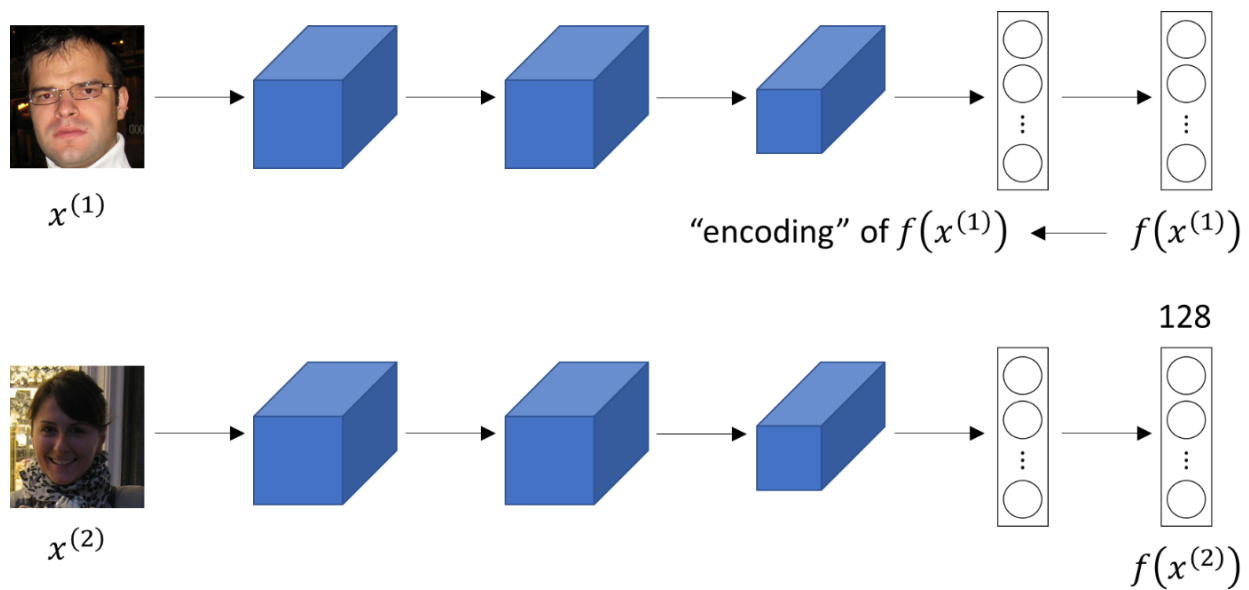
The progress

We initiated our project with the goal of utilizing pre-trained models for face recognition and classification. Initially, we employed the haarcascade classifier[1] for face detection, which boasted a pre-training accuracy of 91%. However, it did not yield optimal results for our project. Consequently, we switched to the MTCNN[2] system (see pic.1), leveraging its implementation from the facenet-pytorch library[3]. This transition significantly improved our results, achieving nearly 100% accuracy in our tests compared to the previous haarcascade approach.



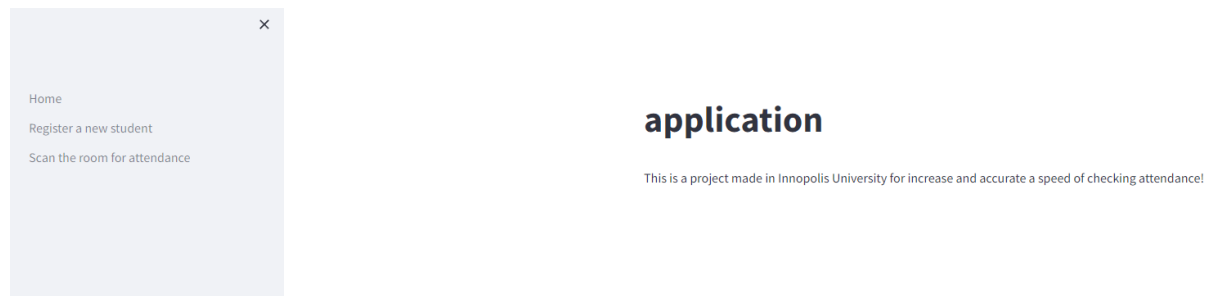
Pic.1: Architecture of the MTCNN. Taken from the official paper.

For face recognition, we implemented the Siamese network[4] (pic. 2), which determines the similarity between a given facial image and those stored in memory. Our tests indicated an impressive 97% accuracy for this classification method.



Pic. 2: Brief description of architecture of the Siamese network.

To facilitate the hosting of our application, we opted to create a website using the streamlit library[5]. This user-friendly and free library allowed us to build a simple site without extensive expertise in web development. Here's main page of the app (pic. 3)



Pic.2: Main page of application On the left side you can choose one of the action here - register or upload the photo for attendance.

Results

Our final product is a user-friendly website where individuals can register and scan their faces. Users are required to upload photos for database inclusion, enabling the system to recognize them in subsequent photos. Additionally, the application allows users to upload images for scanning, identifying all faces in the photos and extracting email information associated with each user (face). We believe this project has the potential to enhance attendance marking speed for organizations and clubs, contributing to an improved quality of life in the near future.

References

- [1] Cascade Classifier: [main page](#); [models we used](#)
- [2] MTCNN: [paper](#); [implementation](#)
- [3] “facenet-library”: [official github repo](#)
- [4] Siamese network: [paper](#); [notebook with our implementation](#)
- [5] Streamlit library: [Official site](#)