

## СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ

1. Multi-task Cascaded Convolutional Networks (MTCNN) for Face Detection and Facial Landmark Alignment [Електронний ресурс] – Режим доступу:

<https://medium.com/@iselagradilla94/multi-task-cascaded-convolutional-networks-mtcnn-for-face-detection-and-facial-landmark-alignment-7c21e8007923>

2. Mastering Deep Sort: The Future of Object Tracking Explained [Електронний ресурс] – Режим доступу:

<https://www.ikomia.ai/blog/deep-sort-object-tracking-guide>

3. Spectral analysis [Електронний ресурс] – Режим доступу:  
<https://www.st-andrews.ac.uk/~wjh/dataview/tutorials/sonogram.html>

4. Adaptive Histogram Equalization in Image Processing Using MATLAB [Електронний ресурс] – Режим доступу:  
<https://www.geeksforgeeks.org/adaptive-histogram-equalization-in-image-processing-using-matlab/>

5. Python Documentation [Електронний ресурс] – Режим доступу:  
<https://www.python.org/doc/>

6. OpenCV Modules [Електронний ресурс] – Режим доступу:  
<https://docs.opencv.org/4.x/>

7. Diagrams Tutorials [Електронний ресурс] – Режим доступу:  
<https://online.visual-paradigm.com/ru/diagrams/tutorials/>

8. Розроблення стартап-проекту: Методичні рекомендації до виконання розділу магістерських дисертацій для студентів інженерних спеціальностей / За заг. ред. О.А. Гавриша. — Київ : НТУУ «КПІ», 2016. — 28 с.

9. Papadopoulou C., Pnevmatikakis A., Stylios C. Heart Rate Estimation Based on Facial Video Analysis // Procedia Computer Science. —

2015 [Електронний ресурс] – Режим доступу:  
[https://www.researchgate.net/publication/348054096\\_Heart\\_Rate\\_Estimation\\_Based\\_on\\_Facial\\_Image\\_Sequence](https://www.researchgate.net/publication/348054096_Heart_Rate_Estimation_Based_on_Facial_Image_Sequence)

10. Viola P., Jones M. J. Robust Real-Time Face Detection // International Journal of Computer Vision. — 2004 [Електронний ресурс] – Режим доступу:  
[https://www.researchgate.net/publication/220660094\\_Robust\\_Real-Time\\_Face\\_Detection](https://www.researchgate.net/publication/220660094_Robust_Real-Time_Face_Detection)

11. Zheng Y., Liu S., Wang Y. A Review of Recent Advances in Face Detection // Journal of Artificial Intelligence. — 2018 [Електронний ресурс] – Режим доступу:  
[https://www.researchgate.net/publication/235616690\\_A\\_Survey\\_of\\_Recent\\_Advances\\_in\\_Face\\_Detection](https://www.researchgate.net/publication/235616690_A_Survey_of_Recent_Advances_in_Face_Detection)

12. Langley P., Iliadis L., Zigmolis C., Stylios C. Automated Heart Rate Detection in Video // 2014

13. Poh M. Z., McDuff D. J., Picard R. W. Non-contact, automated cardiac pulse measurements using video imaging and blind source separation // Optics Express. — 2010 [Електронний ресурс] – Режим доступу:  
[https://www.researchgate.net/publication/44852893\\_Non-contact\\_automated\\_cardiac\\_pulse\\_measurements\\_using\\_video\\_imaging\\_and\\_blind\\_source\\_separation](https://www.researchgate.net/publication/44852893_Non-contact_automated_cardiac_pulse_measurements_using_video_imaging_and_blind_source_separation)

14. Shi J., Zheng H. R., Pan Y. J. A review on face detection and expression recognition // International Conference on Computational Intelligence and Software Engineering. — 2009 [Електронний ресурс] – Режим доступу: <https://www.mdpi.com/1424-8220/20/21/6367>

15. Sharma R., Pundir A., Bansal K., Gupta D. Heart Rate Estimation from Face Videos using Machine Learning Techniques // 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). — 2016 [Електронний ресурс] – Режим доступу:  
<https://researchr.org/publication/iros-2018>

16. Chu W.-S., De La Torre F., Cohn J. F. On-the-fly Feature Selection for Real-time Affect Detection on Embedded Systems // Proceedings of the International Conference on Automatic Face and Gesture Recognition. — 2011 [Електронний ресурс] — Режим доступу: [https://www.researchgate.net/publication/322810419\\_A\\_Brief\\_Review\\_of\\_Facial\\_Emotion\\_Recognition\\_Based\\_on\\_Visual\\_Information](https://www.researchgate.net/publication/322810419_A_Brief_Review_of_Facial_Emotion_Recognition_Based_on_Visual_Information)
17. Tulyakov S., Alameda-Pineda X., Ricci E., Yin L., Cohn J. F., Sebe N. Self-adaptive matrix completion for heart rate estimation from face videos under realistic conditions // Image and Vision Computing. — 2016 [Електронний ресурс] — Режим доступу: [https://www.researchgate.net/publication/304380337\\_Self-Adaptive\\_Matrix\\_Completion\\_for\\_Heart\\_Rate\\_Estimation\\_from\\_Face\\_Videos\\_under\\_Realistic\\_Conditions](https://www.researchgate.net/publication/304380337_Self-Adaptive_Matrix_Completion_for_Heart_Rate_Estimation_from_Face_Videos_under_Realistic_Conditions)
18. McDuff D., El Kaliouby R., Senechal T., Amr M., Cohn J. Affectiva-MIT Facial Expression Dataset (AM-FED): Naturalistic and Spontaneous Facial Expressions Collected “In-The-Wild” // Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops. — 2013 [Електронний ресурс] — Режим доступу: [https://www.researchgate.net/publication/261468526\\_Affectiva-MIT\\_Facial\\_Expression\\_Dataset\\_AM-FED\\_Naturalistic\\_and\\_Spontaneous\\_Facial\\_Expressions\\_Collected\\_In-the-Wild](https://www.researchgate.net/publication/261468526_Affectiva-MIT_Facial_Expression_Dataset_AM-FED_Naturalistic_and_Spontaneous_Facial_Expressions_Collected_In-the-Wild)
19. Poh M. Z., McDuff D. J., Picard R. W. Advancements in Noncontact, Multiparameter Physiological Measurements Using a Webcam // IEEE Transactions on Biomedical Engineering. — 2011 [Електронний ресурс] — Режим доступу: [https://www.researchgate.net/publication/47449610\\_Advancements\\_in\\_Noncontact\\_Multiparameter\\_Physiological\\_Measurements\\_Using\\_a\\_Webcam](https://www.researchgate.net/publication/47449610_Advancements_in_Noncontact_Multiparameter_Physiological_Measurements_Using_a_Webcam)
20. Balakrishnan G., Durand F., Guttag J. Detecting Pulse from Head Motions in Video // Proceedings of the IEEE Conference on Computer Vision

and Pattern Recognition. — 2013 [Електронний ресурс] – Режим доступу:  
[https://www.researchgate.net/publication/261259062\\_Detecting\\_Pulse\\_from\\_Head\\_Motions\\_in\\_Video](https://www.researchgate.net/publication/261259062_Detecting_Pulse_from_Head_Motions_in_Video)