

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 2, Issue 7, May 2022

Runway Detection and Localisation in aerial images using Deep learning.

Parth Pandkar, Nahush Apte, Gaurav Kute, Sudesh Shinde, Asmita Kamble

Department of Computer Engineering Sinhgad Institute of Technology and Science, Narhe, Pune, India

Abstract: Aerospace industry is one of the biggest growing Boundary Detection. Autonomous Landing, Color Segmentation fields in terms of technology and transport. From a two manned based on state of the art deep learning architectures and also to aircraft in 1900's we have came a long way a d in 2022 we have locate runway using both deep learning architecture and non- commercial, military and UAV's dominating the skies with their deep learning methods. It is a two stage model in which the first respective tasks. In this massively growing field there are many phase is to locate the identified runways using both advantages as well as disadvantages. We all are familiar with conventional line detection algorithms and more recent deep advantages but what about the consequences. The major issues learning methods.in this industry are the accidents and landing failures which takes place due to low cost vision based systems which is being used commonly now a days. So in this project we have came up with the solution that focuses on accurate detection and localization of runway in aerial images and untidy terrain, which will help aerial platforms especially in military drones and UAV's to detect landing targets. The algorithm is based on imageprocessing with lot of assumptions about precise position of runway in a particular image. So the focus was to develop runway detection algorithms Processing, Runway Tracking.

Keywords: Identification, Image processing, Transfer learning, Machine Learning, Convolutional Neural Networks

REFERENCES

[1] Faith Demir, Daban Abdulsalam Abdullah, Abdulkadir Sengur "A New Deep CNN Model for Environmental Sound Classification" IEEE Access, vol 8, pp. 66529- 66537, 2020

[2] Peter. Jancovic and M. Kokuer, "Object Recognition Using Unsupervised Modeling of Individual Vocalization Elements," IEEE Trans. Audio, Speech, Language Process., vol. 27, no. 5, pp. 932-947, May 2019.

[3] Mingying Zhu, Jinghu Yu, Jie Xie, Kai Hu and Qibing Zhu, "Investigation of Different CNN-Based Models for Improved Image lines Classification," IEEE Access, vol. 7, pp. 175353–175361, 2019.

[4] Aditya Khamparia, Deepak Gupta, Nhu Gia Nguyen, Ashish Khanna, Babita Pandey, Prayag Tiwari, "Sound Classification Using Convolutional Neural Network and Tensor Deep Stacking Network," IEEE Access, vol 7, pp. 77177727, 2019

[5] Yo-Ping Huang and Haobijam Basanta, "Drone Image Retrieval and Recognition Using a Deep Learning Platform," IEEE Access, vol. 7, pp. 66980–66989, 2019

[6] Annamaria Mesaros, Aleksandr Diment, Benjamin Elizalde, Toni Heittola, Emmanuel Vincent, Bhiksha Raj, Fellow, Tuomas Virtanen "Sound Event Detection in the DCASE 2017 Challenge" IEEE Access, vol 27, pp. 992-1006, 2019

[7] Yongsheng Pan, Yong Xia, Dinggang Shen "Foreground Fisher Vector: Encoding Class-Relevant Foreground to Improve Image Classification" IEEE Access, vol 2, 1-14, 2019

[8] Lin Wu, Yang Wang, Xue Li, and Junbin Gao "Deep Attention- Based Spatially Recursive Networks for Fine-Grained Visual Recognition" IEEE Access, vol 47, pp. 1- 12, 2018

Copyright to IJARSCT www.ijarsct.co.in DOI: 10.48175/IJARSCT-4338



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 2, Issue 7, May 2022

[9] Philip Eichinski and Paul Roe, "Clustering and visualization of longduration audio recordings for rapid exploration avian surveys," presented at the IEEE 13th International Conference on eScience, Brisbane, Australia, 2017
[10] Rosniza Roslan, Nur Amalina Nazery, Nursuriati Jamil, Raseeda Hamzah, "Colorbased runway image classification using KNN," presented at the IEEE 6th Global Conference on Consumer Electronics (GCCE), Malaysia, 2017
[11] Justin Salamon Juan Pablo Bello "Deep Convolutional Neural Network and Data Augmentation for Environmental Sound Classification," IEEE Access, vol 17, 1-5, 2017

[12] Nithin Rao Koluguri, G. Nisha Meenakshi, Prasanta Kumar Ghosh "Spectrogram Enhancement Using Multiple Window Savitzky-Golay (MWSG) Filter for Robust Sound Detection," IEEE Access, vol 25, 1183-112, June 2017
[13] Loris Nanni, M.G.Costa, R.Lucio, N.Silla, Sheryl Brahnam "Combining Visual And Acoustic Features for Runway landing site Classification" presented at the IEEE 28th International Conference on Tools with Artificial Intelligence, Padua, Italy, 2016

[14] A.Marini, A.J.Turatti, A.S.Bitto, A.L Koerich "Visual and Acoustic Identification of Underwater radar," presented at the IEEE 28th International Conference on Tools with Artificial Intelligence, Curitiba, PR, Brazil, 2016

[15] Chang-Hsing Lee, Chin-Chuan Han and Ching-Chien Chuang, "Automatic Classification of hough lines From Their pixels Using Two Dimensional Cepstral Coefficients," IEEE Trans. Audio, Speech, Language Process., vol. 16, no. 8, pp.1541–1550, Nov. 2008