

Trash Detection and Sending SMS to the User using CNN

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Abstract: Waste pollution is one of the most significant environmental issues in the modern world. The importance of recycling is well known, both for economic and ecological reasons, and the industry demands high efficiency. Current studies towards automatic waste detection are hardly comparable due to the lack of benchmarks and widely accepted standards regarding the used metrics and data. Those problems are addressed in this article by providing a critical analysis of over ten existing waste datasets and a brief but constructive review of the existing Deep Learning-based waste detection approaches. This article collects and summarizes previous studies and provides the results of authors' experiments on the presented datasets, all intended to create a first replicable baseline for litter detection. Moreover, new benchmark datasets detect-waste. Finally, a detector for litter localization is presented. EfficientDet-D2 is used to localize litter.

Keywords: Internet, Waste Detection, SMS API, Deep Learning, CNN

REFERENCES

- [1] "Shanghai Municipality's Regulation on Household Waste". Baike, 01 Jul. 2019, <https://baike.baidu.com/item/5n>.
- [2] G. Thung and M. Yang. "Dataset of images of trash; Torch-based CNN for
- [3] garbage image classification". GitHub Repository, 2016, <https://github.com/garythung/trashnet>.
- [4] G. Thung and M. Yang. "Classification of Trash for Recyclability Status".
- [5] CS229CourseReport, <http://cs229.stanford.edu/proj2016/report/ThungYangClassificationOfTrashForRecyclabilityStatusreport.pdf>.
- [6] R. A. Aral, S. R. Keskin, M. Kaya and M. Haciomeroglu, "Classification "
- [7] of TrashNet Dataset Based on ~ Deep Learning Models", 2018, IEEE International Conference on Big Data (Big Data), Seattle, WA, USA, 2018, pp.2058-2062.
- [8] H. Vo, L. Hoang Son, M. T. Vo and T. Le, "A Novel Framework for Trash Classification Using Deep Transfer Learning," in IEEE Access, vol. 7, pp. 178631-178639, 2019.
- [9] vasantvohra. "Waste Segregation Project to classify waste into different classes". GitHub Repository, <https://github.com/vasantvohra/TrashNet/blob/master/Notebooks/Trashnet5.ipynb>.
- [10] Siddharth Das. "CNN Architectures: LeNet, AlexNet, VGG, GoogLeNet,
- [11] ResNet and more. . . ". Medium, 16 Nov. 2017, <https://medium.com/analyticsvidhya/cnns-architectures- lenet- alexnet-vgg-googlenetresnet-and-more-666091488df5>