Abstract

Custom datasets from 0.-A brief discussion on how to acquire and prepare data for training deep learning neural networks. Whether for sorting, recognizing objects or targeting.
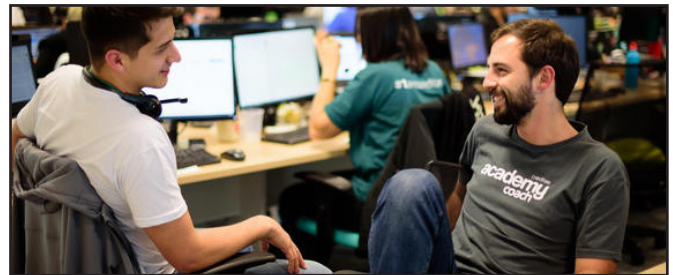
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Abstract:

A quick chat about creating custom datasets from absolute 0. The true path between the stones. (Focusing on data acquisition and preparation. Without going into details of neural network training). A summary of what I wish someone had talked to me when I was starting … It will be addressed from the collection of images. Criteria for image acquisition, such as ambient light control, dark areas in the image. Existence of hotspots. The importance of highlighting the points of the scene with really relevant data. Possible improvements in the quality of images collected using optical filters to alleviate major problems. Such as eliminating light reflections, enhancing or eliminating colors. What are the main filters that should always be in our toolbox? Imaging from special cameras such as infrared cameras, multispectral cameras and thermal cameras. The least I need to know about DICOMS. Do I need special and expensive software to deal with dicoms? Quantities of images to train a network. - "Why do I need two thousand images if I trained my network with only one image?". Data Standardization (Microsoft COCO, Pascal VOC). Main tools (free and paid) to annotate images for object recognition and segmentation. Ok. I prepared my dataset. And now? How do I do to train? Some frameworks for network training. Image classification classification, recognition and segmentation of objects in images. Gpus. What is this? Do I need this to train? And after training? Is it mandatory to use gpus to run my project? Now I know how to train a network! I already know everything! Am I ready for the market? Only not ….

Biography:

André Costa has been working with automation and control since he was 16 years old, in his father's company. Where he worked a lot with mechatronics in general. From mechanical maintenance to mechanical turning, design, assembly and maintenance of electronics. Graduated in systems analysis since 2005. Always sought to combine low level machine control with high level software management. And from the postgraduate degree in mechatronics in 2011, he began using artificial intelligence to aid in data acquisition and automated decision making on the shop floor. Desce 2016 has been dedicated to the use of deep learning networks for data acquisition and decision making. Since then it has been following innovative and cutting-edge courses on the subject such as DSA, Satya Malik and Pyimagesearch courses. And now in 2019 he entered a master's degree with a line of research in computer vision.

Publication of speakers:

1. Shprentz J. 1997, "Persistent Storage of Python Objects in Relational Databases", In Proceedings of the 6th International Python Conference.

2. William E. Byrd, Eric Holk, and Daniel P. Friedman. Minikanren, "Live and Untagged: Quine Generation via Relational Interpreters (Programming Pearl)", in the Proceedings of the 2012 Workshop on Scheme and Functional Programming, Copenhagen, Denmark, 2012.

3. Hall, R.J., "Learning by Failing to Explain: Using Partial Explanations to Learn in Incomplete or Intractable Domains", Machine Learning 3:45 77. 1988

4. Philip C. Jackson, Jr., Courier Dover Publications, Nov 13, 2019

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