AutoPlotCV: An automatic plot digitizer powered by Computer Vision and Neural Networks

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Abstract

Currently, a ton of plot digitizers such as WebPlotDigitizer [3], DigitizeIt [1], etc. exist and allow the users to upload the graphs and extract data from them. The users have to select the type of plot and two reference points on each of the axis manually to digitize the graph. After this pre-processing process, the users can extract the data at any point on the graph based on the selected reference points. Thus, the accurate selection of the reference points on the graph is necessary for properly getting the data. Also extracting data from ton of resources such as in domains of spectroscopy using a manual plot digitizer is a tedious process.

Thus, we plan to develop a automatic plot digitizer powered by computer vision and neural networks as a part of the course project. Our program will automate the above mentioned steps i.e. selection of reference points and extraction of data. Auto-Digitizer [2] was developed as a part of course project with the same motive and idea. We intend to independently develop the functionality of Auto-Digitizer as well as extend some features. Michiko Yoshitake, et. al developed a similar kind of automatic data extractor from line plot using Neural Networks only [4].

Planned Features

1. Automatic detection of reference points using CV and identification of ticks using neural network.
2. Extraction of curves and data points of single color from the plot based on the reference points.
3. Extension of the program to identify different types of plots such as linear, log and semi-log using neural networks..

References

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