

COMPUTER VISION AIDED DATA EXTRACTION FROM CM AND CFD RESULTS

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Meta-analysis and comparison of the research results in the field of computational mechanics (CM) and fluid dynamics (CFD) has never been straightforward. In usual situation, result plots are generated through complicated numerical processes and only a final image or graph is produced in the journal pages. Depending on the authors taste, colormaps, scales etc. could be chosen in various different manners [1]. Because reproducing the images is tedious (many times impossible) task, usual way is to compare results qualitatively. However, this approach creates uncertain aspects and even false conclusions for the meta-analysis and does not support wide reliable (quantitative) comparison of multiple methods. Our proposal is to use machine vision methodology and tools to overcome these challenges. We have implemented simple web-based tool for data-extraction. There exists multiple tools for this purpose but many of them are used to extract two-dimensional XY-data and can't be easily used for three dimensional colormapped data [2, 3], which is the most usual one in the field of CM and CFD. The tool asks the user to upload an image file containing the graph and then select the data and colormap from the image. Then the tool extracts the data, shows a preview and allows the user to download the data in multiple formats.

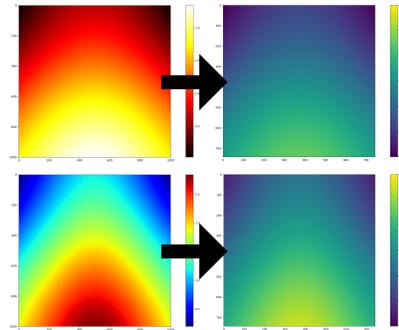


Figure 1: Two graphs that have slightly different data but completely different scales and colormaps converted to same scale and colormap with our tool. This makes comparison of the data vastly easier.

REFERENCES

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