Automatic fluorite grade identification using borehole images and machine learning-based models

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MATLAB scripts for estimating the ore grade from images of borehole logs using support vector machine techniques. It reproduces the calculations shown in the paper: *E. Li, P. Segarra, J.A. Sanchidrián, S.Gómez, A. Fernández, R Navarro, M. Bernardini. 2022. Automatic fluorite grade identification using borehole images and machine learning-based models. Computers and Geosciences. Submitted*

Software required: MATLAB 2020b

External functions required:

- The integrated library for support vector classification (SVC) and regression (SVR) LIBSVM Version 3.3. LIBSVM has been developed by "Chang, C. C., & Lin, C. J. (2011). LIBSVM: a library for support vector machines. ACM transactions on intelligent systems and technology (TIST), 2(3), 1-27". Download website: https://www.csie.ntu.edu.tw/~cjlin/libsvm/.
- The optimization of the SVR and SVC is based on the Salp Swarm Algorithm developed by "Mirjalili, S., Gandomi, A. H., Mirjalili, S. Z.,Saremi, S., Faris, H., & Mirjalili, S. M. (2017). Salp Swarm Algorithm: A bio-inspired optimizer for engineering design problems. Advances in engineering software, 114, 163-191." The original code of Salp Swarm Algorithm can be found in https://seyedalimirjalili.com/projects