二つの材料情報統合システム MIPHA & shinyMIPHA の機能比較

MIPHA: 材料組織画像の**自動セグメンテーション機能**と**材料工学的特徴量**の自動抽出

http://www.nakayamadenki.co.jp/miphauser/

shinyMIPHA: 材料組織画像の**数学的特徴量**の自動抽出と**豊富な機械学習**モジュール

https://adachi-lab.shinyapps.io/demo/　【デモバージョン】

	Content	MIPHA		shinyMIPHA	
		2D	3D	2D	3D
1	Number of particles	✔	✔	✔	
	Area/volume fraction	✔	✔	✔	
	Perimeter	✔		✔	
	Circularity/sphericity	✔	✔	✔	
	Solidity	✔			
	Grain size	✔	✔	✔	
	Ferret length	✔	✔		
	Fractal dimension		✔		
	Surface area		✔		
	Gauss, mean curvature		✔		
	Connectivity: Genus		✔		
	Connectivity: Euler-Poincare		✔		
	Branching points		✔		
	Morishita Iδ index			✔	
	Direction analysis			✔	
	Hough transform			✔	
	Persistent homology			✔	✔
	Two-points correlation			✔	
2	Autocorrelation			✔	
	Similarity analysis			✔	
	Image processing			✔	
	Machine learning-based image processing	✔	✔		
3	AIC/BIC/Lasso			✔	
	Glasso			✔	
	PCA			✔	
	Kernel PCA			✔	
	Autoencoder			✔	
4	K-means			✔	
	SOM			✔	
5	Regression analysis			✔	

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	Generalized linear mixed-effects model		✔
	Gaussian process regression		✔
	Artificial neural network(ANN)	✔	✔
	Support vector regression(SVR)		✔
	Random forest regression(RF)		✔
	Recurrent neural network		✔
6	ANN-genetic algorism	✔	✔
	ANN-particle swarm optimization		✔
	ANN-Bayesian optimization		✔
	SVR-Bayesian optimization		✔
	Random forest-Bayesian optimization		✔
7	Create 2D/3D random data		✔
	Create dataset		✔
	Repeat image		✔
	Select variables		✔
	Random sampling		✔
	Calculate mean/std		✔
	Bind CSV file		✔
	2D/3D plot		✔
	Histogram		✔
8	Fast Fourie Transform(FFT)		✔
	Stereographic projection		✔*
	Deviation from OR		✔*
	Schmid factor		✔*
	Modified JMAK eq.		✔*
	Histogram peak fitting		✔*
	(Spectrum peak fitting)		Under construction
9	SS curve by swift eq.		✔*
	Micromechanics		✔*

1: 形態解析, 2: その他, 3: スパース学習, 4: クラスタリング, 5: 順解析, 6: 逆解析, 7: その他, 8: 結晶学的解析, 9: 機械的特性解析, * shinyMIPHA_plus に搭載