

Klasifikace lomů

Plajta

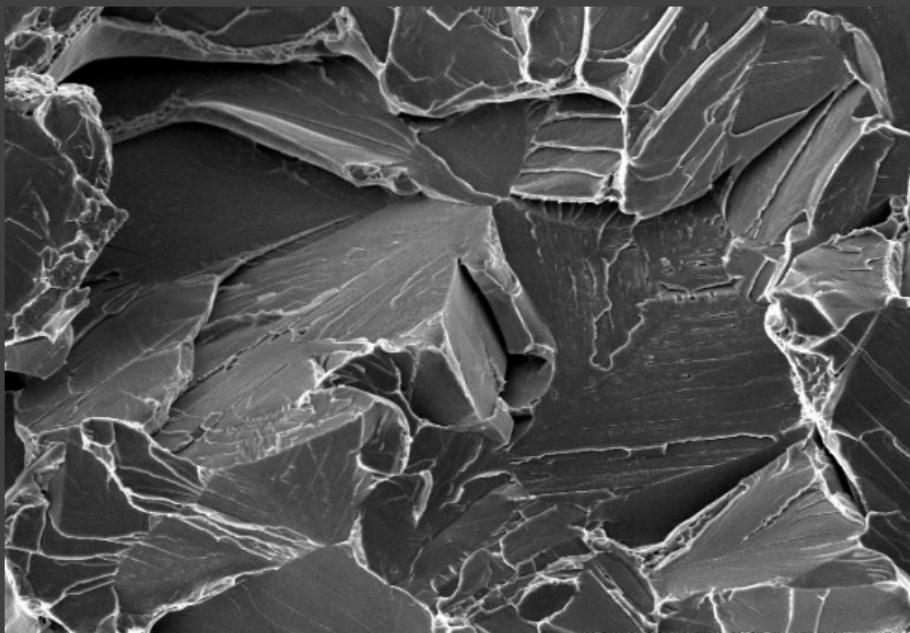
VOŠ a SPŠE Plzeň

14. října 2023

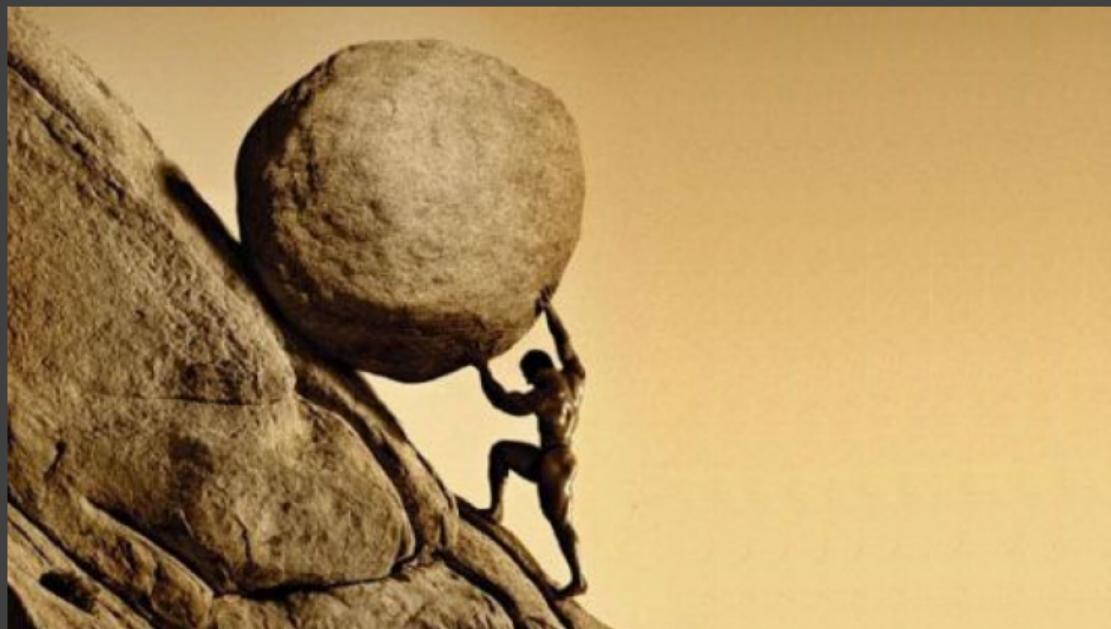
Lomy



Opravdu Lomy



Data loader



SVC

■ C-Support Vector Classification

The model is 79.83870967741935% accurate				
	precision	recall	f1-score	support
stepnylom.jpg	0.79	0.90	0.84	73
tvarnylom.jpg	0.82	0.65	0.73	51
accuracy			0.80	124
macro avg	0.81	0.78	0.78	124
weighted avg	0.80	0.80	0.79	124

Evaluační metriky SVC

KNN

■ K-Nearest Neighbors

[INFO] raw pixel accuracy: 70.97%				
	precision	recall	f1-score	support
stepnylom.jpg	0.73	0.83	0.78	76
tvarnylom.jpg	0.66	0.52	0.58	48
accuracy			0.71	124
macro avg	0.70	0.67	0.68	124
weighted avg	0.70	0.71	0.70	124

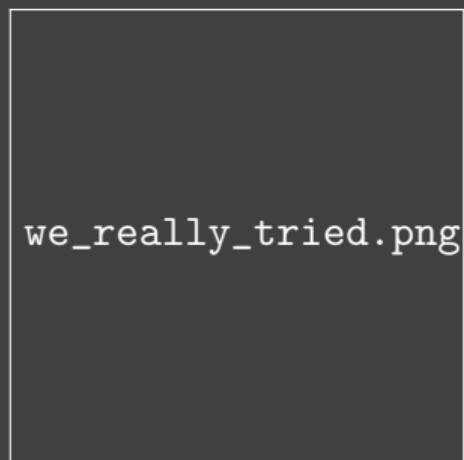
Evaluacní metriky KNN ze surových dat

[INFO] histogram accuracy: 86.29%				
	precision	recall	f1-score	support
stepnylom.jpg	0.92	0.86	0.89	79
tvarnylom.jpg	0.78	0.87	0.82	45
accuracy			0.86	124
macro avg	0.85	0.86	0.85	124
weighted avg	0.87	0.86	0.86	124

Evaluacní metriky KNN z histogramu

Pytorch

- Snaha byla...

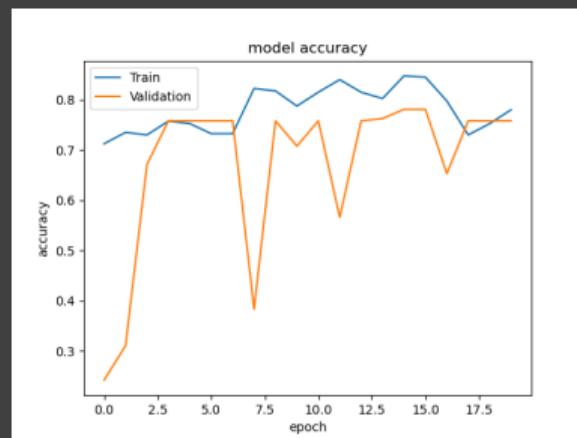


představte si snahu

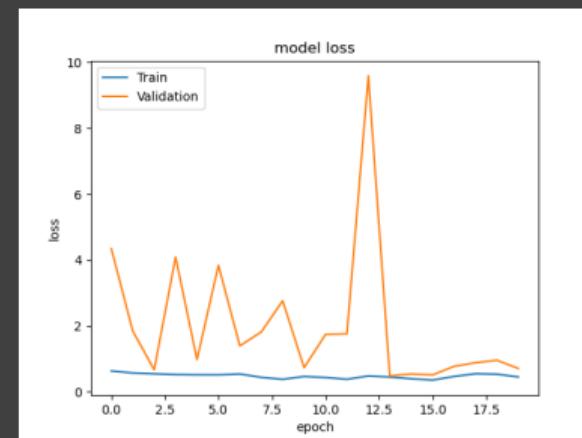
Tensorflow - Keras

Neuronové sítě:

- CNN
- Ensemble CNN



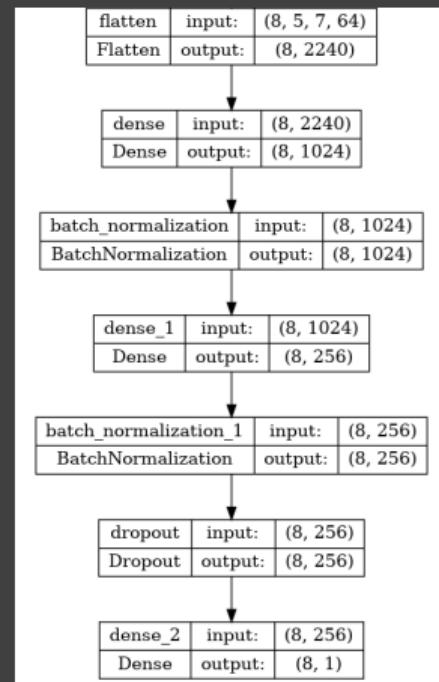
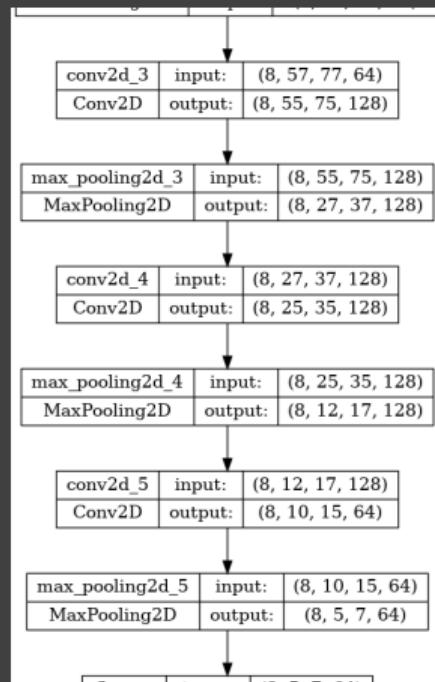
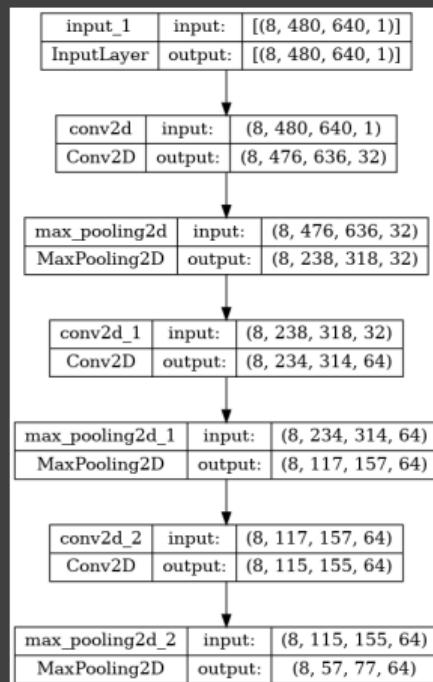
Přesnost modelu



Ztráta modelu

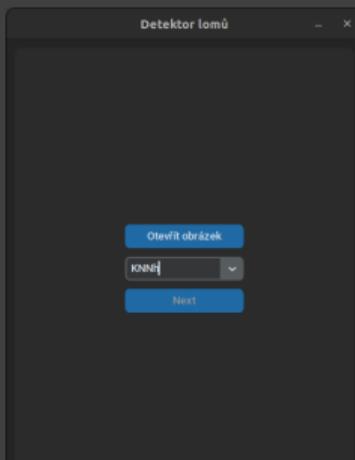
Tensorflow - Keras

Tensorflow - Keras

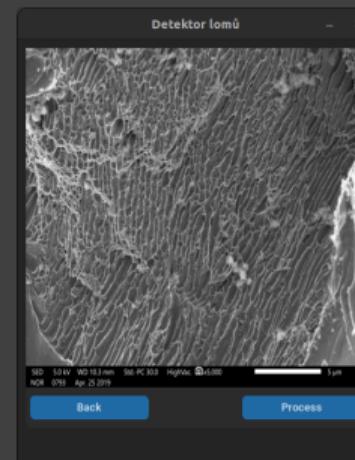


Tkinter

- Jednoduché a relativně multiplatformní



Aplikace po otevření



Aplikace s vybranou fotografií

Závěr

- Vyzkoušeli jsme více způsobů
- Přemýšleli jsme o voting systému

Model	Accuracy	Optimizer
SVM	79.8%	
CNN	85%	Adam
KNN hist	82%	
KNN raw	74%	
Ensemble CNN*	25%	SGD

*nedodělaný model, koncept

Shrnutí přesnosti algoritmů