

VU Visualisierung 2 (186.833)

Multiclass Contour Visualization - Li et al. 2023

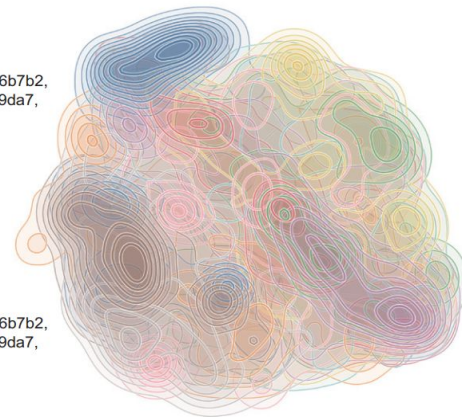
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Scalar Field Visualization using Contour Plots for multiclass Data

- For spatial data; points get blurred into scalar fields
- Marching squares algorithm is used to get isolines
- One threshold for each isoline
- Domain Specific Language (DSL) for generating different designs
- Extensive user study

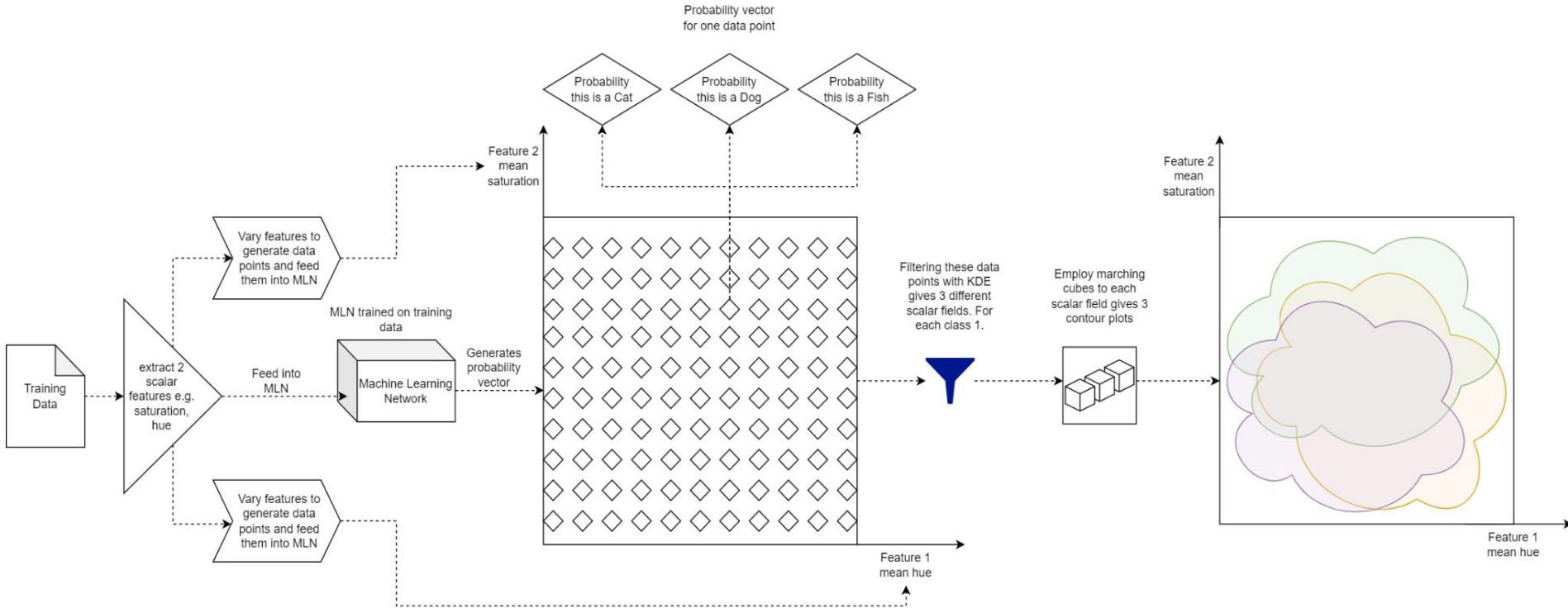
```
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```



Contour plot with DSL from paper.



Implementation - Concept



Data generated in Python

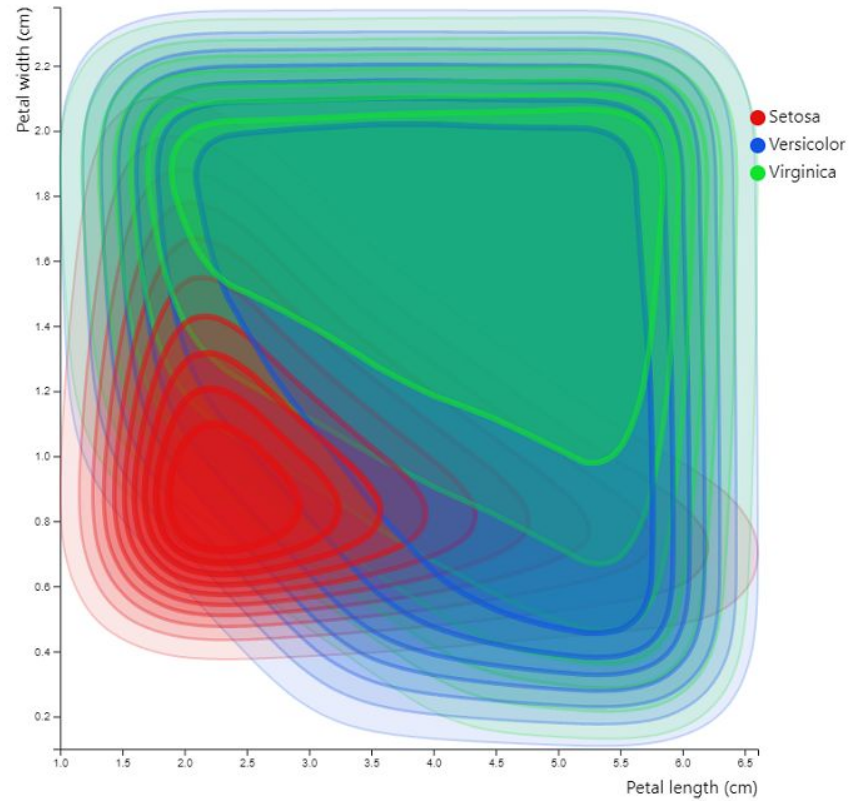
Machine Learning Network (MLP) trained in
Python using sklearn.

Visualization created with D3 using the
D3.Contours library.



```
clf = MLPClassifier(  
    hidden_layer_sizes=(5,),  
    max_iter=1000,  
    random_state=42,  
    activation="logistic",  
    solver="adam",  
    alpha=0.0001,  
    batch_size="auto",  
    learning_rate="constant",  
    learning_rate_init=0.001,  
    power_t=0.5,  
    momentum=0.9,  
    nesterov_momentum=True,  
    early_stopping=False,  
    validation_fraction=0.1,  
    beta_1=0.9,  
    beta_2=0.999,  
    epsilon=1e-08,  
    n_iter_no_change=10,  
    tol=0.0001,  
    verbose=False,  
    warm_start=False,  
)
```

[Live Demo](#)



Li, Sihang and Yu, Jiacheng and Li, Mingxuan and Liu, Le and Zhang, Xiaolong Luke and Yuan, Xiaoru

A Framework for Multiclass Contour Visualization

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