

DATASET DETAILS



Dataset:	animals
# images (n):	80
# classes (k):	20
Label types:	{hard,soft}
Relative Cost (β):	10
Utility ($\mathbf{f}(\mathbf{p})$)	$\sigma^{-1}(\mathbf{p})$

EXAMPLE

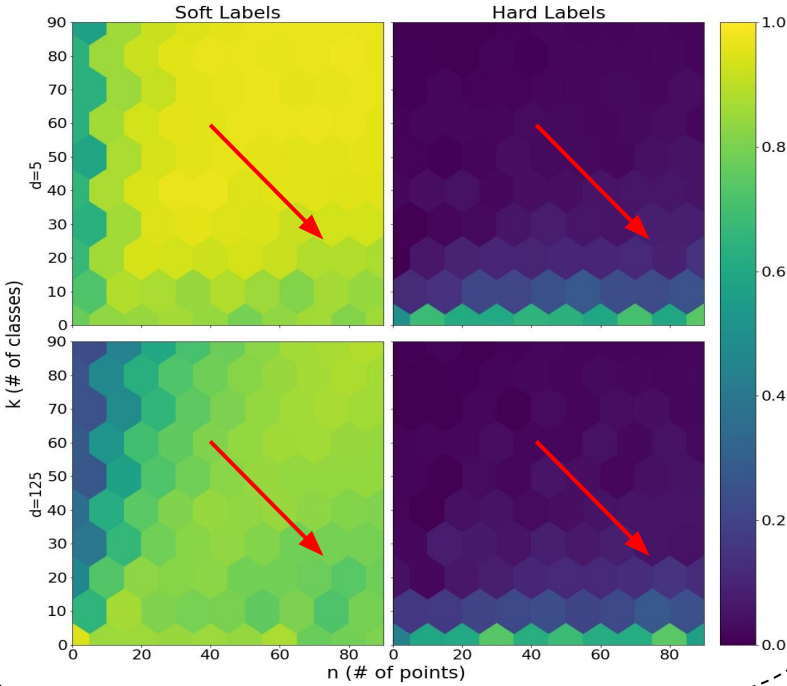


		Zebra			Horse	
Hard Label	0	1	0	...	0	0
Soft Label	0.1	0.6	0	...	0.3	0

ANALYSIS

Signal	Information ratio	Asymptotic behavior
Hard Labels	$\frac{2n(n+k-1-n/k)}{(n+k)(n+k-1)(n+k-2)}$	$\rightarrow \begin{cases} O(\frac{1}{n}) & n \gg k \\ O(\frac{1}{n}) & n = k \\ O(\frac{1}{k^2}) & n \ll k \end{cases}$
Soft Labels	$\frac{kn}{(n+k)(n+k-1)}$	$\rightarrow \begin{cases} O(\frac{1}{n}) & n \gg k \\ O(1) & n = k \\ O(\frac{1}{k}) & n \ll k \end{cases}$

INFORMATIVENESS



COST-BENEFIT TRADEOFF

