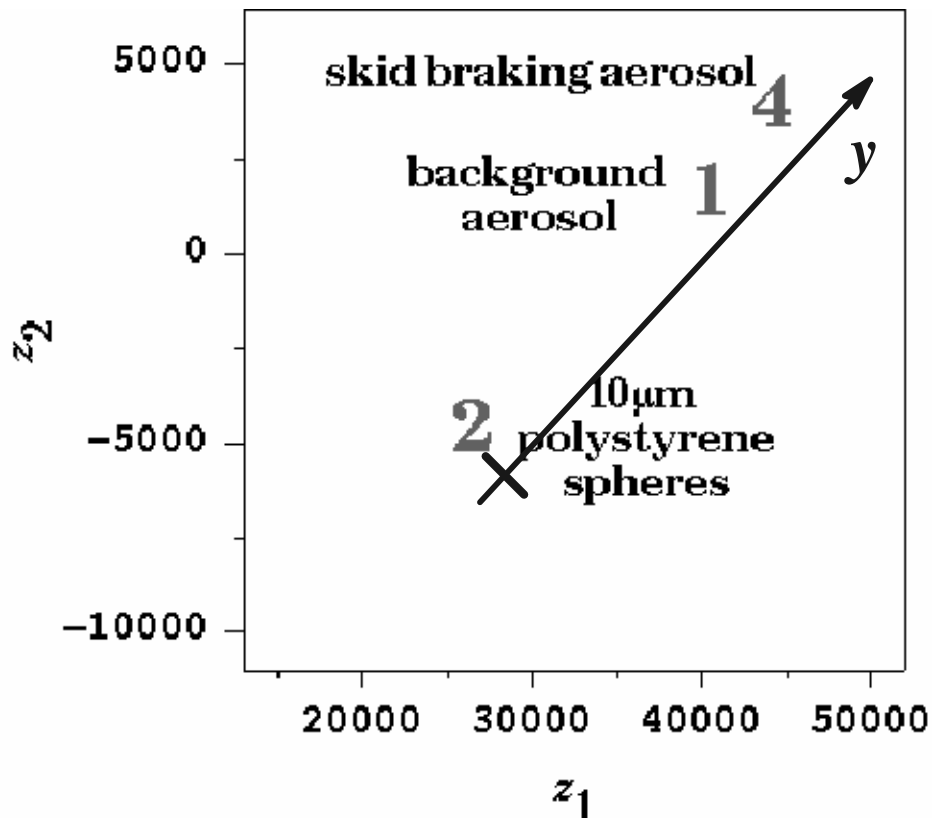


CONFIDENCE

(1)=background aerosol; (2)=10 μ m polystyr. sphere clusters;
 (4)=skid braking aerosol

Train by {(1), (2)}, recognize (4)



$I_1=0.88, I_2=0.98 \Rightarrow$ affine regression $y[z_1, z_2]$

β -confidence interval: $w := T^{(N-1)}_{(1-\beta)/2} S/\sqrt{N}$

$\beta = 0.9 \Rightarrow q_{BP} := \frac{w_B + w_P}{|y_B - y_P|} = 0.477$ (disjoint intervals)

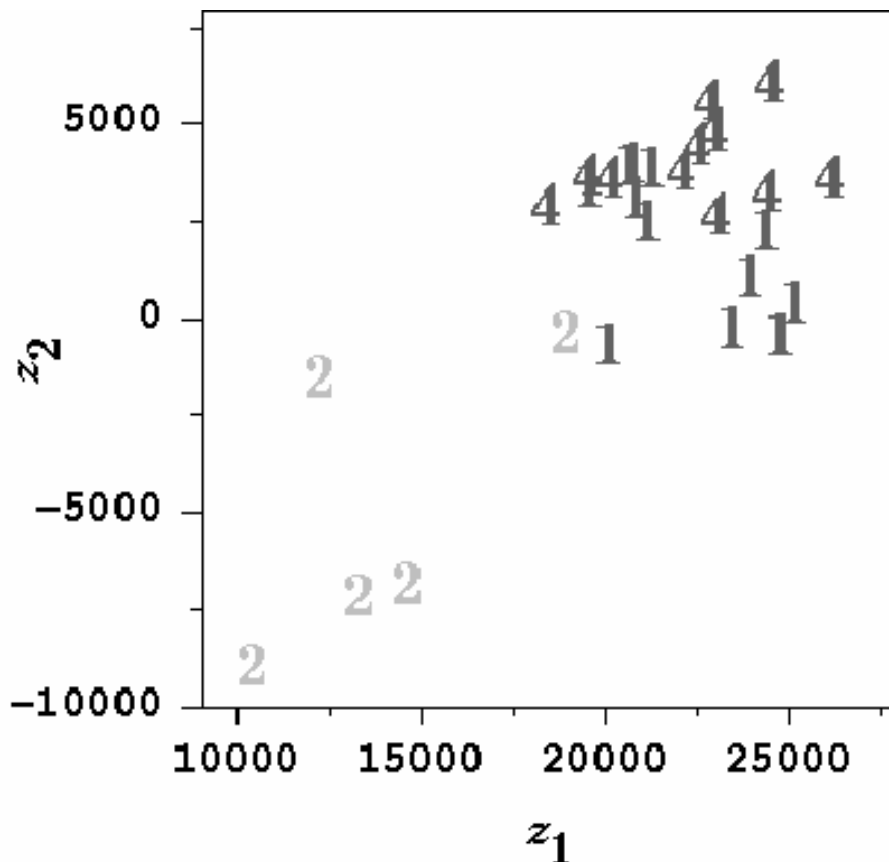
$\beta = 0.9 \Rightarrow q_{BA} := \frac{w_B + w_A}{|y_A - y_B|} = 0.935$ (near overlap)

STABILITY

Class labels: $B \equiv (1), P \equiv (2), A \equiv (4)$

Example:

train by smaller $\{B, P\}$ set with $N_B=12, N_P=5$;
recognize A ($N_A=11$).



$$\beta = 0.9 \Rightarrow q_{BP} := \frac{w_B + w_P}{|y_B - y_P|} = 0.517 \Rightarrow$$

\Rightarrow stable discrimination

$$\beta = 0.65 \Rightarrow q_{BA} := \frac{w_B + w_A}{|y_A - y_B|} = 0.95 \Rightarrow$$

\Rightarrow performance drop