Dealing with uncertainty

We learn: $f(\mathbf{x})$

Uncertainty in label value (f)

- Measurement accuracy
- Variation in population

Individual	Duck speed
Donald	1 km/h
Dagobert	3 km/h
Track	2 km/h

Uncertainty in features (x)

- Incompleteness of observation
- Accuracy of features

Environment	Duck speed
Water	3 km/h
Land	3 km/h
Air	54 km/h

Kernel-Ridge-Regression

- noise increases regularization strength λ
- defines the limit of learning