Linear Discriminant Analysis

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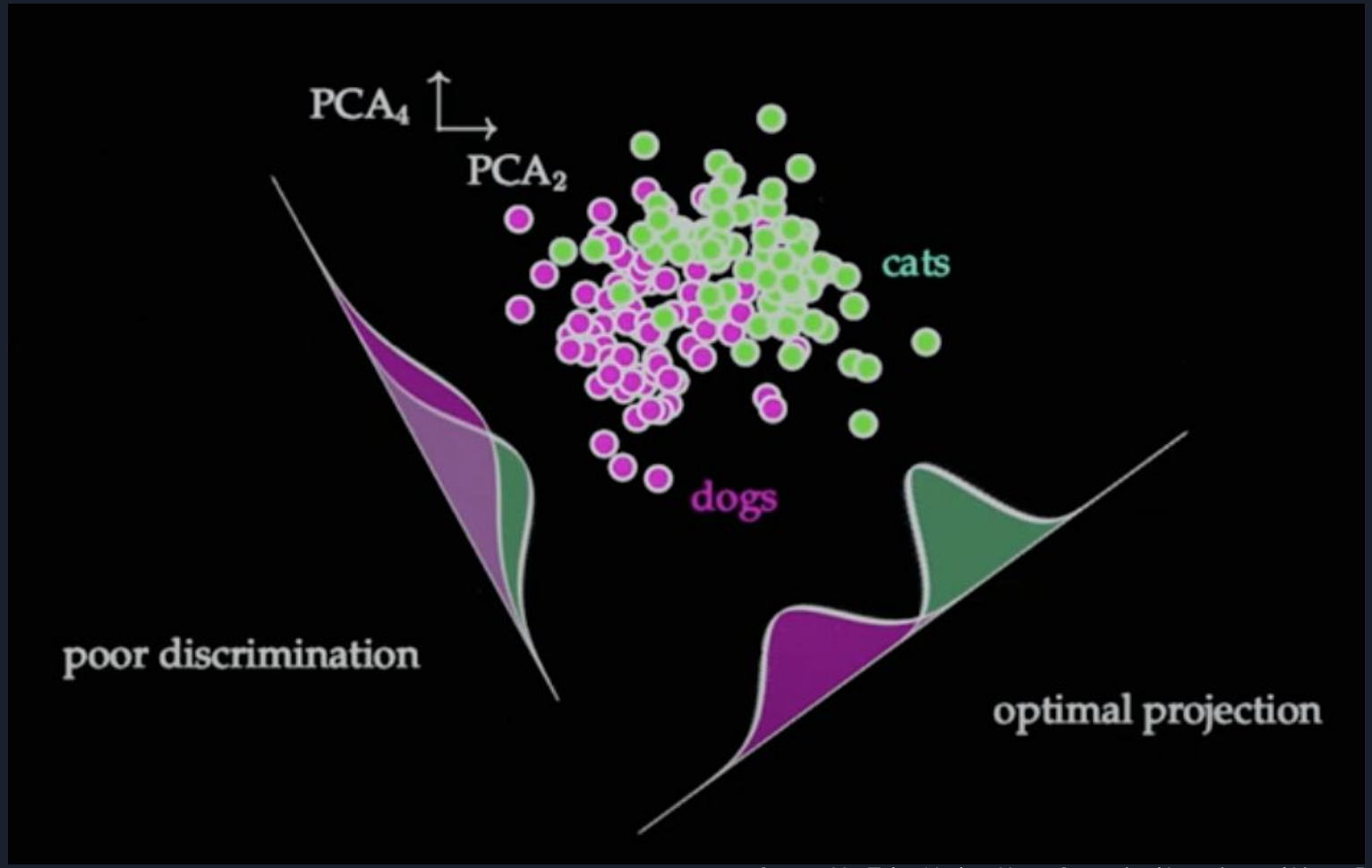
Linear Discriminant Analysis (LDA)

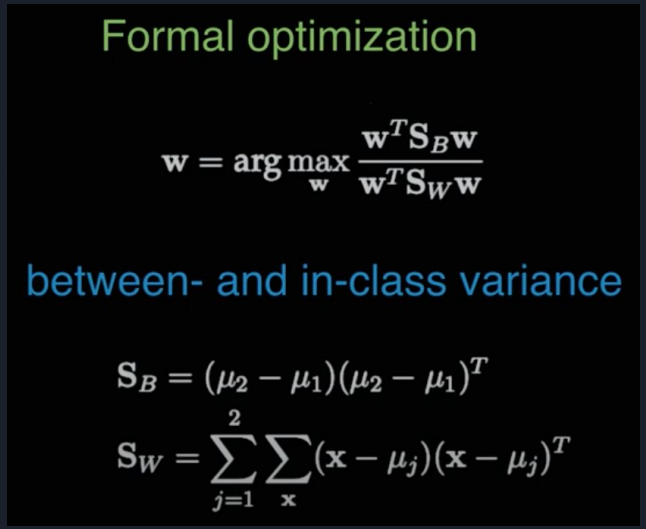
- **supervised** learning concept that categorizes a set of data into **known** classes
- similar to Principal Component Analysis (PCA)
- aim: assign labels to the data - make an accurate classification decision
- linear technique - draw an optimal line (= decision threshold) that is discriminating between different classes in data set



Source: YouTube: Nathan Kutz - Supervised Learning and Linear Discriminants

Linear Discriminant Analysis (LDA)

- **Mathematics** behind (computing two quantities):
  - distance between means
  - variation of data around each mean (*scatter*)



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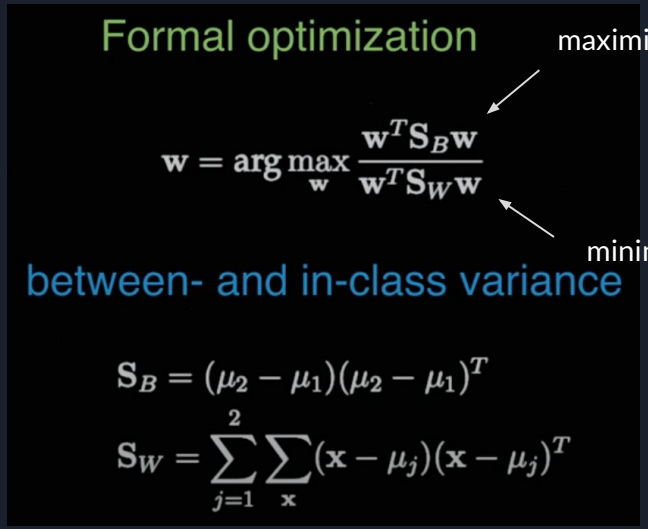

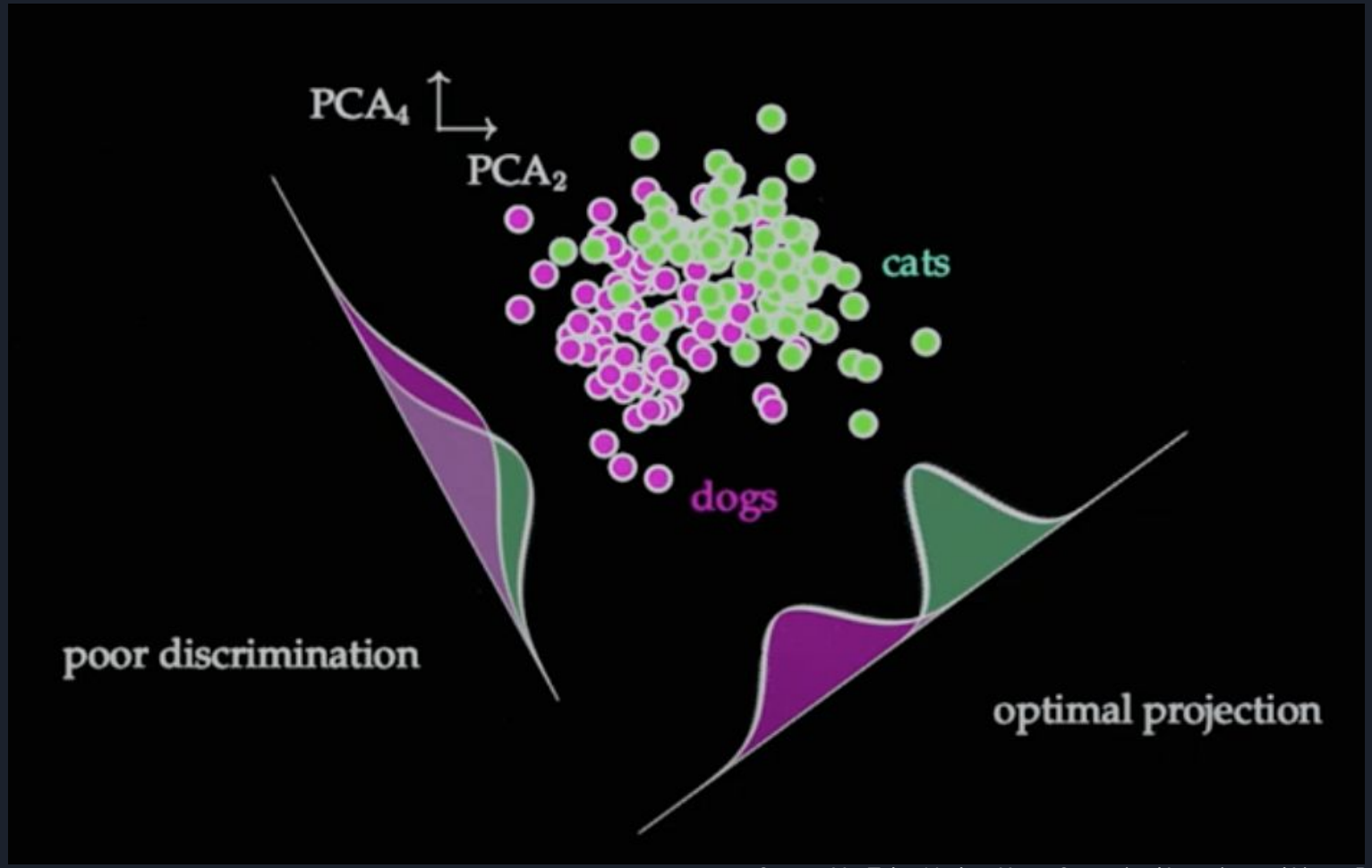

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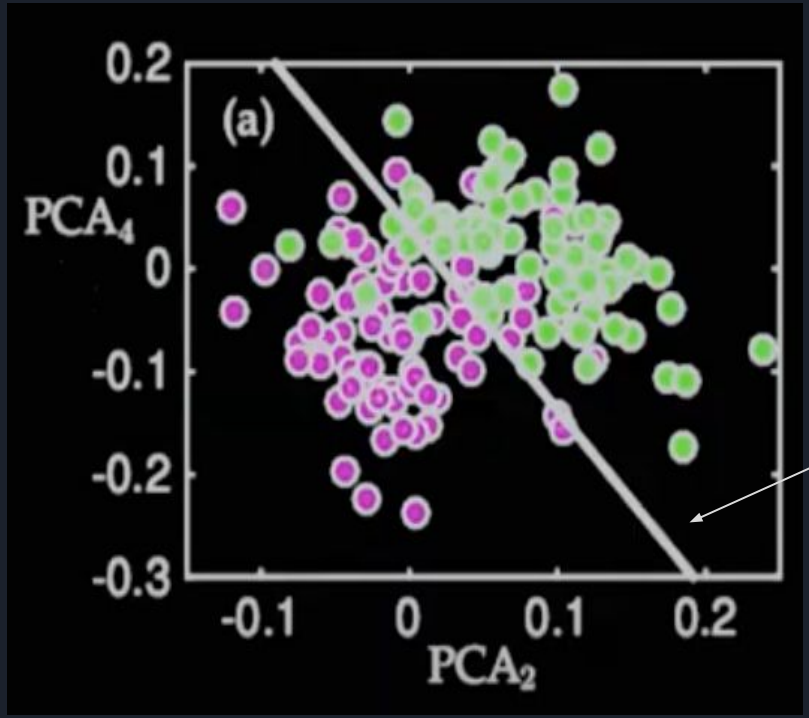

Linear Discriminant Line

Source: YouTube: Nathan Kutz - Supervised Learning and Linear Discriminants

Linear Discriminant Analysis (LDA)

- **LDA is like PCA, they both reduce the dimensions, however LDA focuses on maximising the separability among known categories**