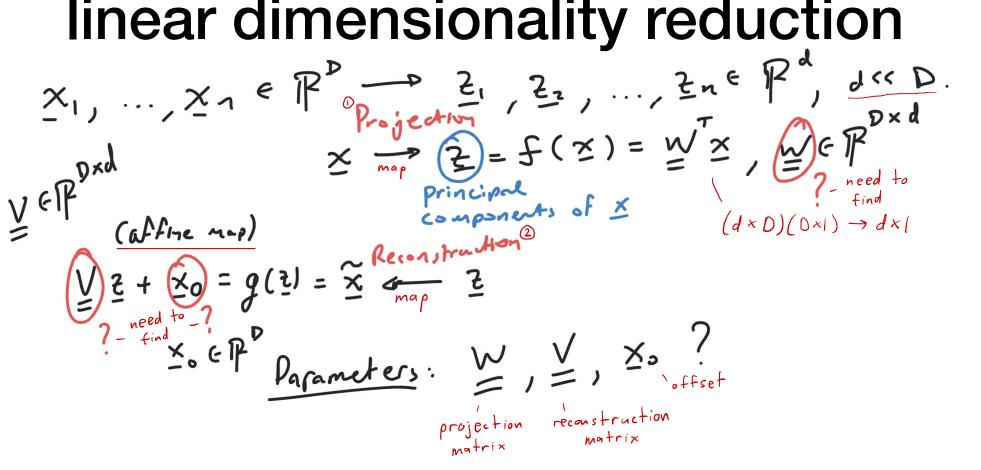
Lecture 18: Dimensionality Reduction

Professor Ilias Bilionis

Principal component analysis: Basics



Principal component analysis as linear dimensionality reduction





Minimum-error formulation of principal component analysis

$$| l_{0J} | = reconstruction error \times_{L:n}$$

$$= \sum_{error} in reconstruction of the projection of ends observation
$$= \sum_{i=1}^{n} \left\| \left(\int_{r_{i}} (x_{i}) - x_{i} \right\|_{2}^{2} - \sum_{errors} (x_{i}) - x_{i} \right\|_{2}^{2} + \sum_{errors} (x_{i}) + \sum_{i=1}^{n} \left\| \int_{r_{i}} \left(\underbrace{w}_{i} x_{i} \right) + \sum_{i=1}^{n} \left$$$$

