Understanding Neural Embeddings

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Understanding Semantic Embeddings

Basic question: How to turn categories into a small amount of numbers?

- neural networks can not deal with symbols
- only numerical values can be processed
- make those numbers carry the semantics of the words or symbols

Examples:
1. Grade
2. IQ

Humans are good at this: Locate your favorite airline below

Sample Application: Airlines

Use Case 1: n-dim Embedding as input layer for further processing

Use Case 2: 1-d Embedding vs Passengers as a plot / cluster for data visualization

How to Embed

Basic Idea: Train a model and squeeze input through a bottle-neck. Use that bottle-neck as the semantic representation during prediction.

1. What do you want to embed? Airlines
2. What data do you want to use to express similarity? Typical Routes flown by Airline
3. Prepare data accordingly
4. Set up network and choose loss function
5. Train with small batch size and make sure model trains (loss goes down)
6. Predict categories and use embedding layer (the bottle-neck) as new output