Interactively Building a Discriminative Vocabulary of Nameable Attributes
Devi Parikh (TTIC) and Kristen Grauman (UT Austin)

1. Main Idea
   - **Motivation:** Attributes are most useful if they are:
     - Discriminative: Can be learnt in available feature space
     - Nameable: Allow for transfer learning (zero-shot)
   - **Main idea:** Interactive approach to efficiently discover attributes with both qualities.

2. Approach Overview
   - **Visualisation:**
     1. **Active selection** of discriminative attribute candidates
     2. **Nameability model** to prioritize candidates
   - **Key new insights:**
     1. Predict “nameability” to prioritize candidate splits in feature space
     2. **Visualization** of candidate attributes

3. Approach Details
   - **Active selection** of discriminative attribute candidates
   - **Nameability model** to prioritize candidates
   - **Visualization** of selected attribute hypothesis

4. Data Collection: Is This Attribute Nameable?
   - ~25,000 responses, 162 subjects
     - Outdoor Scene Recognition OSR
     - Animals with Attributes AWA
     - Male Celebrity PubFig

5. Comparison to Existing Strategies
   - More named attributes and higher categorization accuracy compared to purely discriminative baseline
   - More discriminative than hand-generated list

6. Evaluating Individual Components
   - **Active approach** discovers useful splits more quickly
   - **Structure** exists in nameability space, allowing for prediction

---

**Approach**
- Hand generated
- Mining the web
- Automatic splits
- Proposed

**Discriminative**: Maybe not
**Nameable**: Yes

**Structure exists** in nameability space, allowing for prediction

**Active approach** discovers useful splits more quickly.