

## SciDMT annotation Guidelines

37 Of these , the appropriate **decoders** use the max - pooling indices received from the corresponding **encoder** to perform **non - linear upsampling** of their input feature maps

38 This idea was inspired from an architecture designed for **unsupervised feature learning** .

39 Reusing max - pooling indices in the **decoding process** has several practical advantages ; ( i ) it improves **boundary delineation** , ( ii ) it reduces the number of parameter: into any **encoder - decoder architecture** such as with only a little modification .

40 One of the main contributions of this paper is our analysis of the **SegNet decoding technique** and the widely used **Fully Convolutional Network ( FCN )** .

41 This is in order to convey the practical trade - offs involved in designing **segmentation architectures** .

42 Most recent **deep architectures** for segmentation have identical **encoder networks** , i.e VGG16 , but differ in the form of the **decoder network** , training and inference .

43 Another common feature is they have trainable parameters in the order of hundreds of millions and thus encounter difficulties in performing **end - to - end training** .

44 The difficulty of training these networks has led to **multi - stage training** , appending networks to a **pre - trained architecture** such as **FCN** , use of **supporting aids** such **classification and segmentation networks** and use of additional training data for **pre - training** or for **full training** .

45 In addition , performance **boosting post - processing techniques** have also been popular .

46 Although all these factors improve performance on challenging benchmarks , it is unfortunately difficult from their quantitative results to disentangle the key design factors

47 We therefore analysed the **decoding process** used in some of these approaches and reveal their pros and cons .

48 We evaluate the performance of **SegNet** on two scene segmentation tasks , **CamVid road scene segmentation** and **SUN RGB - D indoor scene segmentation** .

49 **Pascal VOC12** has been the benchmark challenge for segmentation over the years .

50 However , the majority of this task has one or two foreground classes surrounded by a highly varied background .

51 This implicitly favours techniques used for detection as shown by the recent work on a **decoupled classification - segmentation network** where the **classification network c** **independent segmentation network** performance is improved .

### 1. Entity types:

- **Dataset:** A dataset is a specific corpus or language resource. Datasets are often used to develop models or run experiments for machine learning tasks. A dataset normally has a short name, e.g., IMDB, Gigaword.
- **Task:** A task is a problem the paper wants to solve (e.g., information extraction, sentiment classification, dialog state tracking, POS tagging, NER). Most papers have machine learning.
- **Method:** A method is a machine learning tool, algorithm, neural network layer, or filter, which has specific names or commonly agreed names. It is not the same as metrics/scores/platform/device.

### 2. Tokens-to-be-ignored

#### 1. **Anonymous entities.**

Do not annotate anonymous entities, which include anaphors. They cannot be used independently to refer to any specific TDM entities without context. The following examples are anonymous entities:

- this task
- this metric
- the dataset
- "a public corpus for context-sensitive response selection" in the sentence, "Experimental results in a public corpus for context-sensitive response selection demonstrate the effectiveness of the proposed multi-view model."

2. **Determiners** should not be part of an entity span. For example, the string "the text8 test set", only the span "test8" is annotated as dataset. Some substring may not be included in the span because they may be describing variants that are uncommonly used (e.g.: "mini", "train set", "tiny", "English", "Chinese"). Commonly used entity names may be validated through

Google search. If searching the entity often comes with that particular substring, then it should be included.

3. **Minimum span** principle: Annotators should annotate only the minimum span necessary to represent the original meaning of task/dataset/metric (e.g.: "The", "dataset", "public", 'method', 'technique' are often omitted).
  - Annotate 'MS COCO' instead of ignoring 'MS'
4. **Partial Conjunction**. Annotators can ignore entities in conjunction since that token itself can not represent an entity. eg:
  - "image/video captioning". Annotate "video captioning" as task
  - "human-human and human-robot interaction". Annotate "human-robot interaction" as task
  - "Semeval 17, 18". Annotate "semeval 17"Record these instances for future use.

### 3. Tokens-to-be-kept

5. **Factual entity**. Only annotate "factual, content-bearing" entities. Task, dataset, and metric entities normally have **specific names** and their meanings are consistent across different papers. E.g.:

Is a factual entity:

- A. "MNIST"
- B. "robotics"

Is not a factual entity:

- C. "a high-coverage sense-annotated corpus"
- D. "understanding human activities and forecasting the subsequent actions"  
[26518826&[1272, 1411]]

6. **Include "corpus/dataset/benchmark" when** annotating dataset if **these tokens are the head noun of the dataset entity**. For example: "ubuntu corpus", "SemEval-2010 Task 8 dataset".
7. **Abbreviation**. If both the full name and the abbreviation are present in the sentence, annotate the **abbreviation and its corresponding full name separately**. For instance, "20-newsgroup (20NG)", we annotate "20-newsgroup" and "20NG" as two separate entities.
8. **Complete Conjunction**. If the entity is in conjunction with other detected entities using 'and' or comma and following the above rules for keeping (eg: factual entity), annotate them.
  - Eg 1: "will be a useful tool in numerous research fields including video analysis, human inspired motion generation, learning by demonstration, intuitive human-robot interaction, and human behavior analysis." Each research field should be annotated as a task since we have detected 'human-robot interaction' and 'human behavior analysis' as a task.
  - Eg 2: "effectiveness of VAC+GAN", 'VAC' and 'GAN' are labeled as two separate methods.
  - "Our method is combining VAC and GAN"

### 4. Entity Linking annotation

- To validate the mention, you can:
  - Search in Google / Wikipedia
  - Search in Paperswithcode
    - For datasets: search in <https://paperswithcode.com/datasets>
    - for methods: search in <https://paperswithcode.com/methods>
    - For tasks: search in <https://paperswithcode.com/sota>
  - In the datasets.csv, tasks.csv, and methods.csv, those are the list of entities we stored. You may refer there to check. However, even if you can't find the entity in the

csv, it does not necessarily mean it is not a valid entity. But if it can be found in the csv then it is definitely valid.

- The general rule is that if it is a unique entity name (eg: 'neural network'), other than a general name (e.g.: "method"), then it should be annotated. However, if the name itself is not sufficient to indicate it is a specific entity, then include it. (eg: wrong: "Ubuntu and Web Applications", Correct: "Ubuntu and Web Applications corpora")

#### 5. Others

Time yourself. We want to know how long you spend on your annotation tasks. Generally, I need an estimate of the time you spend for each annotation set.