

# Relation Extraction using CNN



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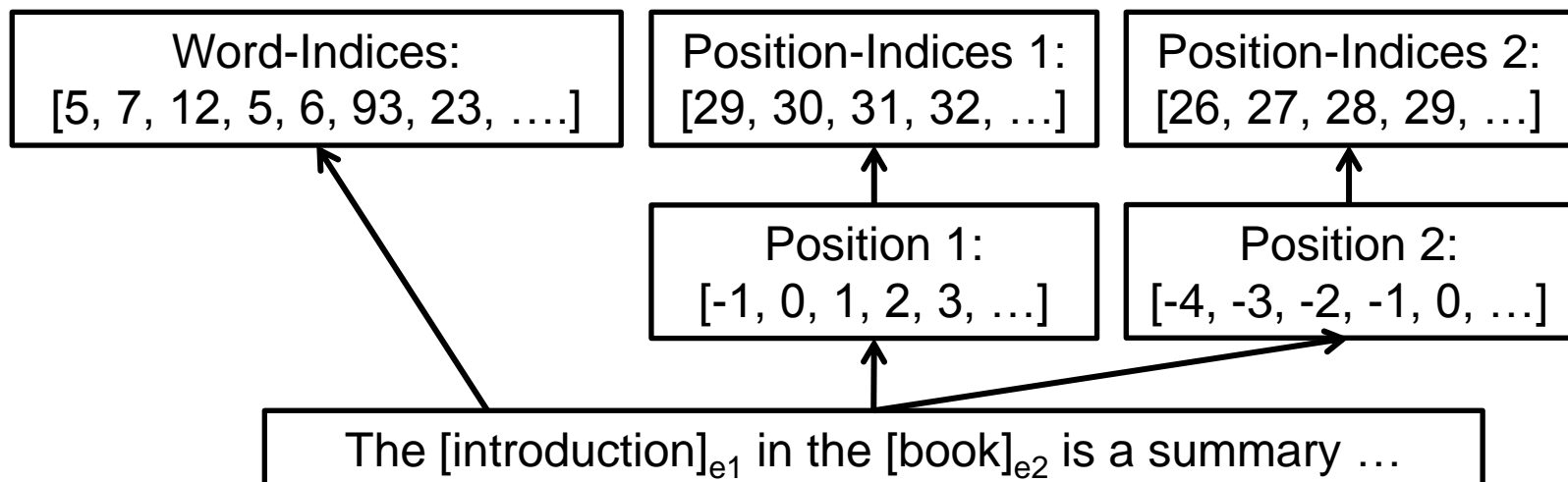
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**Course-Website: [www.deeplearning4nlp.com](http://www.deeplearning4nlp.com)**

- Implementation is based on:
  - Zeng et al., 2014, *Relation Classification via Convolutional Deep Neural Network*
  - dos Santos et al., 2015, *Classifying Relations by Ranking with Convolutional Neural Networks*

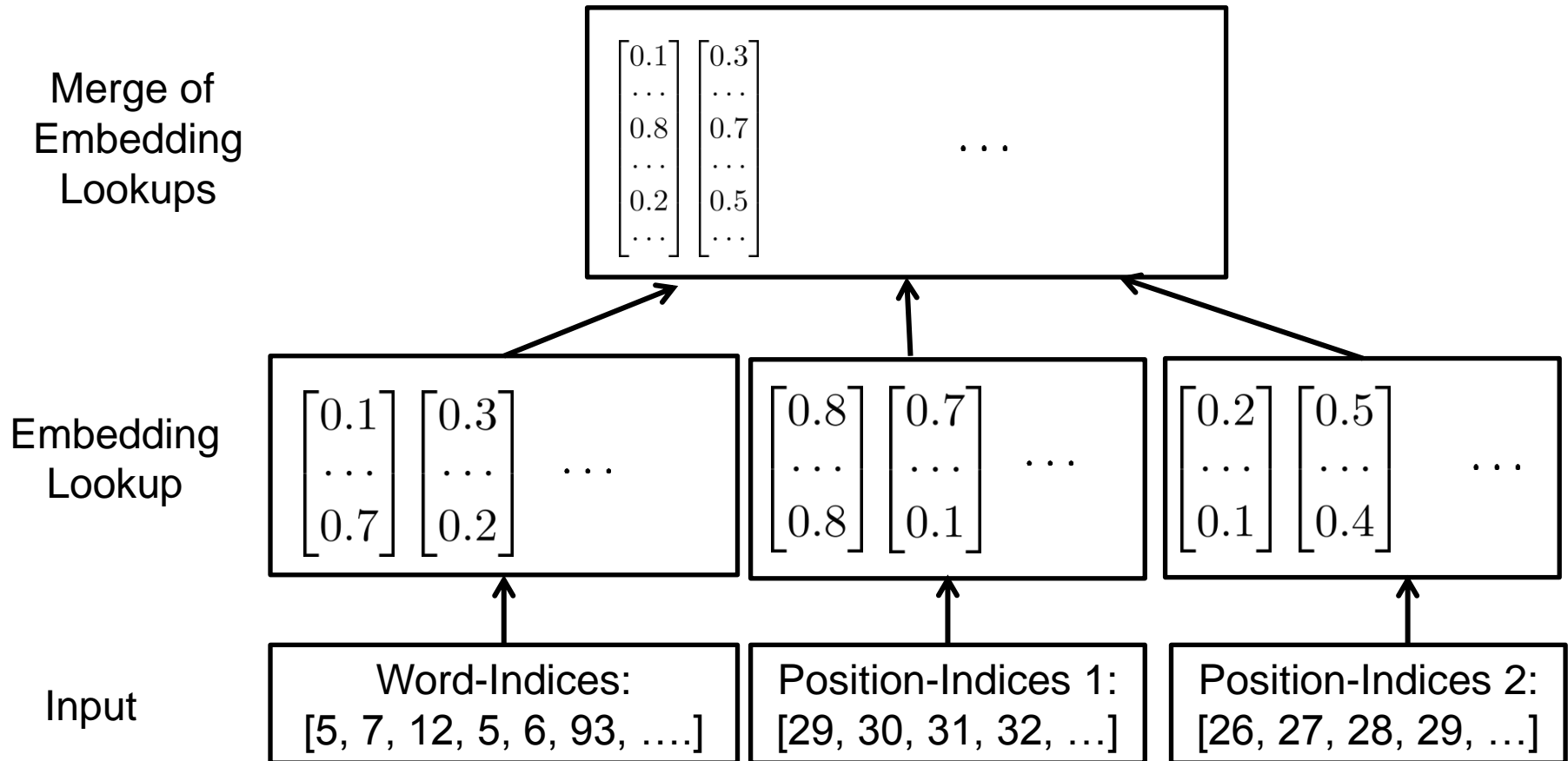
- We use the data of SemEval 2010 – Task 8
  - [https://docs.google.com/document/d/1QO\\_CnmvNRnYwNWu1-QCAeR5ToQYkXUqFeAJbdEhsq7w/preview](https://docs.google.com/document/d/1QO_CnmvNRnYwNWu1-QCAeR5ToQYkXUqFeAJbdEhsq7w/preview)
- Give a sentence and two target nominals:
  - The [introduction]<sub>e1</sub> in the [book]<sub>e2</sub> is a summary of what is in the text.
- Classify the relation between those (here: *Component-Whole*)

- The architecture uses *Position Features*, which specify the relative distance of each token to the two target nominals
- This allow the convolutional network to be position aware (critical for relation extraction)
- We map the relative distances (-1, 0, ...) to indices in a position embedding matrix.
  - It is important to have a minimal distance and a maximal distance (e.g. -30 ... 30)



# Neuronal Network Architecture – Part 1

- We lookup the word & position indices and merge the embeddings token-wise



# Neuronal Network Architecture – Part 2

