

# Bert

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📄 EMLO GPT 📄

- EMLO 📄 RNN
- GPT 📄 **transformer**

📄 Bert 📄 **transformer**

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1. 📄
  - 📄 NSP 📄
2. 📄
  - 📄
  - 📄 Bert 📄

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1. 📄 MLM 📄
  - 📄 mask 📄
  - 📄 15% 📄 80% 📄 mask 📄 10% 📄 10% 📄
  - 📄 bert 📄
2. 📄 NSP 📄
  - 📄
  - 📄 50% 📄 50% 📄

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📄 = **Token Embedding + Segment Embedding + Position Embedding**

- **Token Embedding** 📄 WordPiece 📄 "unhappiness" → "un", "##happiness" 📄
- **Segment Embedding** 📄 0 📄 1 📄
- **Position Embedding** 📄 512 📄 Token 📄

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- [CLS] 📄
- [SEP] 📄

## WordPiece

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1.
2.

$$\text{score}(s) = \log P(s) - (\log P(s_1) + \log P(s_2))$$

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- $P(s) \cdot s$
- $P(s_1) \cdot P(s_2)$