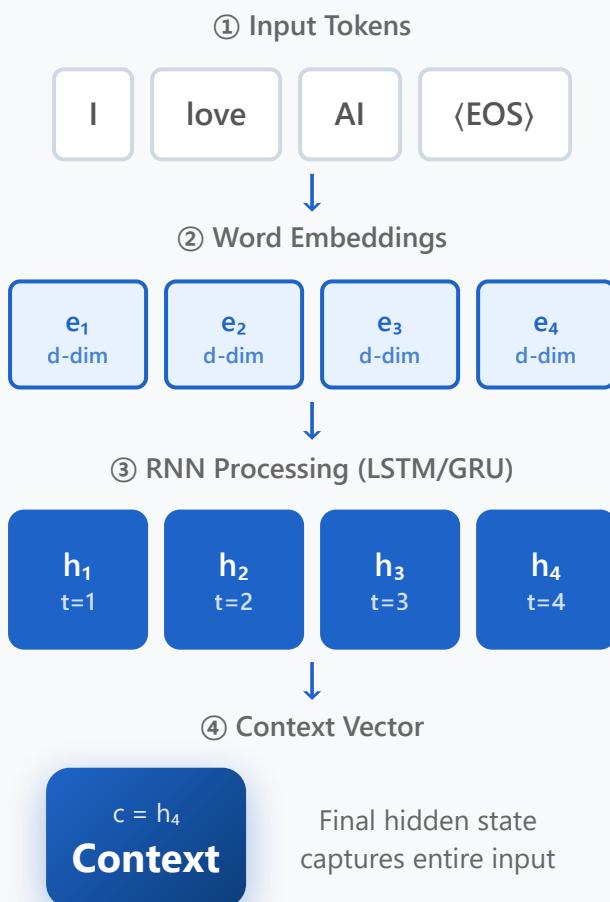




Encoder Processing Flow



Key Components

- **Embedding Layer:** Convert tokens to vectors
- **RNN:** LSTM or GRU for sequential processing
- **Hidden States:** Maintain temporal information



Computation

- Process input sequentially left-to-right
- Each step updates hidden state

$$h_t = f(x_t, h_{t-1})$$



Output

- **Context vector (c):** Final hidden state h_n
- Fixed-size representation of variable-length input
- Passed to decoder as initial state