



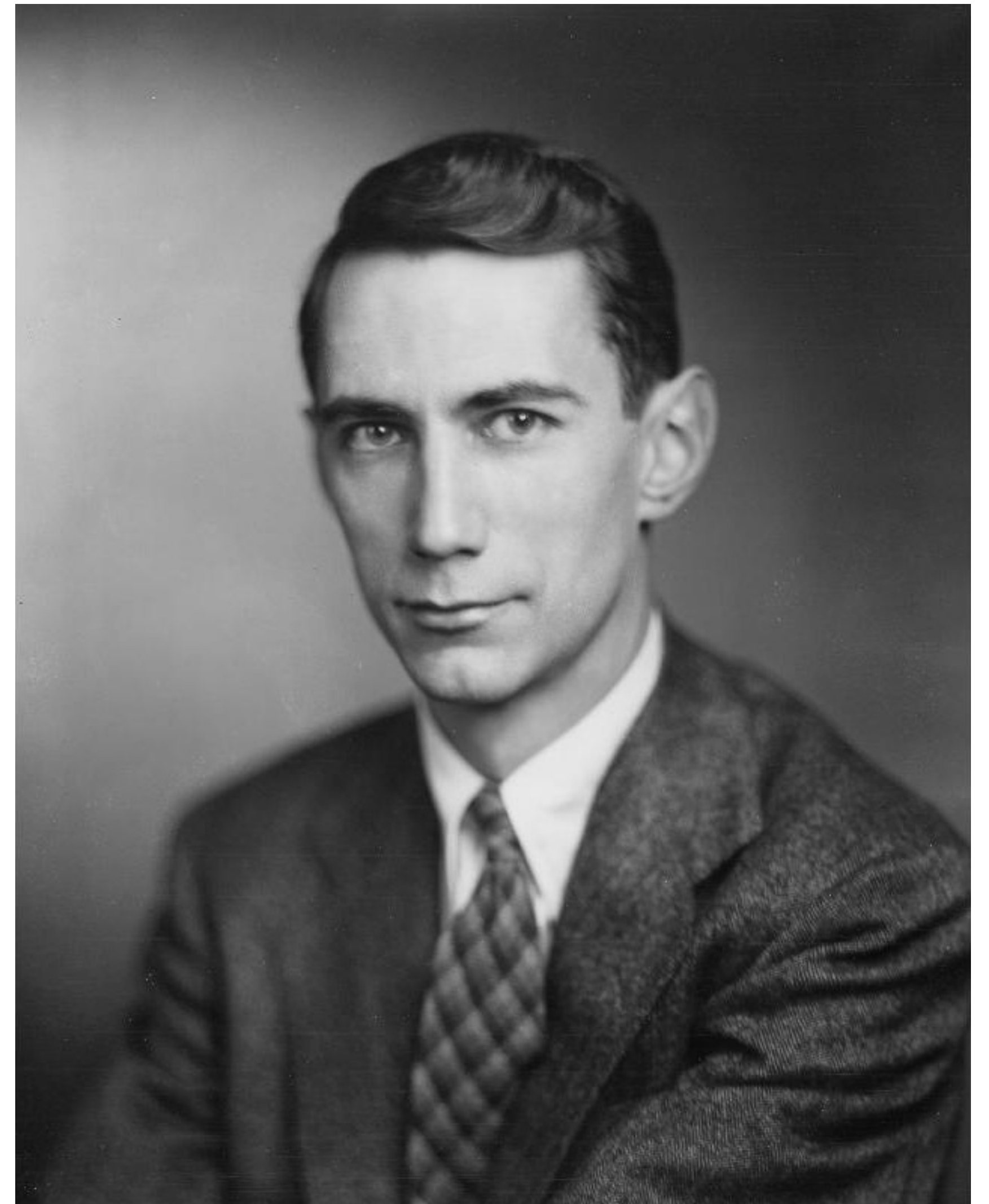
# Internet of Things

## 4. Information Theory

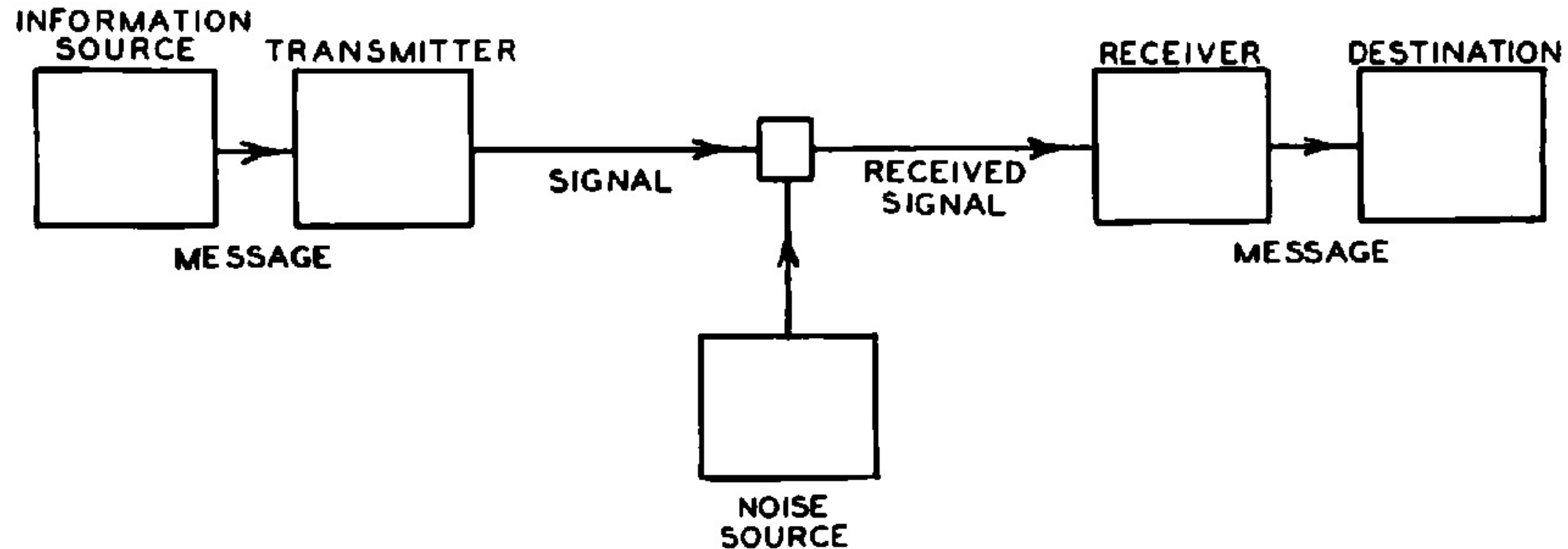
M.Sc. Computer Science 2024-2025

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- Claude Shannon (1916-2001) is the father of Information Theory.
- Before, communication was studied in a more qualitative, engineering-centric, and application-specific manner.



# A Mathematical Theory of Communication



- Shannon, Claude E. "A mathematical theory of communication." The Bell system technical journal 27.3 (1948): 379-423.

# Fundamental Concepts in Information Theory

Most common words should be shorter than less common ones.

If a piece of a sentence is misheard or misunderstood, the listener could still understand the meaning of the entire sentence.

The informative value of a communicated message depends on the degree to which the content of the message is surprising.

- Blackboard (personal notes from the 2015-2016 Information Theory course by Professor János Körner).
- Cover, Thomas M. Elements of information theory. Second edition, John Wiley & Sons, 2006.