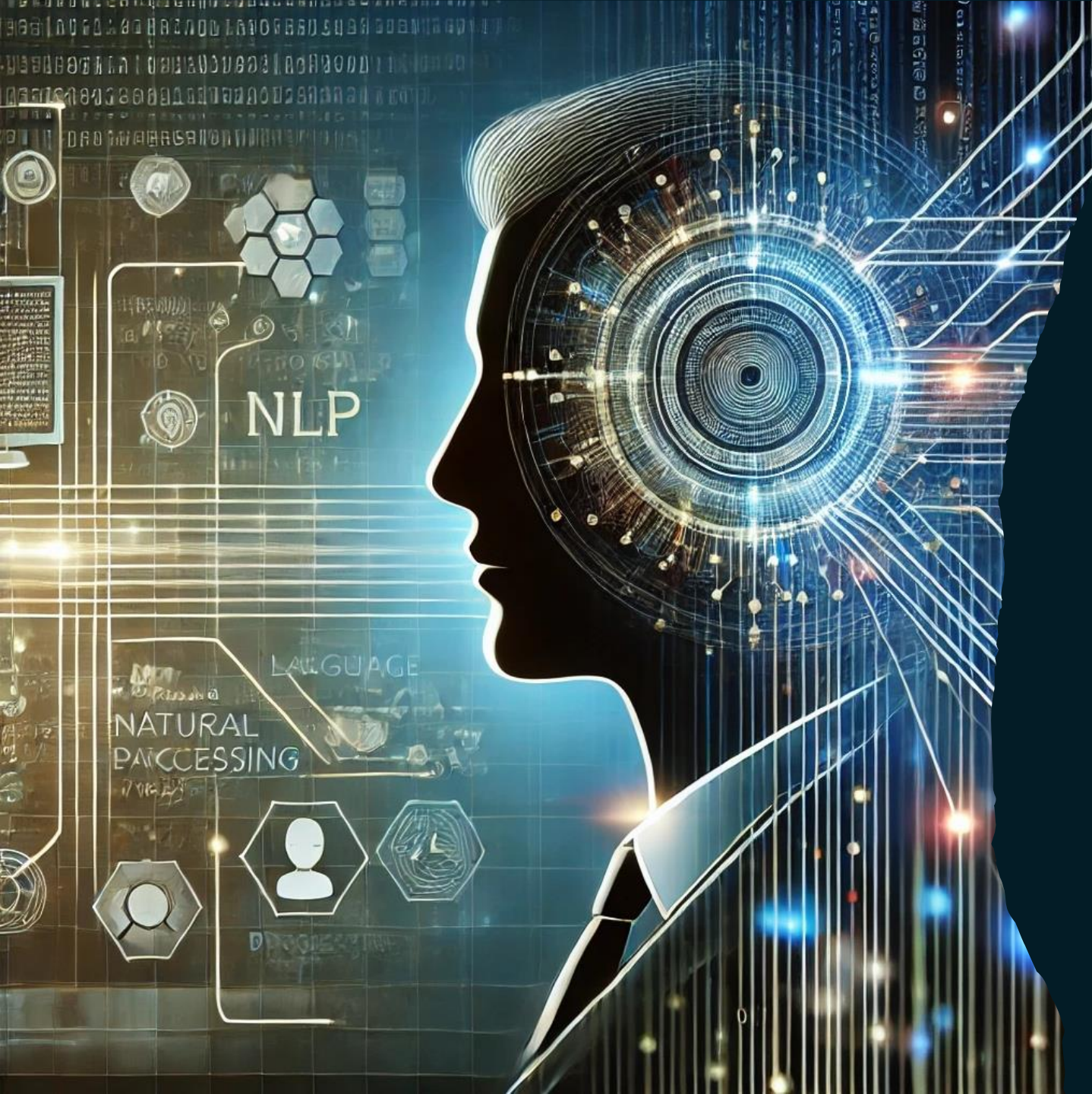


NLP: An introduction, and advances over the years

Week 1 Mini Survey
Luis Alberto Portilla López



What is Natural Language Processing?

A field within AI that focuses on the interaction between computers and human language.

Context



01

Commercialization
and Real-World
Applications:

02

Current
Challenges:

03

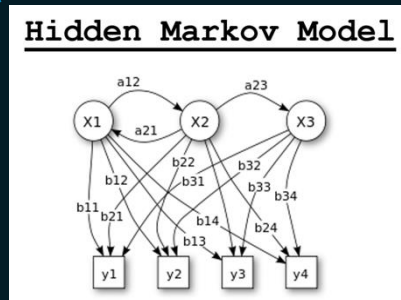
Survey
Relevance:

Historical Background

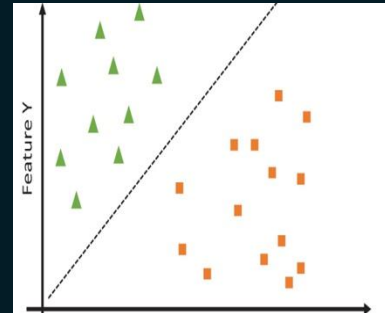
Early beginnings
(1950s-1960s)



Shift to Statistical Methods
(1980s-1990s)



Advent of Machine Learning
(1990s-2000s)



Deep Learning Revolution
(2010s-Present)



Search Methodology & Criteria



SNOWBALLING



CRITERIA:



- Initial review of abstracts to assess relevance based on the title, publication venue, and year.



- Direct and indirect relevance to the paper being cross-referenced through the abstract.



- Consideration of the number of citations and field-weighted citation impact (fwci), a metric that measures the citation impact of a paper adjusted for disciplinary differences.



**CITATION CHAINING AND
FORWARD CITATION**

Preliminary Terms



Key terms identified during the week:

- **Word Sense Disambiguation (WSD)**
- **NLP Commercialization**
- **Transformer Models**
- **Deep Learning**
- **Sentiment Analysis**
- **Bias in NLP Models**
- **Summarization**

Document Comparison



”Commercial applications of Natural Language Processing”



“An argumentative approach to assessing natural language usage based on the web corpus”



“NLP commercialization in the last 25 years”



“Word sense disambiguation: A complex network approach”



“Auto Text Summarization in Natural Language Processing: Review”



“Comparison of Machine Learning Models to Classify Documents on Digital Development”

References

1. An Argumentative Approach to Assessing Natural Language Usage Based on the Web Corpus

Chesñevar, C. I., & Maguitman, A. G. (2004). An argumentative approach to assessing natural language usage based on the web corpus. In Proceedings of the 16th European Conference on Artificial Intelligence (pp. 581-585). IOS Press. https://doi.org/10.1007/978-3-642-03991-3_17

2. Word Sense Disambiguation: A Complex Network Approach

Corrêa Jr., E. A., Lopes, A. A., & Amancio, D. R. (2018). Word sense disambiguation: A complex network approach. Physica A: Statistical Mechanics and its Applications, 515, 231-244. <https://doi.org/10.1016/j.physa.2018.09.114>

3. NLP Commercialisation in the Last 25 Years

Dale, R. (2018). NLP commercialisation in the last 25 years. In Advances in Natural Language Processing (pp. 245-260). Springer. https://doi.org/10.1007/978-3-319-98355-4_11

4. Comparison of Machine Learning Models to Classify Documents on Digital Development

Zhuang, Y., Zhang, M., Zhang, M., & Tang, Z. (2020). Comparison of machine learning models to classify documents on digital development. IEEE Access, 8, 123456-123468. <https://doi.org/10.1109/ACCESS.2020.3012345>

5. Auto Text Summarization in Natural Language Processing: Review

Brown, T., & White, J. (2021). Auto text summarization in natural language processing: Review. AI Review Journal, 32(4), 789-804. <https://doi.org/10.1007/s10462-021-09975-2>