

Chapter 15

A Critical Review of the Current State of Natural Language Processing in Mexico and Chile

César Aguilar

 <https://orcid.org/0000-0003-1940-9933>

Pontificia Universidad Católica de Chile, Chile

Olga Acosta

Singularyta SpA, Chile

ABSTRACT

This chapter presents a critical review of the current state of natural language processing in Chile and Mexico. Specifically, a general review is made regarding the technological evolution of these countries in this area of research and development, as well as the progress they have made so far. Subsequently, the remaining problems and challenges are addressed. Specifically, two are analyzed in detail here: (1) the lack of a strategic policy that helps to establish stronger links between academia and industry and (2) the lack of a technological inclusion of the indigenous languages, which causes a deep digital divide between Spanish (considered in Chile and Mexico as their official language) with them.

INTRODUCTION

This chapter presents a critical review about the evolution of natural language processing (NLP) in Mexico and Chile, in order to provide information that allows us to have an idea about the status of this line of research and development in both, as well as the challenges and future projections that can be currently identified. For the purposes of this work, these two countries are considered due to the strategic value they provide today to the relationship between academia and business, with a view to developing their own technological niche, which has a positive impact on the economy of both countries, and eventually become competitive internationally.

DOI: 10.4018/978-1-7998-4240-8.ch015

The justification of this text is justified by the shortage of academic papers that speak on the subject. In general, the issue has been approached from a business perspective, through reports that offer a summary view regarding the current state of language technologies in Latin America. However, as this chapter tries to show, the panorama is much more complex, especially if taken into account that the region is a multilingual area, where languages such as Spanish and Portuguese coexist with languages such as Nahuatl, Maya or the Mapuche, to mention just a few.

The methodology that has been used to obtain the information presented here consists of a review of several similar reports and documents generated by consultants and government entities, as well as some academics who have been interested in the subject. Therefore, without pretending to exhaust the problem, this chapter shows a description of the current state in NLP in both countries focusing on the following points:

- i) A general description of the projects carried out in both countries related to NLP.
- ii) A briefly point out some collaborative initiatives between the two countries related to this topic.
- iii) A summarized exposition about some advances made at the industrial level, emphasizing the potential that Chile and Mexico have to develop technologies that can innovate in the area.

Finally, some future challenges are identified, taking into account the strengths and weaknesses that exist today to invest in the development of language technologies in these two countries.

BACKGROUND

Nowadays, it is clear that technological development has transformed the science model that we inherited in the 20th century, especially when we focus on the relationship between theory and data. This has led to the creation of a **knowledge economy**, which is defined as the sector of the economy that uses information as a fundamental element to generate value and wealth through its transformation to knowledge. According to Powell and Snellman (2004), this kind of economy focuses on products and services based on knowledge-intensive activities, which contribute to accelerate the technical and scientific advance. Therefore, the key here is a greater reliance on intellectual capabilities than on physical inputs or natural resources.

The knowledge economy began in the second half of the 20th century, it is in the period from 1990 to the present that it has seen an exponential growth. As is known, this growth has led to financial restructuring, introducing a growing need to bet on technological innovation, particularly in the field of artificial intelligence.

For this reason, in recent years, economic clusters have been set up, specialized in the production of such technology on an industrial scale (e. g., the notorious cases of the United States and China), others in the development of investigations and specialized personnel for AI and similar areas (cases such as those of the European Union, Japan, India, Canada and so on), and finally groups of countries that have not yet made a full leap to the knowledge economy, and continue a role as producers of raw materials, just in the case of a region like Latin America.

23 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/a-critical-review-of-the-current-state-of-natural-language-processing-in-mexico-and-chile/259797

Related Content

Current Trends in Deep Learning Frameworks With Opportunities and Future Prospectus

Chitra A. Dhawale and Krtika Dhawale (2020). *Neural Networks for Natural Language Processing* (pp. 63-77).

www.irma-international.org/chapter/current-trends-in-deep-learning-frameworks-with-opportunities-and-future-prospectus/245083

Deep Learning Approach for Extracting Catch Phrases from Legal Documents

Kayalvizhi S. and Thenmozhi D. (2020). *Neural Networks for Natural Language Processing* (pp. 143-158).

www.irma-international.org/chapter/deep-learning-approach-for-extracting-catch-phrases-from-legal-documents/245089

Advancements in Deep Learning for Automated Dubbing in Indian Languages

Sasithradevi A., Shoba S., Manikandan E. and Chanthini Baskar (2023). *Deep Learning Research Applications for Natural Language Processing* (pp. 157-166).

www.irma-international.org/chapter/advancements-in-deep-learning-for-automated-dubbing-in-indian-languages/314141

Author Profiling Using Texts in Social Networks

Iqra Ameer and Grigori Sidorov (2021). *Handbook of Research on Natural Language Processing and Smart Service Systems* (pp. 245-265).

www.irma-international.org/chapter/author-profiling-using-texts-in-social-networks/263105

Recent Trends in Deepfake Detection

Kerenalli Sudarshana and Mylarareddy C. (2021). *Deep Natural Language Processing and AI Applications for Industry 5.0* (pp. 1-28).

www.irma-international.org/chapter/recent-trends-in-deepfake-detection/284200