Postgraduate Certificate

Natural Language Processing NLP with RNN

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Postgraduate Certificate
Natural Language Processing NLP with RNN

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/in/artificial-intelligence/postgraduate-certificate/natural-language-processing-nlp-rnn**

Index

01

Introduction

Deep Learning systems, a branch of Artificial Intelligence, have emerged in recent years in the field of Natural Language Processing (NLP). Their success lies in their ability to solve complex learning problems through multiple levels of representation and abstraction that help to make sense of data such as text, images or sounds. Through NLP, machines analyze documents and structure knowledge to automate tasks such as translation in multiple languages. Given the growing importance of these methods within companies, TECH implements a university program that will deal in detail with the latest advances in NLP with Natural Recurrent Networks (NRN). Also, it is taught in a 100% online format.

You will analyze consumer sentiment through intelligent algorithms, with the maximum scientific rigor of TECH: an institution at the forefront of technology"

A new study by prestigious researchers forecasts that the Natural Networks market will grow by 21.5% over the next few years, reaching an investment of 1.02 billion dollars. This reflects the relevance that this aspect of Deep Learning is acquiring in society. At this juncture, the development of neural architectures has enabled computers to learn to make informed decisions without human intervention, which opens up a wide range of applications. For example, Recurrent Neural Networks are used to develop virtual assistants or chatbots, which interact with users in natural language to provide the assistance they need.

In view of this reality, TECH is launching a Postgraduate Certificate in NLP Natural Language Processing with RNN. This program will provide students with the skills required to work as specialists in this field, with the highest parameters of efficiency and quality. Therefore, the syllabus will delve into the creation of the training dataset, as well as its proper storage. In this sense, the syllabus will analyze different applications of neural structures, such as the Encoder-Decoder Network for machine translation. In turn, the didactic materials will examine the handling of Transformer Models so that graduates will be able to capture complex relationships in data sequences.

It should be noted that to the methodology of the program is supportedby the revolutionary Relearning teaching system. TECH is a pioneer in this learning model, based on the reiteration of content so that students enjoy expanding their knowledge and skills in a natural, flexible and progressive way. The only thing students will need is an electronic device capable of connecting to the Internet, in order to enter the Virtual Campus and access the most dynamic academic resources on the market.

This **Postgraduate Certificate in Natural Language Processing NLP with RNN** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical cases presented by experts in Natural Language Processing NLP with RNN
- The graphic, schematic and practical contents of the program provide Sports and practical information on those disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Do you want to optimize your practical programming skills? With this course you will handle the most innovative Deep Learning libraries"

You will delve into the use of Attention Mechanisms, to improve the accuracy and robustness of your models"

You will control the Encoder-Decoder to incorporate neural machine translation into your projects.

TECH is a pioneer in the Relearning methodology, which will provide you with a flexible and progressive learning experience.

The program's teaching staff includes professionals from the sector who contribute their work experience to this program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

With this program, graduates will acquire a solid understanding of how Recurrent Neural Networks work. They will also equip their practice with innovative tools to build these architectures and model data streams. Throughout the university program, students will acquire practical skills that will lead them to correctly handle the Transformers. library. In this way, professionals will integrate state-of-the-art models in Natural Language Processing into their projects. They will also be highly qualified to provide solutions in tasks such as sentiment analysis in writing, to evaluate customer opinions on social networks.

This university program will boost your career path by equipping you with the tools required to overcome today's challenges in Natural Language Processing"

General Objectives

- Fundamentalize the key concepts of mathematical functions and their derivatives
- Apply these principles to deep learning algorithms to learn automatically
- Examine the key concepts of Supervised Learning and how they apply to neural network models
- Analyze the training, evaluation and analysis of neural network models
- Fundamentals of the key concepts and main applications of deep learning
- Implement and optimize neural networks with Keras
- Develop expertise in the training of deep neural networks
- Analyze the optimization and regularization mechanisms required for deep neural network training

Specific Objectives

- Generating text using recurrent neural networks
- Train an encoder-decoder network to perform neural machine translation
- Developing a practical application of natural language processing with RNN and attention
- Understand the limitations and challenges in NLP, such as language ambiguity or bias in data sets

Resources such as explanatory videos or case studies will bring you closer to the working reality of implementing Transformational Models"

03

Course Management

With the firm objective of providing a university program defined by its excellent quality, TECH brings together a first class teaching staff for both the design and delivery of this Postgraduate Certificate. These experts are specialized in Artificial Intelligence and accumulate a vast professional career in fields such as *Deep Learning*. Thanks to this, they have remained at the forefront of all trends that have occurred in this technological field. In this way, students will enjoy an educational and immersive process that adapts to the requirements of the labor market.

The teachers of this program will provide you with the latest trends related to Data Cleaning and Transformation in Deep Learning"

Management

Mr. Gil Contreras, Armando

- Lead Big Data Scientist at Johnson Controls
- Data Scientist-Big Data at Opensistemas S.A
- Fund Auditor at Creatividad and Tecnología (CYTSA)
- Public Sector Auditor at PricewaterhouseCoopers Auditors
- Master's Degree in Data Science from the Centro Universitario de Tecnología y Arte
- MBA in International Relations and Business from the Centro de Estudios Financieros (CEF)
- Bachelor's Degree in Economics from Instituto Tecnológico de Santo Domingo

Professors

Ms. Delgado Feliz, Benedit

- Administrative Assistant and Electronic Surveillance Operator for the National Drug Control Directorate (DNCD)
- Customer Service at Cáceres y Equipos
- Claims and Customer Service at Express Parcel Services (EPS)
- Microsoft Office Specialist at the National School of Informatics (Escuela Nacional de Informática)
- Social Communicator from the Catholic University of Santo Domingo

Ms. Gil de León, María

- Co-Director of Marketing and Secretary at RAÍZ Magazine
- Copy Editor at Gauge Magazine
- Stork Magazine reader from Emerson College
- B.A. in Writing, Literature and Publishing from Emerson College

Mr. Matos Rodríguez, Dionis

- Data Engineer at Wide Agency Sodexo
- Data Consultant at Tokiota
- Data Engineer at Devoteam
- BI Developer at Ibermática
- Applications Engineer at Johnson Controls
- Database Developer at Suncapital España
- Senior Web Developer at Deadlock Solutions
- QA Analyst at Metaconxept
- Master's Degree in Big Data & Analytics by EAE Business School
- Master's Degree in Systems Analysis and Design
- Bachelor's Degree in Computer Engineering from APEC University

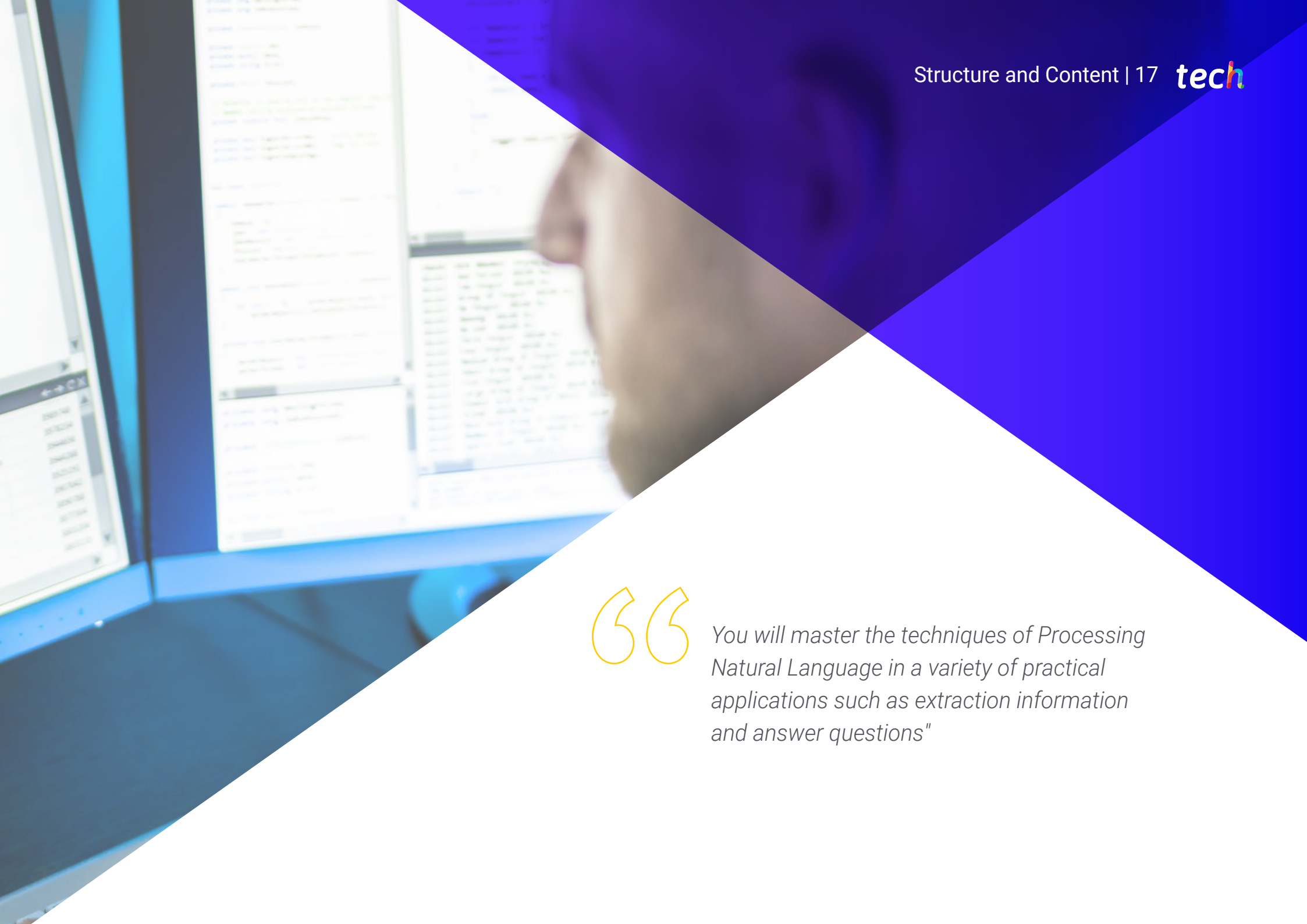
Mr. Villar Valor, Javier

- Director and Founding Partner of Impulsa2
- Chief Operations Officer (COO) at Summa Insurance Brokers
- Director of Transformation and Operational Excellence at Johnson Controls
- Master in Professional Coaching
- Executive MBA from Emlyon Business School, France
- Master's Degree in Quality Management from EOI, Spain
- Computer Engineering from the Universidad Acción Pro-Education and Culture (UNAPEC)

04

Structure and Content

Developed by Deep Learning professionals, this curriculum will give graduates a thorough understanding of Natural Language Processing with Recurrent Neural Networks. With a practical approach, didactic content will focus on factors such as text generation, model training or data set creation at that stage. Also, the syllabus will address the importance of the Cleaning and Transformation of information, to improve the effectiveness of the resulting systems. The course will analyze Deep Learning Attention Mechanisms, allowing students to manage long sequences and capture long-term relationships.



You will master the techniques of Processing Natural Language in a variety of practical applications such as extraction information and answer questions"

Module 1. Natural Language Processing (NLP) with Natural Recurrent Networks (NRN) and Attention

1.1. Text Generation Using RNN
- 1.1.1. Training an RNN for Text Generation
- 1.1.2. Natural Language Generation with RNN
- 1.1.3. Text Generation Applications with RNN

1.2. Training Data Set Creation
- 1.2.1. Preparation of the Data for Training an RNN
- 1.2.2. Storage of the Training Dataset
- 1.2.3. Data Cleaning and Transformation

1.3. Sentiment Analysis
- 1.3.1. Classification of Opinions with RNN
- 1.3.2. Detection of Themes in Comments
- 1.3.3. Sentiment Analysis with Deep Learning Algorithms

1.4. Encoder-decoder Network for Neural Machine Translation
- 1.4.1. Training an RNN for Machine Translation
- 1.4.2. Use of an Encoder-decoder Network for Machine Translation
- 1.4.3. Improving the Accuracy of Machine Translation with RNNs

1.5. Attention Mechanisms
- 1.5.1. Application of Care Mechanisms in RNN
- 1.5.2. Use of Care Mechanisms to Improve the Accuracy of the Models
- 1.5.3. Advantages of Attention Mechanisms in Neural Networks

1.6. Transformer Models
- 1.6.1. Using TransformerModels for Natural Language Processing
- 1.6.2. Application of Transformer Models for Vision
- 1.6.3. Advantages of Transformers Models

1.7. Transformers for Vision
- 1.7.1. Use of Transformer Models for Vision
- 1.7.2. Image Data Preprocessing
- 1.7.3. Training a Transformers Model for Vision

1.8. Hugging Face Transformer Library
  1.8.1. Using the Hugging Face Transformers Library
  1.8.2. Application of the Hugging Face Transformers Library
  1.8.3. Advantages of the Hugging Face Transformers library
1.9. Other Transformers Libraries. Comparison
  1.9.1. Comparison between different TransformersLibraries
  1.9.2. Use of the other Transformers Libraries
  1.9.3. Advantages of the other Transformers Libraries
1.10. Development of an NLP Application with RNN and Attention. Practical Application
  1.10.1. Development of a Natural Language Processing Application with RNN and Attention
  1.10.2. Use of RNN, Attention Mechanisms and Transformers Models in the Application
  1.10.3. Evaluation of the Practical Application

Are you looking for a university program that can be harmonized with your daily obligations? You are facing the right program, because TECH adapts to your circumstances"

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, students will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

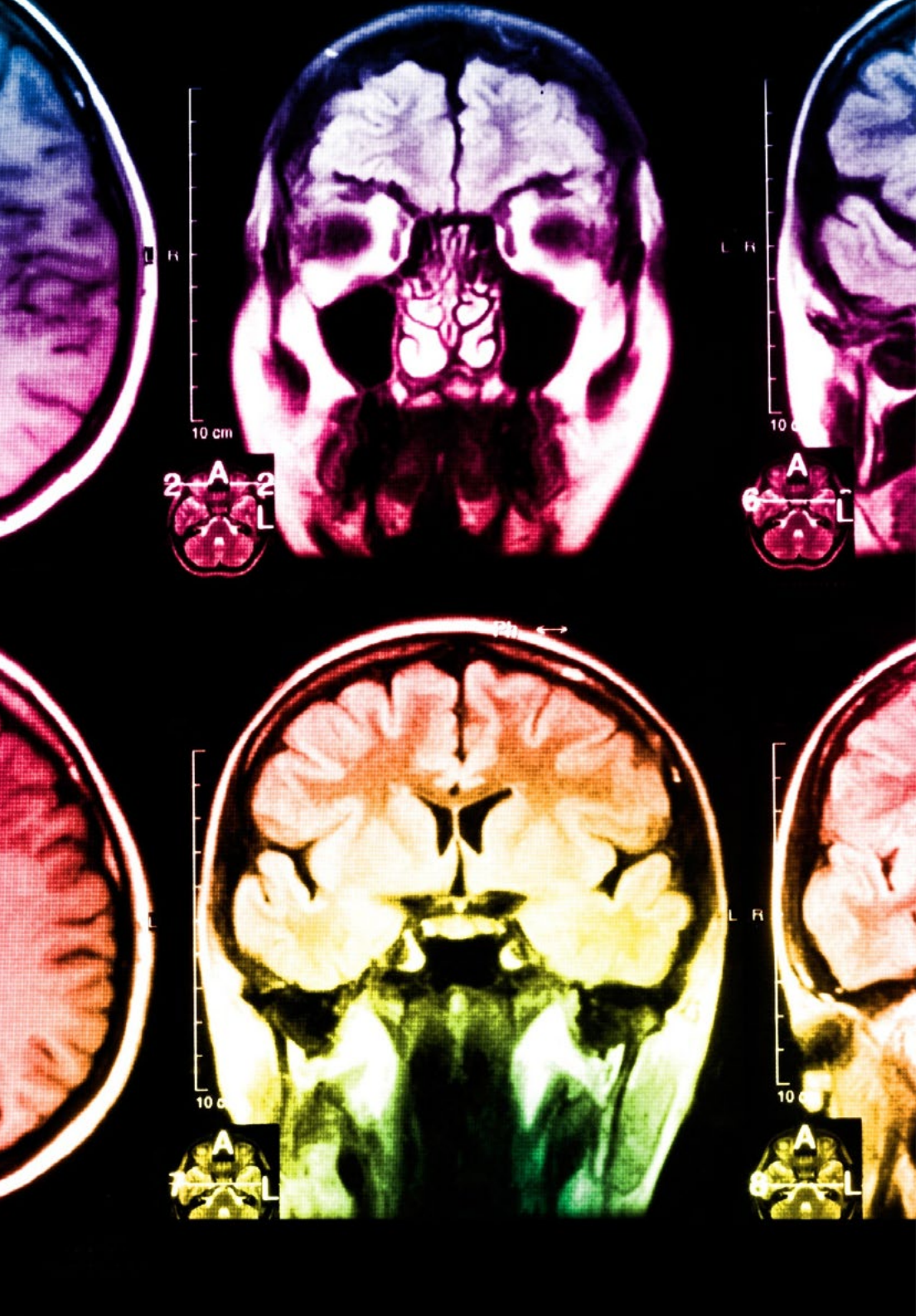
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

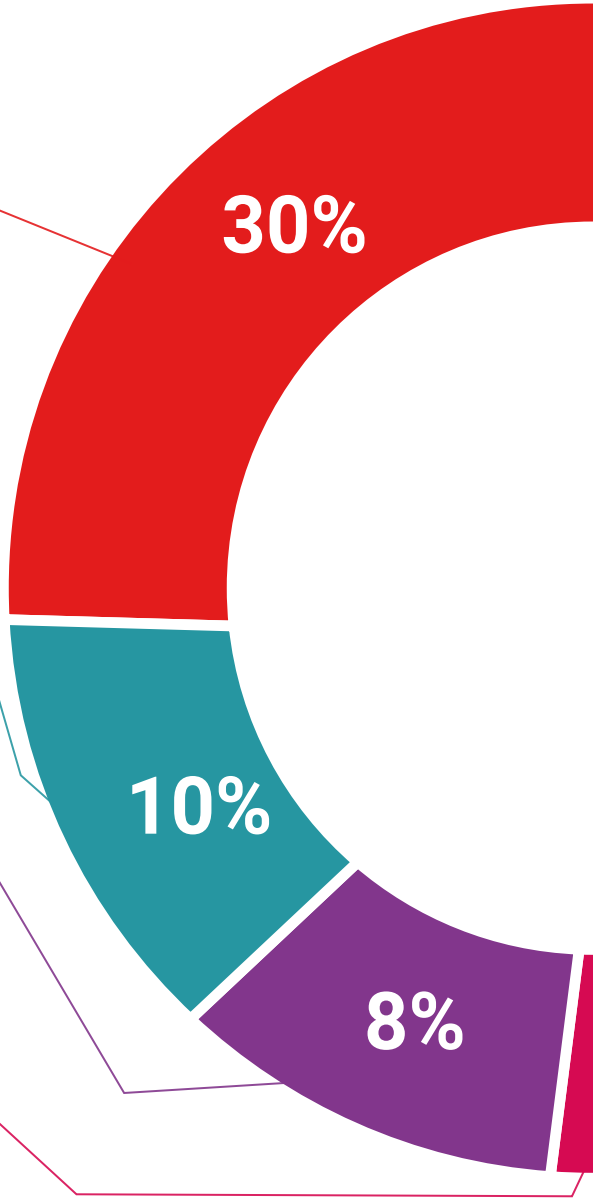
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

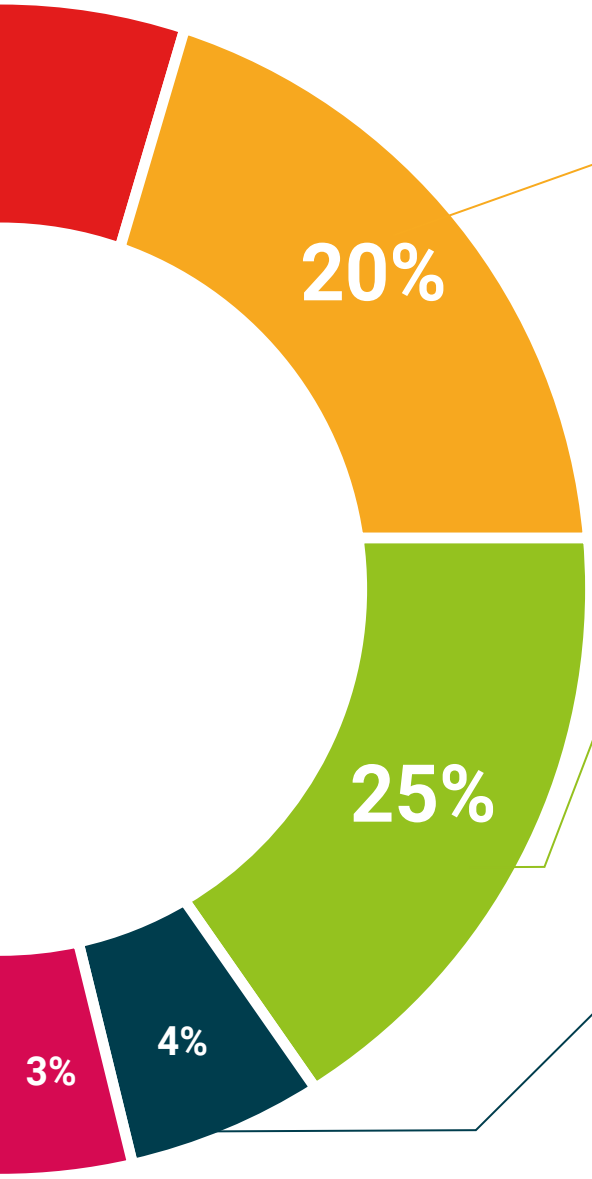
Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

06

Certificate

The Postgraduate Certificate in Natural Language Processing NLP with RNN guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This **Postgraduate Certificate in Natural Language Processing NLP with RNN** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Natural Language Processing NLP with RNN**

Official Nº of Hours: **150 h.**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Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Natural Language Processing NLP with RNN

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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