Postgraduate Certificate

Model Customization with TensorFlow

tech global university

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Postgraduate Certificate
Model Customization with TensorFlow

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/pk/artificial-intelligence/postgraduate-certificate/model-customization-tensor-flow**

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01

Introduction

For the development of Artificial Intelligence and Deep Learning, the TensorFlow tool plays a very relevant role. This open source library allows experts to build and train Neural Networks to detect patterns used by humans. In this way, professionals create advanced algorithms that serve a wide range of applications in various areas. An example of this is that various industries use them for the analysis of large volumes of data and the prediction of results. For example, it is used in the financial field to predict market behavior. In view of its multiple benefits, TECH is launching a fully online university program that will thoroughly examine the training of models with TensorFlow.

With this Relearning-based Postgraduate Certificate, you will create models for natural language processing that can analyze and understand text in different languages"

Model Customization with Tensorflow is crucial to ensure the success of Machine Learning projects. This system gives professionals the opportunity to adapt systems to the specific needs of the plans, while at the same time improving their performance and performing tests from different prisms with the aim of solving problems. In this situation, professionals need to update their content in this area frequently to stay at the forefront of technology and propose highly innovative solutions. However, this updating can become a challenge for experts due to the scarcity of specific teaching programs in this area.

For this reason, TECH implements the most complete and renewed Postgraduate Certificate in Model Personalization with TensorFlow in the academic market. Developed by specialists in *Deep Learning*, the educational itinerary will delve into key concepts such as the use of NumPy arrays, data processing or the construction of information flows with tf.data. Graduates will be able to immediately add the most cutting-edge techniques to their daily practice in order to accelerate the learning and prediction process, which is particularly important in real-time applications. In addition, throughout the program, students will gain new skills for optimizing graphs with operations and building custom models.

The program is delivered in a completely online mode, which allows students to distribute the course load according to their needs. In addition, the methodology in which it is taught, *Relearning*, is based on the repetition of fundamental concepts throughout the syllabus, so that developers will integrate the knowledge in a natural, efficient and progressive way, without the need to invest extra hours in memorization.

This **Postgraduate Certificate in Model Customization with TensorFlow** 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 Model Customization with TensorFlow
- 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

You will control Keras Preprocessing Layers through 180 hours of the best online teaching"

Do you want to experience a leap in quality in your career? This program will enrich your praxis with the most advanced API techniques for data serialization"

You will access knowledge in which you will learn at your own pace thanks to the Relearning teaching system implemented by TECH.

You will achieve your educational objectives thanks to TECH's didactic tools, including interactive summaries of each module.

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.

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Objectives

Through this Postgraduate Certificate, graduates will be highly qualified for Model Personalization with TensorFlow. Upon completion of the program, professionals will build the most accurate systems to successfully address various problems and challenges in the field of Machine Learning. In this sense, students will implement advanced model optimization techniques and improve the interpretation of the data obtained. They will also effectively use the application to capture meaningful patterns and features to predict more accurate results.

You will optimize your skills in Model Personalization with TensorFlow in just 6 weeks, thanks to this exclusive program"

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

- Determine how to use the TensorFlow API to define custom functions and graphics and custom graphs
- Discuss the TensorFlow *Datasets* project and how it can be used to facilitate access to preprocessed datasets

TECH's 100% online methodology will allow you to enjoy effective learning without leaving your own home"

03

Course Management

For both the design and delivery of this Postgraduate Certificate in Model Personalization with TensorFlow, TECH has brought together a prestigious teaching staff. These professionals are highly specialized in Deep Learning, considered the most revolutionary branch of Artificial Intelligence. In this regard, these experts have accumulated a long career that endorses them as more than authoritative voices in this technological field. Therefore, students will have the guarantees they require to update their knowledge with the support of a teaching staff that will be available at all times to resolve any doubts that may arise.

The teachers of this program are up to date on trends in the use of TFRecord files for Model training"

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

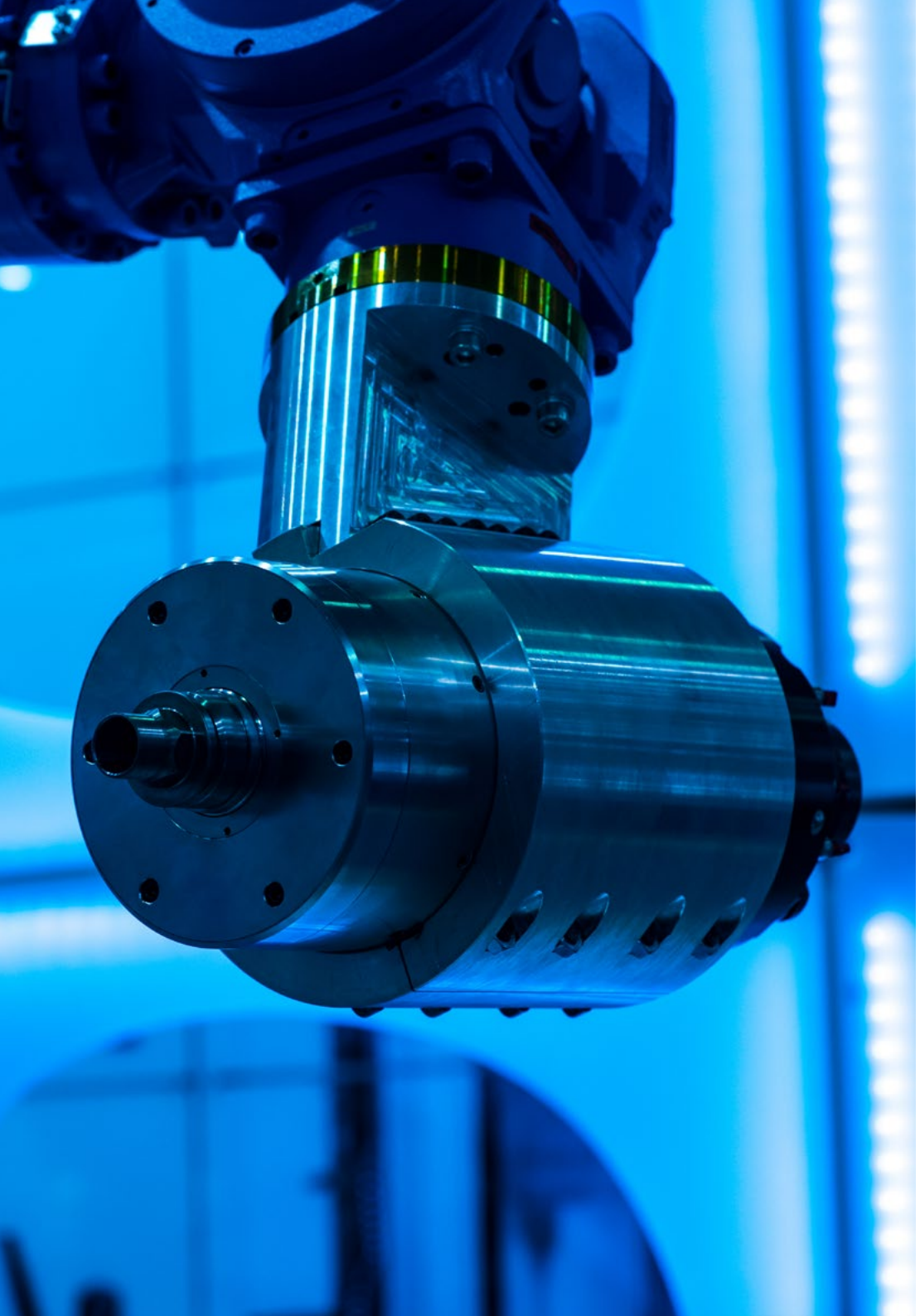
Professors

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

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)



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

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

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Structure and Content

Under an eminently practical approach, this academic path will provide students with a solid understanding of Model Customization using TensorFlow. To this end, the academic materials will delve into fundamental issues such as operations with graphs or the management of training parameters. Throughout the program, students will acquire new skills for optimal data manipulation based on the tf.data API. In addition, the syllabus will analyze the construction of the preprocessing pipeline with Keras, with which graduates will automate workflows to optimize the performance of learning algorithms.

This university program will make you a more complete expert, prepared to face the current challenges in Deep Learning Model Training"

Module 1. Model Customization and training with TensorFlow

1.1. TensorFlow
- 1.1.1. Using the TensorFlow Library
- 1.1.2. Model Education with TensorFlow
- 1.1.3. Operations with Graphs in TensorFlow

1.2. TensorFlow and NumPy
- 1.2.1. NumPy Computational Environment for TensorFlow
- 1.2.2. Using NumPy Arrays with TensorFlow
- 1.2.3. NumPy Operations for TensorFlow Graphs

1.3. Model Customization and Training Algorithms
- 1.3.1. Building Custom Models with TensorFlow
- 1.3.2. Management of Training Parameters
- 1.3.3. Use of Optimization Techniques for Training

1.4. TensorFlow Functions and Graphs
- 1.4.1. Functions with TensorFlow
- 1.4.2. Use of Graphs for Model Training
- 1.4.3. Optimization of Graphs with TensorFlow Operations

1.5. Data Loading and Preprocessing with TensorFlow
- 1.5.1. Loading of Datasets with TensorFlow
- 1.5.2. Data Preprocessing with TensorFlow
- 1.5.3. Using TensorFlow Tools for Data Manipulation

1.6. The tf.data API
- 1.6.1. Using the tf.data API for Data Processing
- 1.6.2. Constructing Data Streams with tf.data
- 1.6.3. Use of the tf.data API for Training Models

1.7. The TFRecord Format
- 1.7.1. Using the TFRecord API for Data Serialization
- 1.7.2. Loading TFRecord Files with TensorFlow
- 1.7.3. Using TFRecord Files for Training Models

1.8. Keras Preprocessing Layers
- 1.8.1. Using the Keras Preprocessing API
- 1.8.2. Construction of Preprocessing Pipeline with Keras
- 1.8.3. Using the Keras Preprocessing API for Model Training

1.9. The TensorFlow Datasets Project
- 1.9.1. Using TensorFlow Datasets for Data Loading
- 1.9.2. Data Preprocessing with TensorFlow Datasets
- 1.9.3. Using TensorFlow Datasets for Model Training

1.10. Construction of a Deep Learning Application with TensorFlow. Practical Application
- 1.10.1. Building a Deep Learning App with TensorFlow
- 1.10.2. Training a model with TensorFlow
- 1.10.3. Use of the Application for the Prediction of Results

Thanks to the most efficient pedagogical methodology, you will expand your knowledge in a precise way. And in just 6 weeks!"

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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

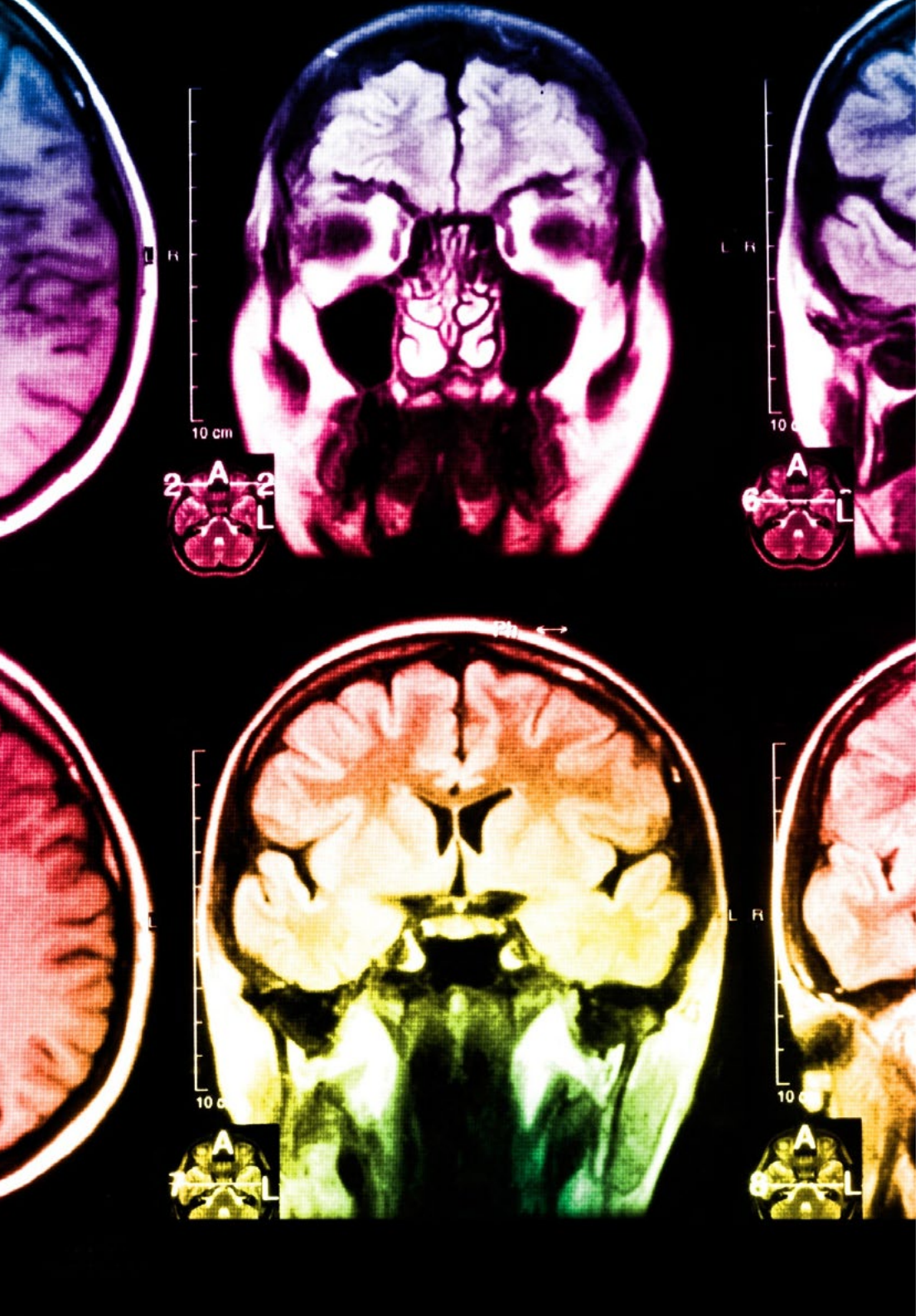
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

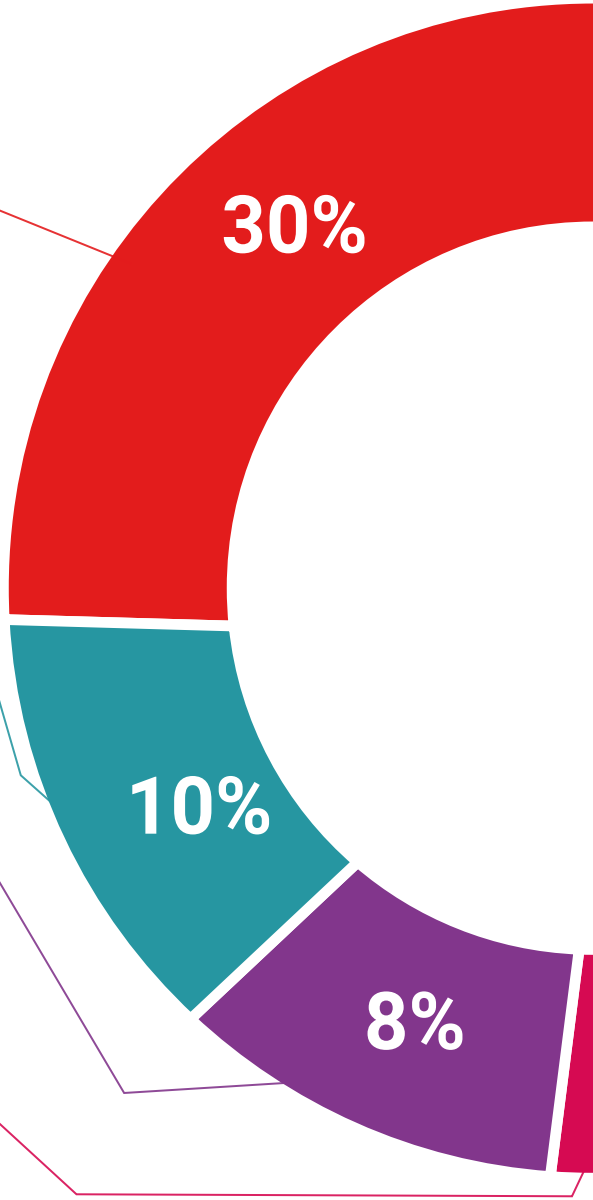
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

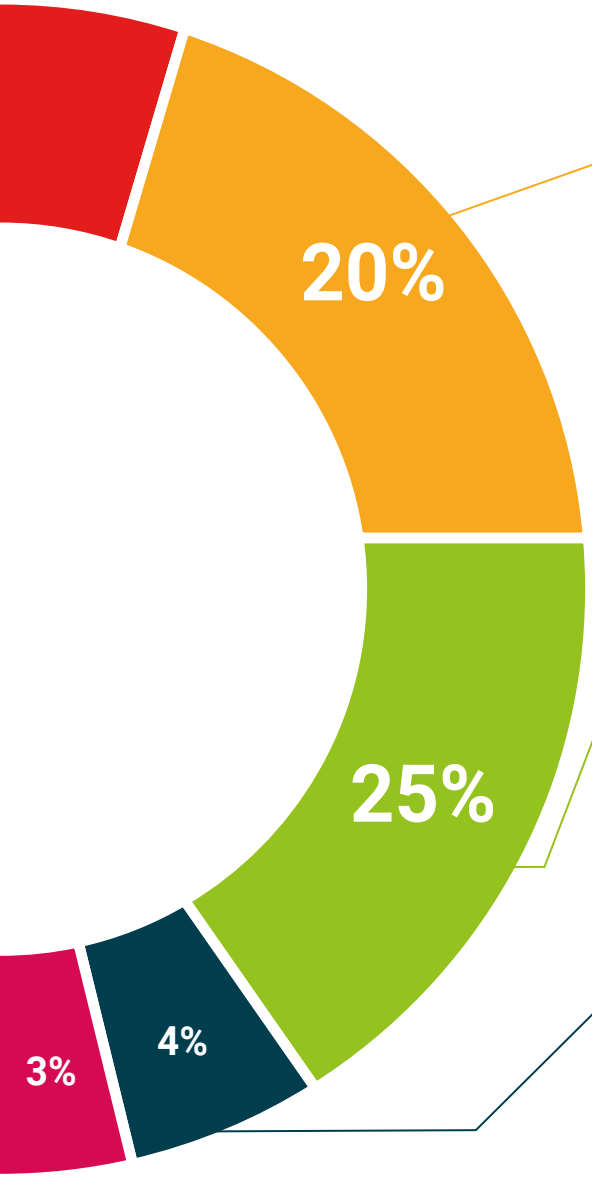
Practising Skills and Abilities

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 Model Customization with TensorFlow guarantees students, in addition to the most rigorous and up-to-date education, access to a certificate issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Certificate in Model Customization with TensorFlow** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Model Customization with TensorFlow**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**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Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Model Customization with TensorFlow

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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