Postgraduate Certificate

Big Data Analysis in the Healthcare Sector with Artificial Intelligence

tech global university

Postgraduate Certificate
Big Data Analysis in the Healthcare Sector with Artificial Intelligence

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

Website: www.techtitute.com/us/artificial-intelligence/postgraduate-certificate/big-data-analysis-healthcare-sector-artificial-intelligence

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01
Introduction

Efficient healthcare data retrieval with Artificial Intelligence (AI) is essential to ensure fast and accurate access to medical information in clinical settings. These systems take advantage of clinical context factors (such as the patient's history or current condition) to personalize search results and tailor recommendations. In addition, the implementation of advanced resources such as virtual assistants or chatbots allows patients to make queries in a natural way and receive specific answers. To optimize these procedures, practitioners must have a thorough understanding of advanced retrieval methods related to healthcare data. For this reason, TECH implements an online university program that will provide the most innovative tools to achieve this.

This Postgraduate Certificate will help you to advance unstoppably in your professional growth as a practitioner specialized in Big Data and its medical applications"

Big Data Analytics in the healthcare sector with Machine Learning offers numerous benefits for both healthcare and biomedical research. Among them, its ability for telemedicine and remote assistance stands out. Artificial Intelligence is also useful for identifying risk factors and trends in the health of the population. In this way, medical personnel can implement preventive interventions or policies in a more effective way. Moreover, this intelligent tool favors better resource management in the medical environment. It helps to predict the demand for medical care, optimize the allocation of personnel and reduce operating costs.

In view of this, TECH is developing a Postgraduate Certificate that will address in detail the fundamentals of *Big Data* in the health sector through Artificial Intelligence. The curriculum will delve into the implementation of tools and protocols to ensure the quality of data used in clinical analysis. At the same time, the syllabus will delve into the evaluation of quality in health data analysis, using innovative indicators. Emphasis will also be placed on data mining protocols, with the aim of enabling graduates to make more reliable diagnoses when studying a wide range of clinical and biomedical information.

On the other hand, this program will provide students with a solid theoretical foundation, enabling them to apply it in real situations, thanks to the leadership and support of a distinguished faculty, composed of experts with extensive professional experience. In this way, TECH offers students the exclusive *Relearning* methodology, an innovative pedagogical teaching system based on the reiteration of essential concepts, thus guaranteeing an efficient assimilation of knowledge. The only thing professionals will need is an electronic device capable of accessing the Internet to access the Virtual Campus and enjoy the most dynamic didactic material on the academic market.

This **Postgraduate Certificate in Big Data Analysis in the Healthcare Sector with Artificial Intelligence** contains the most complete and up-to-date program on the market. The most important features include:

- Development of practical cases presented by experts in Artificial Intelligence in Clinical Practice
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used 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 adopt creative health communication tactics and your patients will be highly informed about their health"

You will design collection and preprocessing strategies that guarantee the confidentiality of medical information.

" *You will implement effective governance frameworks to ensure ethical and responsible management of clinical data"*

You will achieve your objectives thanks to TECH's didactic tools, including explanatory videos and interactive summaries.

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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

Through this program, with a duration of 180 hours, the graduates will strengthen their knowledge for the acquisition, filtering and preprocessing of medical data. This will enable professionals to have a work practice characterized by quality and integrity. The experts will ensure the security of medical information at all times, applying the most effective security protocols. In addition, they will handle the main *Big Data* tools to monitor the spread of infectious diseases in real time.

" *A program that will allow you to overcome specific challenges related to data visualization and security of medical information"*

General Objectives

- Understand the theoretical foundations of Artificial Intelligence
- Study the different types of data and understand the data lifecycle
- Evaluate the crucial role of data in the development and implementation of AI solutions
- Delve into algorithms and complexity to solve specific problems
- Explore the theoretical basis of neural networks for *Deep Learning* development
- Analyze bio-inspired computing and its relevance in the development of intelligent systems
- Analyze current strategies of Artificial Intelligence in various fields, identifying opportunities and challenges
- Critically evaluate the benefits and limitations of AI in healthcare, identifying potential pitfalls and providing an informed assessment of its clinical application
- Recognize the importance of collaboration across disciplines to develop effective AI solutions
- Gain a comprehensive perspective on emerging trends and technological innovations in AI applied to healthcare
- Acquire solid knowledge in medical data acquisition, filtering, and preprocessing
- Understand the ethical principles and legal regulations applicable to the implementation of AI in medicine, promoting ethical practices, fairness, and transparency
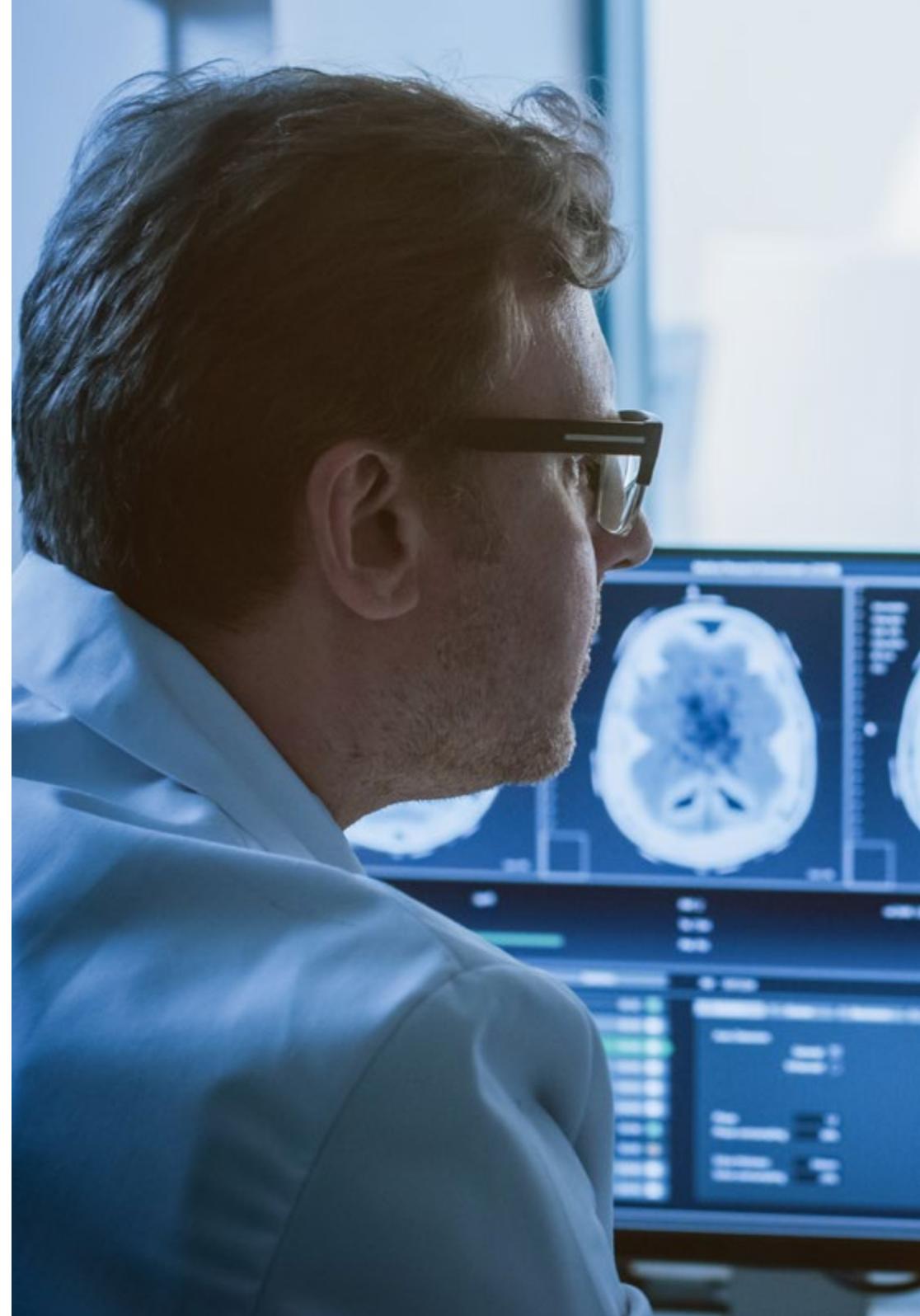
Specific Objectives

- Acquire solid knowledge in medical data procurement, filtering, and preprocessing
- Develop a clinical approach based on data quality and integrity in the context of privacy regulations
- Apply the acquired knowledge in use cases and practical applications, enabling to understand and solve industry-specific challenges, from text analytics to data visualization and medical information security
- Define *Big Data* techniques specific to the healthcare sector, including the application of machine learning algorithms for analytics
- Employ *Big Data* procedures to track and monitor the spread of infectious diseases in real time for effective response to epidemics

No rigid schedules or evaluation timelines. That's what this TECH university program is all about!"

03

Course Management

This Postgraduate Certificate has the support of a distinguished and highly qualified faculty, with extensive experience in the field of *Big Data* Analysis in the health sector with Artificial Intelligence. Their trajectory in various leading hospitals is reflected throughout the program, which has included the most innovative procedures that they themselves apply in their daily clinical practice. Therefore, in its firm commitment to provide quality education, TECH guarantees students a deep and complete knowledge, as well as the most effective strategies for the full development of their capabilities.

"
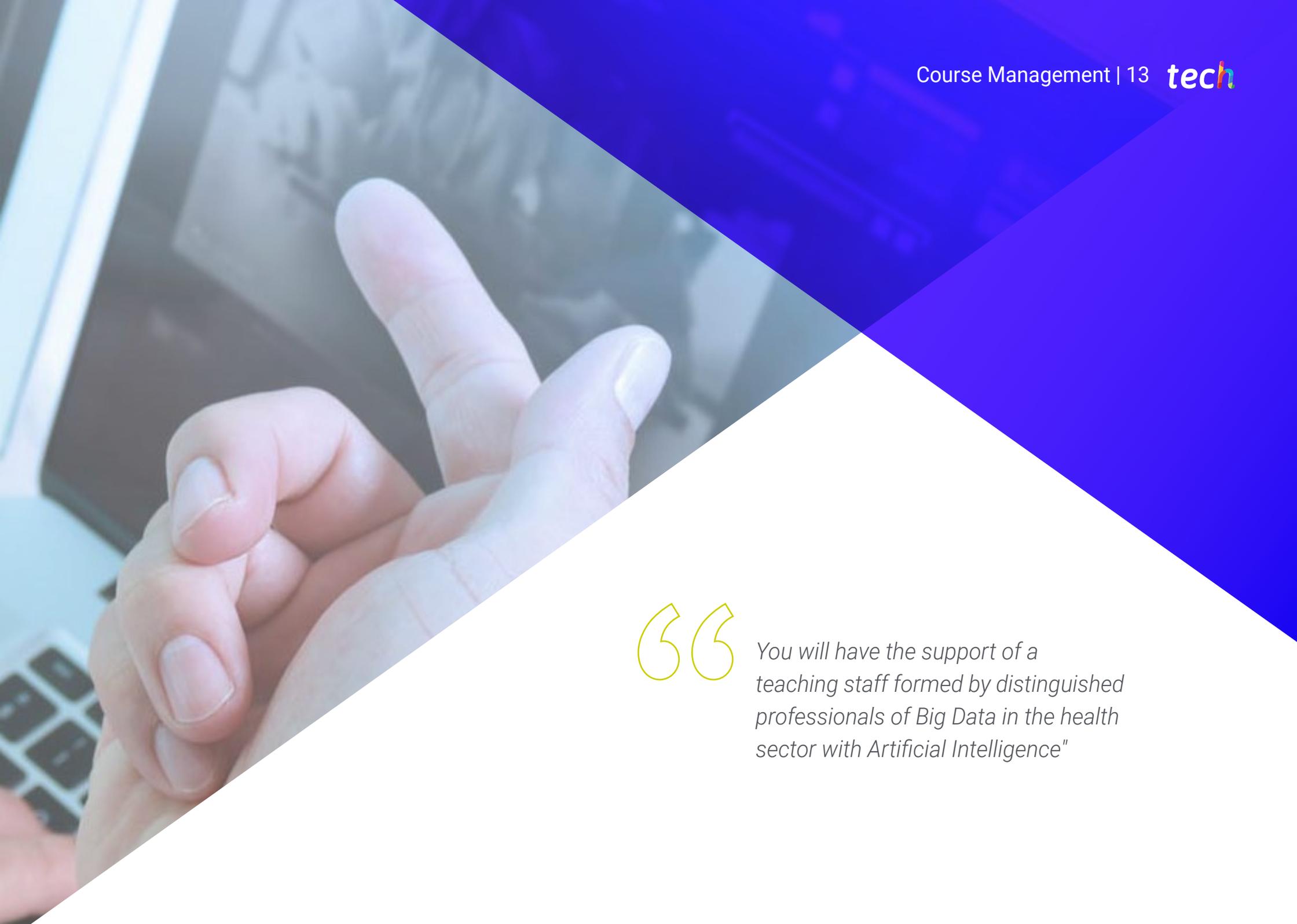
You will have the support of a teaching staff formed by distinguished professionals of Big Data in the health sector with Artificial Intelligence"

Management

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shephers GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- Ph.D. in Psychology from the University of Castilla - La Mancha
- Ph.D. in Economics, Business and Finance from the Camilo José Cela University
- Ph.D. in Psychology from University of Castilla – La Mancha
- Máster in Executive MBA por la Universidad Isabel I
- Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Master's Degree in Advanced Information Technologies from the University of Castilla - la Mancha
- Member of: SMILE Research Group

Mr. Martín-Palomino Sahagún, Fernando

- *Chief Technology Officer* and R+D+i *Director* at AURA Diagnostics (medTech)
- Business Development at SARLIN
- Operations Director at Alliance Diagnostics
- Innovation Director at Alliance Diagnostics
- *Chief Information Officer* at Alliance Medical
- *Field Engineer & Project Management* in Digital Radiology at Kodak
- MBA at Polytechnic University of Madrid
- *Executive Master's Degree* in Marketing and Sales, ESADE
- Telecommunications Engineer from the University Alfonso X El Sabio

Professors

Dr. Carrasco González, Ramón Alberto

- Computer Science and Artificial Intelligence Specialist
- Researcher
- Head of *Business Intelligence* (Marketing) at Caja General de Ahorros de Granada and Banco Mare Nostrum
- Head of Information Systems (*Data Warehousing and Business Intelligence*) at Caja General de Ahorros de Granada and Banco Mare Nostrum
- Ph.D. in Artificial Intelligence, University of Granada
- Computer Engineer from the University of Granada

Mr. Popescu Radu, Daniel Vasile

- Pharmacology, Nutrition and Diet Specialist
- Freelance Producer of Didactic and Scientific Contents
- Nutritionist and Community Dietitian
- Community Pharmacist
- Researcher
- Master's Degree in Nutrition and Health at the Universidad Oberta de Catalunya
- Master's Degree in Psychopharmacology, University of Valencia
- Pharmacist by the Complutense University of Madrid
- Nutritionist-Dietician by the European University Miguel de Cervantes

Structure and Content

This university program will allow graduates to acquire a comprehensive approach to the implementation of *Big Data* techniques for data analysis in the health sector. The syllabus will delve into multiple methods for retrieving informative materials, using Data Mining procedures. Similarly, the curriculum will delve into *embedding*techniques that will help clinicians make informed clinical decisions. Didactic content will also address the development of comprehensive data security strategies to protect confidentiality and privacy in the healthcare sector.

"

You will master the most innovative Big Data techniques in the healthcare field, thanks to this cutting-edge TECH program"

Module 1. Analysis of *Big Data* in the Healthcare Sector with AI

1.1. *Big Data* Fundamentals in Health

    1.1.1. The Explosion of Data in Healthcare

    1.1.2. Concept of *Big Data* and Main Tools

    1.1.3. Applications of *Big Data* in Healthcare

1.2. Text Processing and Analysis of Health Data

    1.2.1. Concepts of Natural Language Processing

    1.2.2. *Embedding* Techniques

    1.2.3. Application of Natural Language Processing in Health Care

1.3. Advanced Methods for Data Retrieval in Health Care

    1.3.1. Exploration of Innovative Techniques for Efficient Data Retrieval in Health Care

    1.3.2. Development of Advanced Strategies for Extracting and Organizing Information in Health Care Settings

    1.3.3. Implementation of Adaptive and Personalized Data Retrieval Methods for Diverse Clinical Contexts

1.4. Quality Assessment in Health Data Analysis

    1.4.1. Development of Indicators for Rigorous Assessment of Data Quality in Health Care Settings

    1.4.2. Implementation of Tools and Protocols for Quality Assurance of Data Used in Clinical Analyses

    1.4.3. Continuous Assessment of the Accuracy and Reliability of Results in Health Data Analysis Projects

1.5. Data Mining and Automatic Learning in Healthcare

    1.5.1. Main Methodologies for Data Mining

    1.5.2. Health Data Integration

    1.5.3. Detection of Patterns and Anomalies in Health Data

1.6. Innovative Areas of *Big Data* and AI in Healthcare

    1.6.1. Exploring New Frontiers in the Application of *Big Data* and AI to Transform the Healthcare Sector

    1.6.2. Identifying Innovative Opportunities for the Integration of *Big Data* and AI Technologies in Medical Practices

    1.6.3. Development of Cutting-edge Approaches to Maximize the Potential of *Big Data* and AI in Healthcare

You will be able to access the Virtual Campus at any time and download the contents to consult them whenever you wish"

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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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.

30%

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.

10%

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.

8%

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.

20%

25%

4%

3%
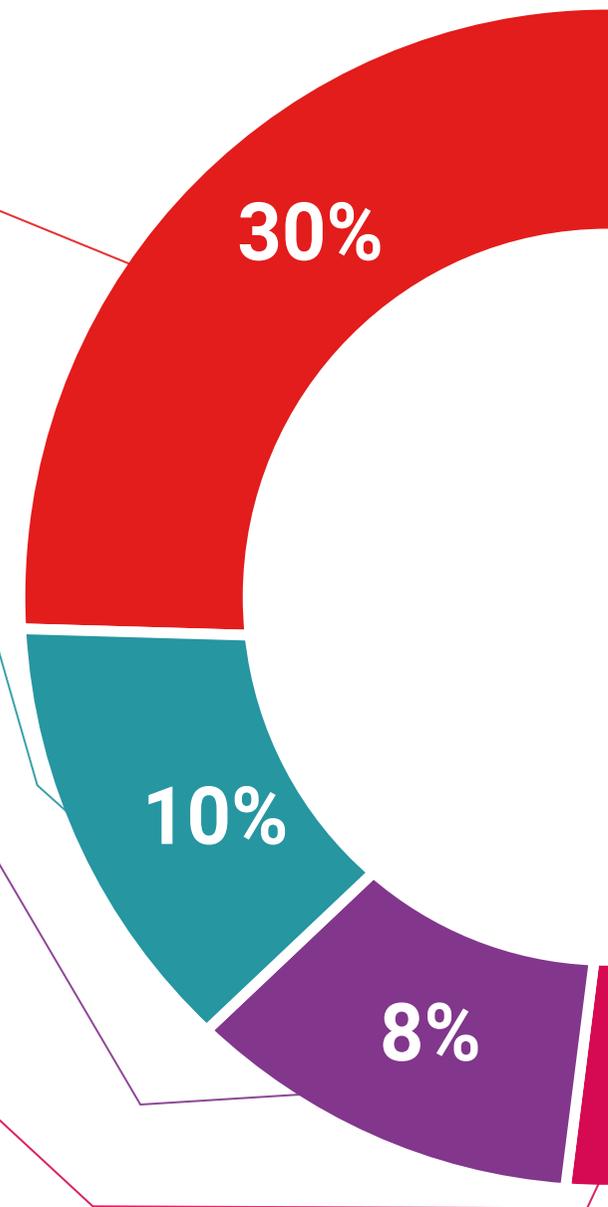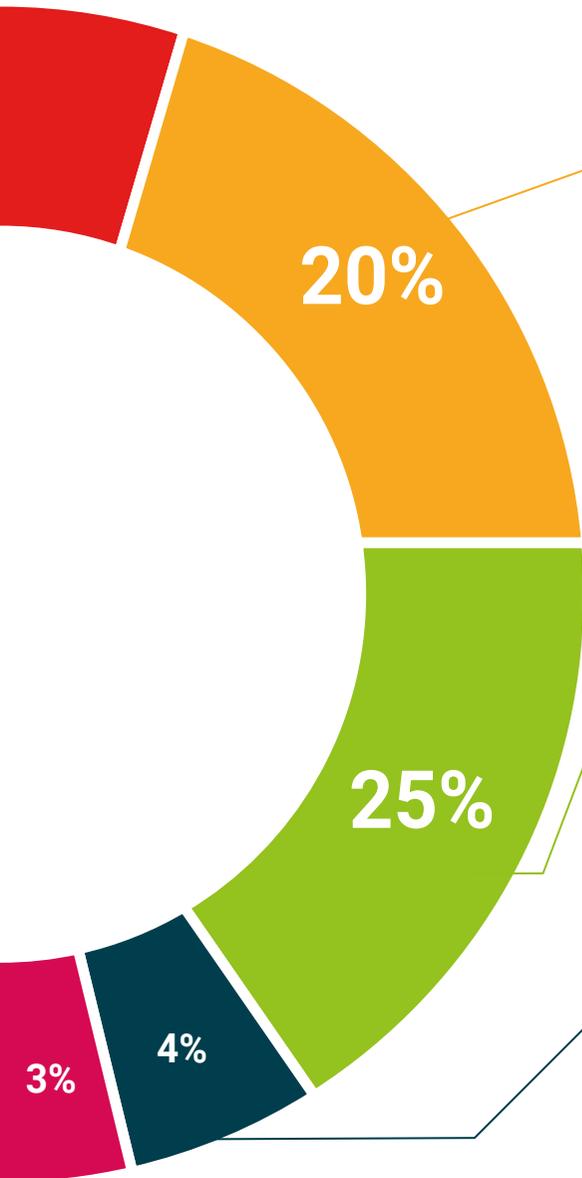
Case Studies

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 Big Data Analysis in the Healthcare Sector with Artificial Intelligence guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate 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 Big Data Analysis in the Healthcare Sector with Artificial Intelligence** 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 Big Data Analysis in the Healthcare Sector with Artificial Intelligence**

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 Big Data Analysis in the Healthcare Sector with Artificial Intelligence

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 certificate issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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