Postgraduate Certificate

Personalized Healthcare through Artificial Intelligence

tech global university

Postgraduate Certificate
Personalized Healthcare through 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/personalized-healthcare-artificial-intelligence**

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01
Introduction

Actively engaging users during their treatments is crucial to improving health outcomes and providing more effective care. Artificial Intelligence (AI) plays an important role in providing tools that engage patients in their care in a more meaningful way. For example, Machine Learning-based mobile apps give individuals personalized information such as medication reminders or lifestyle recommendations. In this way, individuals will better understand their medical conditions and make informed decisions regarding their therapies and care. For this reason, TECH is developing a digital program that will delve into the development of AI systems that empower patients in making determinations.

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"You will use Machine Learning in the identification of therapeutic targets and drug design with this 100% online program"

Health Personalization through Machine Learning is an innovative approach, which has as its priority to adapt medical care and therapies to the individual needs of each subject. This personalization has the potential to significantly improve the quality of medical care and user outcomes. One example of this is monitoring technology (such as health tracking devices), which allows real-time inspection of people's conditions. In this way, AI alerts medical staff to worrisome changes or trends in the clinical condition of those affected.

In this context, TECH implements a Postgraduate Certificate that will deal with the personalization of health through AI. To this end, the academic itinerary will deal exhaustively with the development of models to predict the efficacy and safety of drugs. It will also delve into the development of wearables for the continuous monitoring of health indicators. Graduates will be able to effectively evaluate the risks and benefits of different therapeutic options. At the same time, the didactic materials will analyze the latest trends in AI for the personalization of healthcare. In this way, graduates will be able to develop preventive health approaches and tailor plans to individual requirements.

On the other hand, TECH thinks about comfort and excellence, so this university program provides an exclusive update and the best academic quality. Therefore, it constitutes a degree of great flexibility by only needing a device with an Internet connection (such as a cell phone, computer or *tablet*) to easily access the virtual campus from the comfort of the place where you are. In addition, it is based on the revolutionary *Relearning* methodology, consisting of the reiteration of key aspects to guarantee a progressive and natural learning process.

This **Postgraduate Certificate in Personalized Healthcare through Artificial Intelligence** 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 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 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

Thanks to this Postgraduate Certificate, you will be able to handle instruments to anticipate health risks and improve the quality of life of your patients"

"

You will develop surgical robots to perform precise and minimally invasive procedures"

You will master Artificial Intelligence tools to personalize therapies to reduce pain.

With the Relearning system you will integrate the concepts in a natural and progressive way. Forget about memorizing!

The program's teaching staff includes professionals from the industry 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

The present study will provide experts with advanced skills in the implementation of Artificial Intelligence in the clinical setting. This will allow graduates to design fully individualized therapeutic plans, according to the personal needs of users. In addition, professionals will handle advanced algorithms to create new drugs aimed at improving the health of individuals. They will also stay at the forefront of the latest trends in their specialty, which will allow them to provide innovative solutions with which to stand out significantly.

"You will design individualized medical treatments ranging from genomic analysis to pain management"

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

- Delve into emerging trends in AI applied to personalized healthcare and their future impact
- Define the applications of AI to personalize medical treatments, ranging from genomic analysis to pain management
- Differentiate specific AI algorithms for the development of applications related to drug design or surgical robotics
- Delineate emerging trends in AI applied to personalized health and their future impact
- Promote innovation through the creation of strategies aimed at improving medical care

This program includes real case studies and exercises to bring the program's development closer to routine clinical practice"

Course Management

The faculty of this Postgraduate Certificate brings together leading experts in the field of medicine and technology, offering an exceptionally comprehensive and up-to-date perspective. These professionals not only possess in-depth knowledge in AI applied to clinical practice, but also vast practical experience in the development and implementation of innovative solutions in medical settings. Their dedication to educational excellence will ensure that graduates not only acquire theoretical knowledge, but also a thorough practical understanding.

The diversity of talents and knowledge of the faculty will create a dynamic learning environment. Get up to date with the best!"

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

Structure and Content

This Postgraduate Certificate will focus on how AI can be used to provide fully individualized medical care, thus adapting to patients' personal circumstances. The program will delve into assisted genomic analysis, using cognitive computing to interpret generic data. In addition, the agenda will address the role of Machine Learning in aspects such as drug development, integration of solutions in monitoring devices and creation of clinical decision support. In addition, the didactic content will explore the latest advances in surgical robotics and trends in the personalization of treatments.

In just 6 weeks, you will give your career the boost it needs and deliver medical care based on excellence"

Module 1. Health Personalization through AI

1.1.   AI Applications in Genomics for Personalized Medicine

    1.1.1.   Development of AI Algorithms for the Analysis of Genetic Sequences and their Relationship to Diseases

    1.1.2.   Use of AI in the Identification of Genetic Markers for Personalized Treatments

    1.1.3.   Implementation of AI for the Rapid and Accurate Interpretation of Genomic Data

    1.1.4.   AI Tools in Correlating Genotypes with Drug Responses

1.2.   AI in Pharmacogenomics and Drug Design

    1.2.1.   Development of AI Models for Predicting Drug Efficacy and Safety

    1.2.2.   Use of AI in the Identification of Therapeutic Targets and Drug Design

    1.2.3.   Application of AI in the Analysis of Gene-Drug Interactions for Personalization of Treatments

    1.2.4.   Implementation of AI Algorithms to Accelerate New Drug Discovery

1.3.   Personalized Monitoring with Smart Devices and AI

    1.3.1.   Development of Wearables with AI for Continuous Monitoring of Health Indicators

    1.3.2.   Use of AI in the Interpretation of Data Collected by Smart Devices

    1.3.3.   Implementation of AI-based Early Warning Systems for Health Conditions

    1.3.4.   AI Tools for Personalization of Lifestyle and Health Recommendations

1.4.   Clinical Decision Support Systems with AI

    1.4.1.   Implementation of AI to Assist Clinicians in Clinical Decision Support Systems

    1.4.2.   Development of AI Systems that Provide Clinical Data-Based Recommendations

    1.4.3.   Use of AI in Risk/Benefit Assessment of Different Therapeutic Options

    1.4.4.   AI tools for the Integration and Analysis of Real-Time Healthcare Data

1.5.   Trends in Health Personalization with AI

    1.5.1.   Analysis of the Latest Trends in AI for Healthcare Personalization

    1.5.2.   Use of AI in the Development of Preventive and Predictive Approaches in Health Care

    1.5.3.   Implementation of AI in the Adaptation of Health Plans to Individual Needs

    1.5.4.   Exploration of New AI Technologies in the Field of Personalized Health Care

1.6.   Advances in AI-assisted Surgical Robotics

1.6.1.   Development of AI-assisted Surgical Robots for Precise and Minimally Invasive Procedures

1.6.2.   Use of AI to Improve Accuracy and Safety in Robotic-Assisted Surgeries

1.6.3.   Implementation of AI Systems for Surgical Planning and Operative Simulation

1.6.4.   Advances in the Integration of Tactile and Visual *Feedback* in Surgical Robotics with AI

1.7.   Development of Predictive Models for Personalized Clinical Practice

1.7.1.   Use of AI to Create Predictive Models of Disease Based on Individual Data

1.7.2.   Implementation of AI in the Prediction of Treatment Responses

1.7.3.   Development of AI Tools for Health Risk Anticipation

1.7.4.   Application of Predictive Models in the Planning of Preventive Interventions

1.8.   AI in Pain Management and Personalized Pain Treatment

1.8.1.   Development of AI Systems for Personalized Pain Assessment and Management

1.8.2.   Use of AI in the Identification of Pain Patterns and Treatment Responses

1.8.3.   Implementation of AI Tools in the Personalization of Pain Therapies

1.8.4.   Application of AI in Monitoring and Adjustment of Pain Treatment Plans

1.9.   Patient Autonomy and Active Participation in Customization

1.9.1.   Promotion of Patient Autonomy through AI Tools for Health Management

1.9.2.   Development of AI Systems that Empower Patients in Decision Making

1.9.3.   Use of AI to Provide Personalized Information and Education to Patients

1.9.4.   AI Tools that Facilitate Active Patient Involvement in Treatment

1.10.   Integration of AI in Electronic Medical Records

1.10.1.   Implementation of AI for the Efficient Analysis and Management of Electronic Medical Records

1.10.2.   Development of AI Tools for Extraction of Clinical *Insights* from Electronic Records

1.10.3.   Use of AI to Improve the Accuracy and Accessibility of Medical Record Data

1.10.4.   AI Application for Correlation of Medical Record Data with Treatment Plans

This program gives you the opportunity to update your knowledge in a real scenario, with the maximum scientific rigor of an institution at the forefront of technology"

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.

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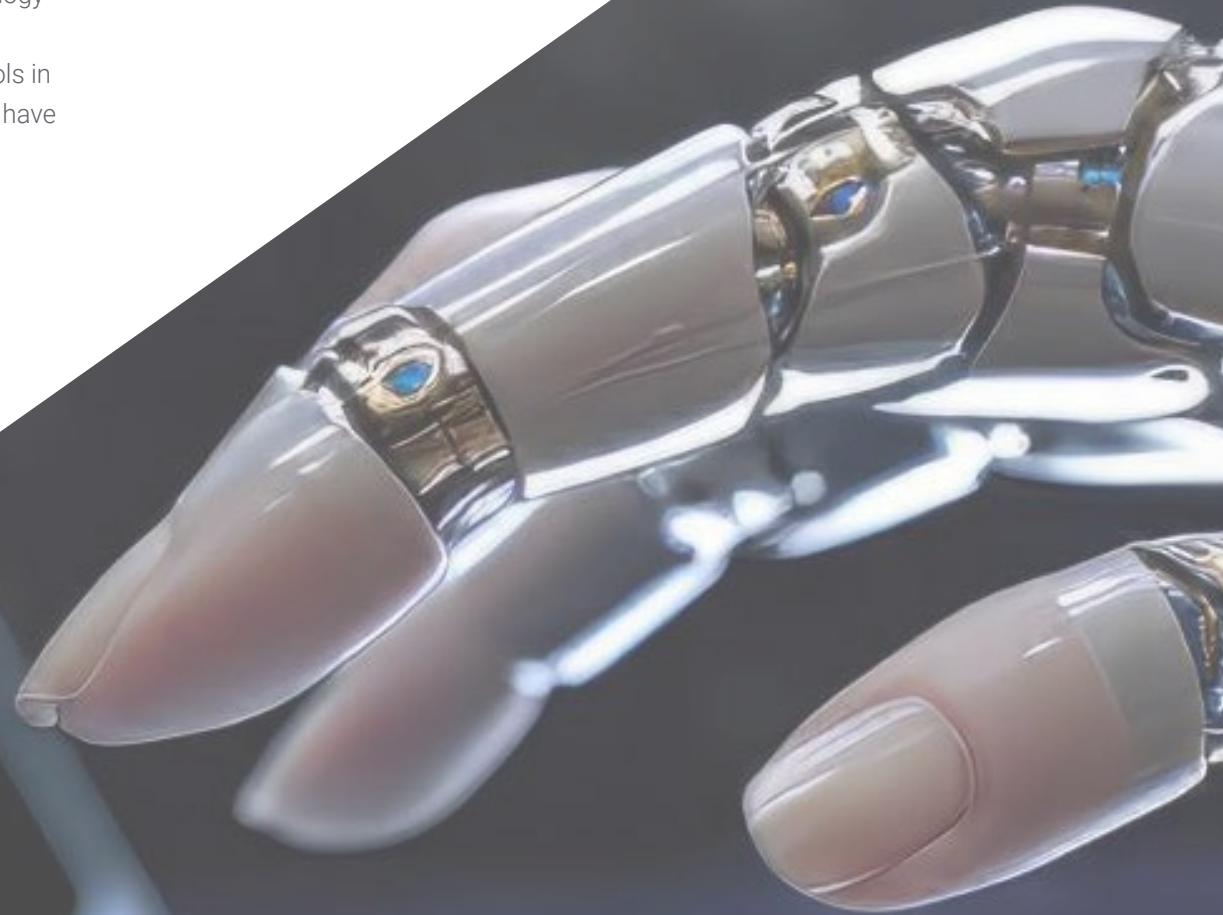
Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

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.

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.

30%

10%

8%

20%

25%

4%

3%
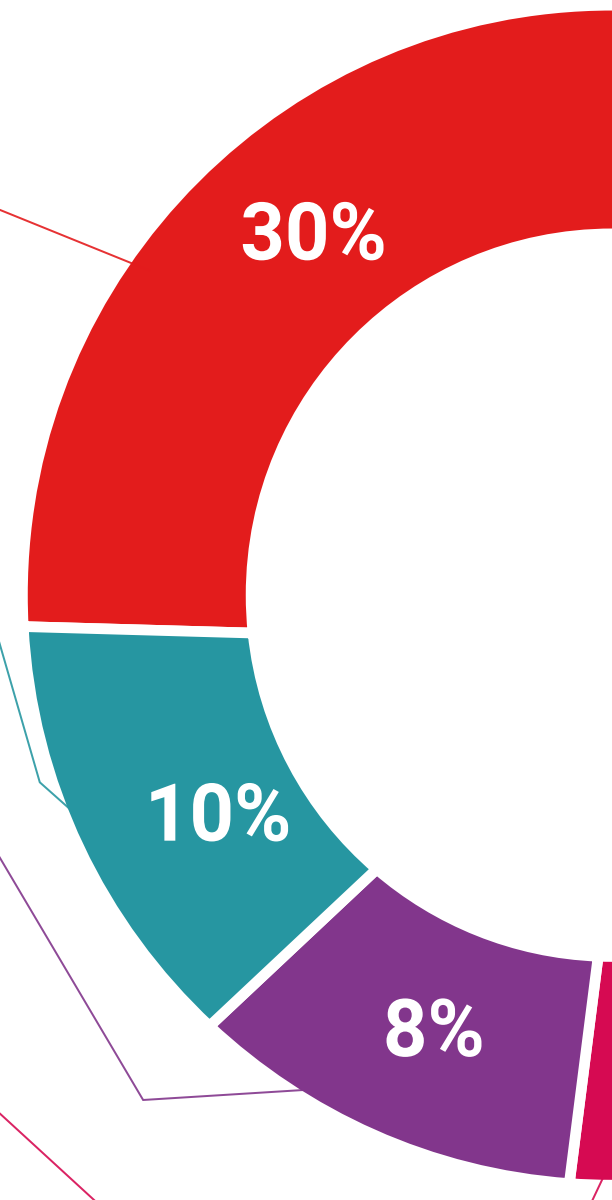
Case Studies

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.

Certificate

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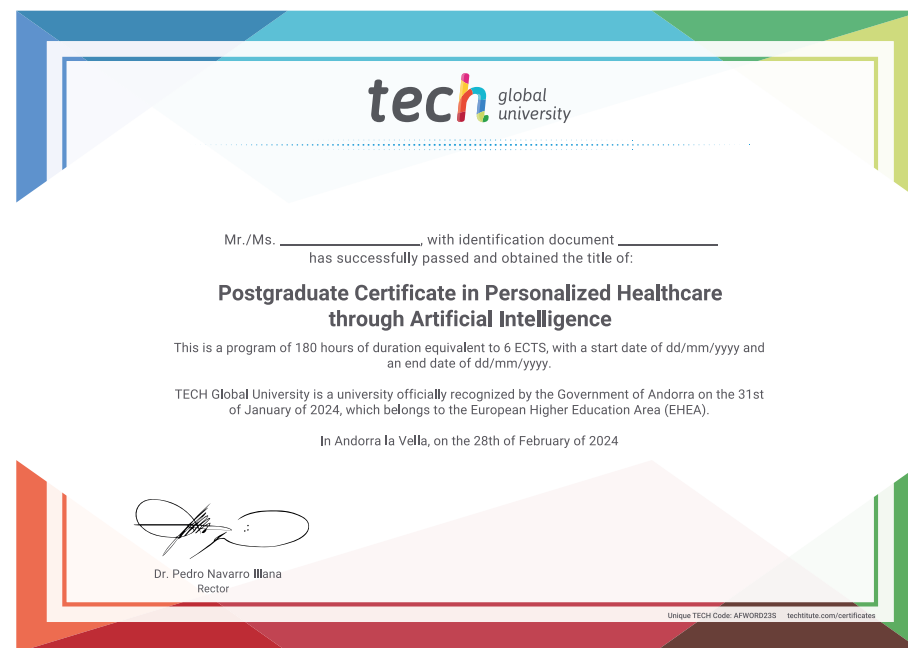
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Personalized Healthcare through 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 Personalized Healthcare through 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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