

# Postgraduate Certificate Predictive Models for Proactive Defense in Security Using ChatGPT



## Postgraduate Certificate Predictive Models for Proactive Defense in Security Using ChatGPT

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

Website: [www.techtute.com/us/artificial-intelligence/postgraduate-certificate/predictive-models-proactive-defense-security-using-chatgpt](http://www.techtute.com/us/artificial-intelligence/postgraduate-certificate/predictive-models-proactive-defense-security-using-chatgpt)

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01

# Introduction to the Program

As cyber threats increase in frequency and sophistication, the need for proactive defense becomes even more critical. In this scenario, Predictive Proactive Defense Models use advanced technologies to predict and prevent attacks before they occur. The integration of tools such as ChatGPT, an AI-based language model, offers new perspectives in the interpretation and analysis of predictive data. For this reason, specialists need to manage the use of these tools to improve the ability of organizations to prevent cyber threats in real time. In order to facilitate this task, TECH launches an innovative online university program focused on Predictive Models for Proactive Defense in Security using ChatGPT.



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*Through this 100% online Postgraduate Certificate, you will master the use of ChatGPT to identify vulnerabilities, simulate attack scenarios and optimize defense strategies in complex digital environments”*



According to a new report prepared by the United Nations Organization reflects that the global cybersecurity index has shown a 40% increase in the frequency of cyber-attacks targeting critical infrastructure in recent years. Therefore, traditional techniques are not enough to cope with this increase, and it is imperative to adopt proactive defense methods. In the face of this, Predictive Models, combined with ChatGPT for the interpretation and analysis of large volumes of data, are proving to be key tools in threat protection. In view of this, experts need to explore how these technologies are allowing to anticipate and prevent intrusions more efficiently, improving incident response capabilities.

In this scenario, TECH presents a revolutionary Postgraduate Certificate in Predictive Models for Proactive Defense in Security Using ChatGPT. Conceived by references in this sector, the academic itinerary will delve into subjects ranging from the principles of classification in threat prediction or the use of neural networks for the anticipation of cyber attacks to the use of ChatGPT to develop predictive simulations. Thanks to this, students will gain advanced skills in the implementation of Predictive Models using ChatGPT, which will improve their ability to identify and prevent cyber-attacks before they happen.

It should be noted that this university program is taught 100% online, giving specialists the necessary flexibility to adapt to their schedules. In addition, the Relearning system the TECH, based on the repetition of key concepts to fix the knowledge, will facilitate an effective and rigorous update. On the other hand, the teaching team will be available at all times to provide graduates with personalized advice and resolve any doubts that may arise during the course of the program. Undoubtedly, a high intensity experience that will allow specialists to optimize their daily practice and experience a considerable leap in quality in their careers Communication Management.

This **Postgraduate Certificate in Predictive Models for Proactive Defense in Security Using ChatGPT** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ The development of case studies presented by experts with extensive knowledge in Artificial Intelligence and Cybersecurity, specialized in the implementation of predictive models and proactive defense strategies in digital environments
- ♦ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable 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 design cyber defense systems based on Neural Networks and Reinforcement Learning Algorithms”*

“

*With TECH's disruptive Relearning system you won't have to invest a large amount of study hours and you will focus on the most relevant concepts”*

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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts.

*You will delve into advanced cyber threat simulation techniques.*

*You will acquire advanced skills to implement automated responses and optimize cyber defenses in real time.*



02

# Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.





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*Study at the largest online university in the world and ensure your professional success. The future begins at TECH”*

### The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

### The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

### The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.



### The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

### A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

#### The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

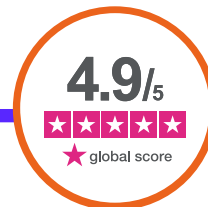
#### Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.



#### Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.



#### The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.





# 03 Syllabus

The teaching materials that make up this university program have been created by recognized experts in Predictive Models for Proactive Defense in Security Using ChatGPT. The curriculum will delve into factors ranging from the application of Artificial Intelligence in the anticipation of cyber threats or the fundamentals of deep neural networks to the assistance of ChatGPT in the interpretation of predictive models. Thanks to this, graduates will develop advanced skills to implement proactive defense solutions using Artificial Intelligence, improving threat detection and prevention in real time.



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*You will delve into the integration of Artificial Intelligence applied to cybersecurity, ranging from theoretical fundamentals to cutting-edge applications”*



## Module 1. Predictive Models for Proactive Defense in Cybersecurity Using ChatGPT

- 1.1. Predictive Analytics in Cybersecurity: Techniques and Applications with Artificial Intelligence
  - 1.1.1. Basic Concepts of Predictive Analytics in Security
  - 1.1.2. Predictive Techniques in the Field of Cybersecurity
  - 1.1.3. Application of Artificial Intelligence in the Anticipation of Cyber Threats
- 1.2. Regression and Classification Models with ChatGPT Support
  - 1.2.1. Principles of Regression and Classification in Threat Prediction
  - 1.2.2. Types of Classification Models in Cybersecurity
  - 1.2.3. ChatGPT Assistance in the Interpretation of Predictive Models
- 1.3. Identifying Emerging Threats with ChatGPT Predictions
  - 1.3.1. Emerging Threat Detection Concepts
  - 1.3.2. Techniques for Identifying New Attack Patterns
  - 1.3.3. Limitations and Precautions in the Prediction of New Threats
- 1.4. Neural Networks for Anticipation of Cyberattacks
  - 1.4.1. Fundamentals of Neural Networks Applied in Cybersecurity
  - 1.4.2. Common Architectures for Detection and Prediction of Attacks
  - 1.4.3. Challenges in Implementing Neural Networks in Cyber Defense
- 1.5. Postgraduate Certificate in Predictive Models for Proactive Defense in Security Using ChatGPT
  - 1.5.1. Basic Concepts of Threat Simulation in Cybersecurity
  - 1.5.2. ChatGPT Capabilities for Developing Predictive Simulations
  - 1.5.3. Factors to Consider in the Design of Simulated Scenarios
- 1.6. Reinforcement Learning Algorithms for Optimization of Defenses
  - 1.6.1. Introduction to Reinforcement Learning in Cybersecurity
  - 1.6.2. Reinforcement Algorithms Applied to Defense Strategies
  - 1.6.3. Benefits and Challenges of Reinforcement Learning in Cybersecurity Environments
- 1.7. Threat Simulation and Response with ChatGPT
  - 1.7.1. Threat Simulation Principles and Their Relevance in Cyber Defense
  - 1.7.2. Automated and Optimized Responses to Simulated Attacks
  - 1.7.3. Benefits of Simulation for Improving Cyber Preparedness







- 1.8. Accuracy and Effectiveness Assessment in Predictive Artificial Intelligence Models
  - 1.8.1. Key Indicators for the Evaluation of Predictive Models
  - 1.8.2. Accuracy Assessment Methodologies in Cybersecurity Models
  - 1.8.3. Critical Factors in the Effectiveness of Artificial Intelligence Models in Cybersecurity
- 1.9. Artificial Intelligence in Incident Management and Automated Response
  - 1.9.1. Fundamentals of Incident Management in Cybersecurity
  - 1.9.2. Role of Artificial Intelligence in Real-Time Decision Making
  - 1.9.3. Challenges and Opportunities in Response Automation
- 1.10. Creation of a Predictive Defense System with ChatGPT Support
  - 1.10.1. Proactive Defense System Design Principles
  - 1.10.2. Integration of Predictive Models in Cybersecurity Environments
  - 1.10.3. Key Components for an AI-Based Predictive Defense System

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*You will create robust Predictive Models to support strategic decision making in Digital Security”*

04

# Teaching Objectives

With this Postgraduate Certificate, professionals will acquire the necessary skills to proactively anticipate, detect and counter cyber threats. At the same time, they will develop key skills in the implementation of Predictive Models, the analysis of complex data with the support of ChatGPT and the creation of defense strategies based on Artificial Intelligence. In addition, they will focus on incident management, simulation of critical situations and evaluation of the effectiveness of security systems, preparing them to take on leadership roles in an increasingly complex digital environment.

NODE

NODE



NODE

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*You will acquire advanced skills to manage cyber risks, optimizing resources and ensuring the resilience of critical systems”*





## General Objectives

- Explore the fundamentals and advanced applications of predictive analytics in cybersecurity
- Implement regression and classification techniques to predict and mitigate emerging threats
- Design and evaluate artificial intelligence-based Predictive Models adapted to digital environments
- Apply neural networks and reinforcement learning algorithms in anticipating cyber attacks
- Develop threat simulations and automated responses using ChatGPT
- Optimize proactive defense strategies by integrating advanced technologies
- Identify malicious behavior patterns and new vulnerabilities in the digital environment
- Analyze the effectiveness of Predictive Models in security incident management
- Design predictive defense systems that combine artificial intelligence tools with innovative methodologies
- Promote solutions based on artificial intelligence for real-time cybersecurity automation





## Specific Objectives

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- ♦ Design advanced predictive models based on neural networks and reinforcement learning
- ♦ Implement simulations of threat scenarios to train teams and improve incident preparedness
- ♦ Evaluate and optimize proactive defense systems, integrating generative Artificial Intelligence for decision making and response automation
- ♦ Develop predictive defense frameworks adaptable to critical infrastructure and enterprise systems
- ♦ Use predictive analytics to identify emerging vulnerabilities before they are exploited
- ♦ Integrate generative Artificial Intelligence into strategic decision making processes for continuous improvement of defensive systems



*You will optimize the protection of critical data and the resilience of digital infrastructures by designing defensive models based on artificial intelligence”*



05

# Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.





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*TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”*

## The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

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*At TECH you will NOT have live classes  
(which you might not be able to attend)”*



### The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”



## Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.





## Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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



## A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



*The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"*

### The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

### The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

*Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.*

*You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.*





As such, the best educational materials, thoroughly prepared, will be available in this program:



#### 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



#### Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



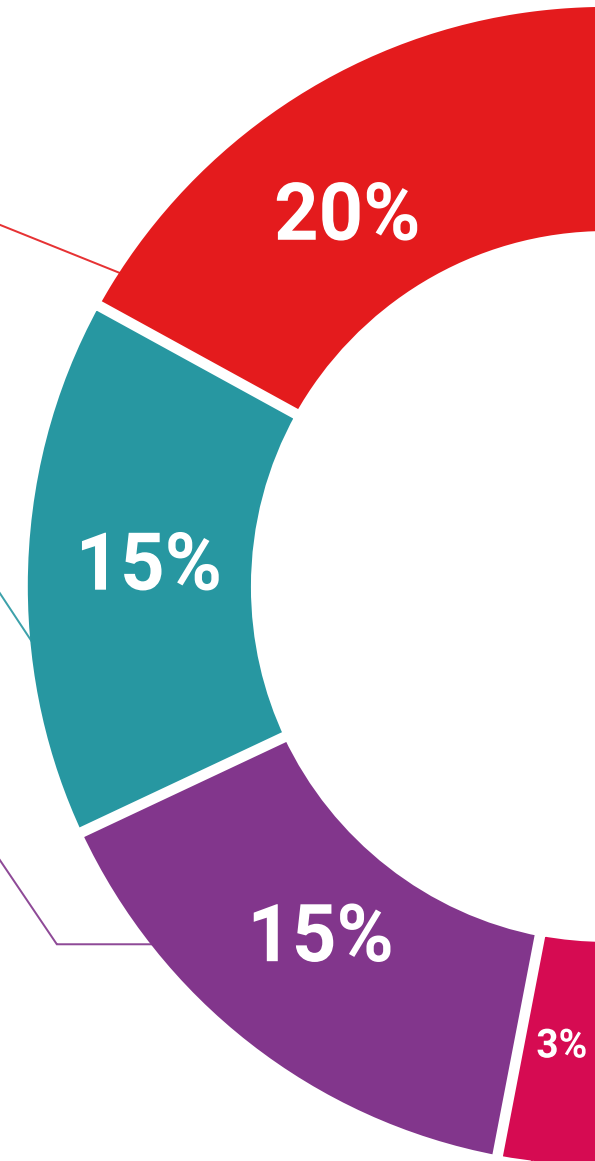
#### Interactive Summaries

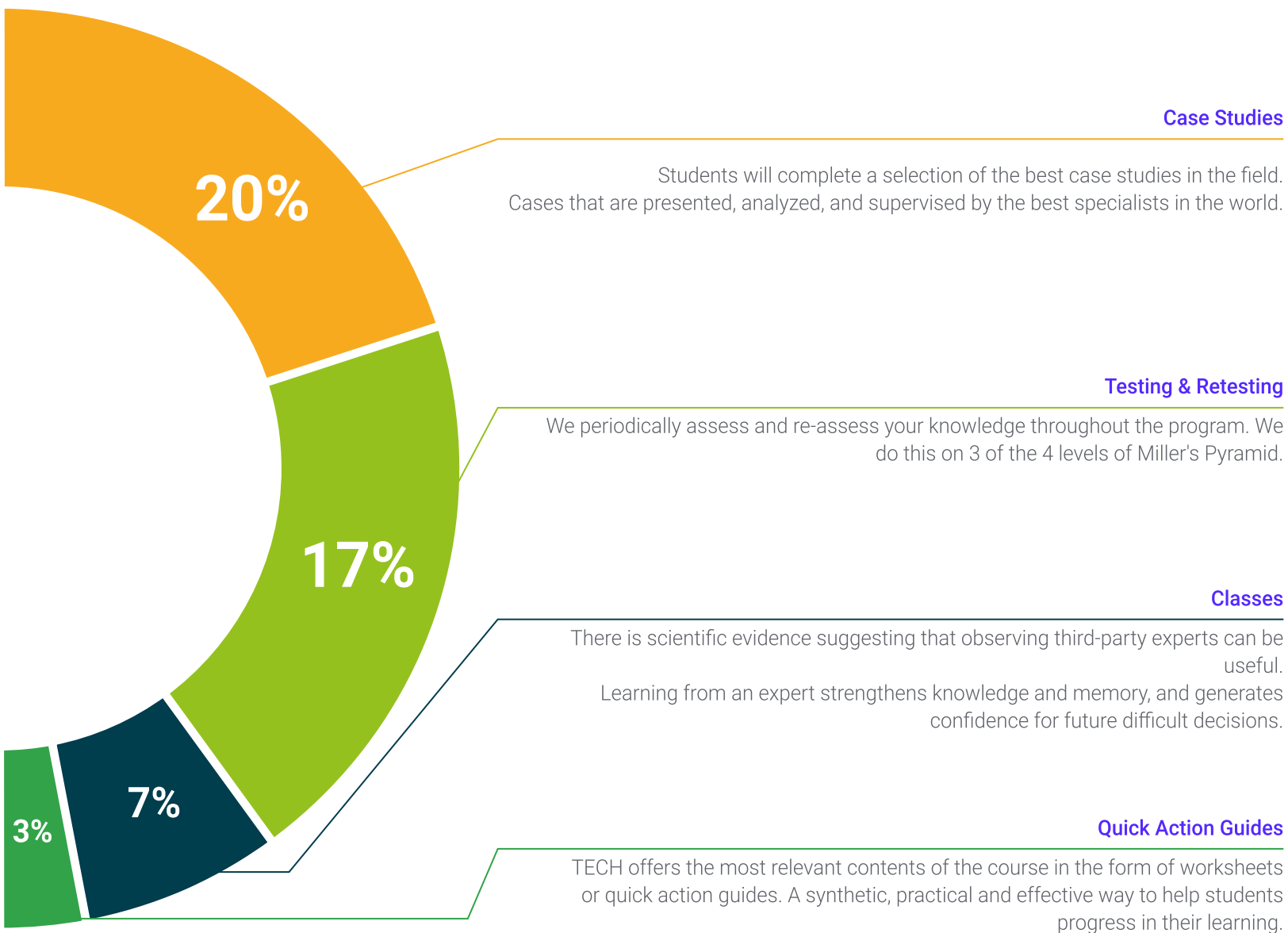
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge. This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





06

# Teaching Staff

TECH's fundamental premise is based on providing the most complete and up-to-date university programs in the academic panorama. For this reason, it carries out a rigorous process to constitute its teaching staff. Thanks to this effort, this Postgraduate Certificate will be taught by the best experts in Predictive Models for Proactive Defense in Security Using ChatGPT. In this way, they have designed a wide range of didactic contents that stand out for their excellent quality and full applicability to the demands of the labor market. Therefore, graduates have the guarantees they require to immerse themselves in an experience that will increase their job prospects.





```
// Begin Pawn overrides
virtual void SetupPlayerInputComponent(class UPlayerInputComponent*) override;
virtual float TakeDamage(float Damage, struct FDamageEvent const& DamageEvent, AActor* Instigator, TSubclassOf<AActor*> DamageCauser) override;
virtual void TurnOff() override;
// End Pawn overrides

/** Identifies if pawn is in its dying state */
UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = "Pawn")
uint32 bIsDying:1;

/** replicating death on client */
UFUNCTION()
void OnRep_Dying();

/** Returns True if the pawn can die in this state */
virtual bool CanDie() const;

/** Kills pawn. [Server/authoritative] */
virtual void Die();

/** Event on death */
virtual void OnDied();

/** notify */
void OnDiedNotif();
```

“

Leading experts in Predictive Models for Proactive Defense in Security Using ChatGPT have joined forces to show you all their knowledge in this field”

## Management



### Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometheus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shepherds GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- Doctorate in Psychology from the University of Castilla La Mancha
- Doctorate in Economics, Business and Finance from the Camilo José Cela University
- Doctorate in Psychology from University of Castilla La Mancha
- Master's Degree in Executive MBA from the Isabel I University
- Master's Degree in Sales and Marketing Management from the 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

## Professors

### Mr. Del Rey Sánchez, Alejandro

- ♦ In Charge of Implementing Programs to Improve Tactical Emergency Care
- ♦ Degree in Industrial Organization Engineering
- ♦ Certification in Big Data and Business Analytics
- ♦ Certification in Microsoft Excel Advanced, VBA, KPI and DAX
- ♦ Certification in CIS Telecommunication and Information Systems

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*A unique, crucial and decisive learning experience to boost your professional development”*



# 07 Certificate

This Postgraduate Certificate in Predictive Models for Proactive Defense in Security Using ChatGPT guarantees, in addition to the most rigorous and up-to-date program, access to an Postgraduate Certificate diploma issued by TECH Global University.





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

This private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Predictive Models for Proactive Defense in Security Using ChatGPT** 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.

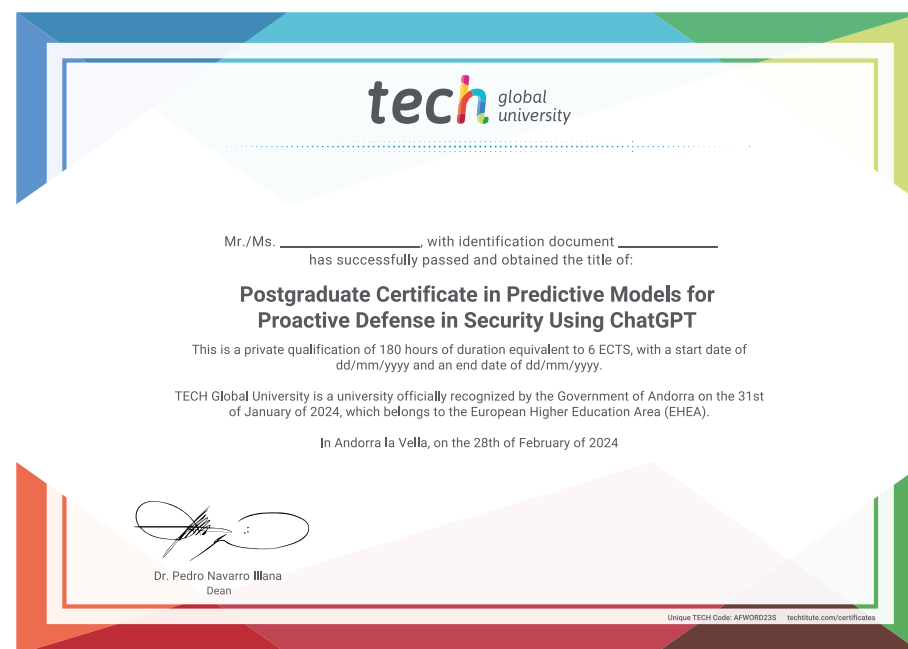
This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Predictive Models for Proactive Defense in Security Using ChatGPT**

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# Postgraduate Certificate

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