Postgraduate Certificate

Computational Design and Artificial Intelligence

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Postgraduate Certificate
Computational Design and 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/design/postgraduate-certificate/computational-design-artificial-intelligence

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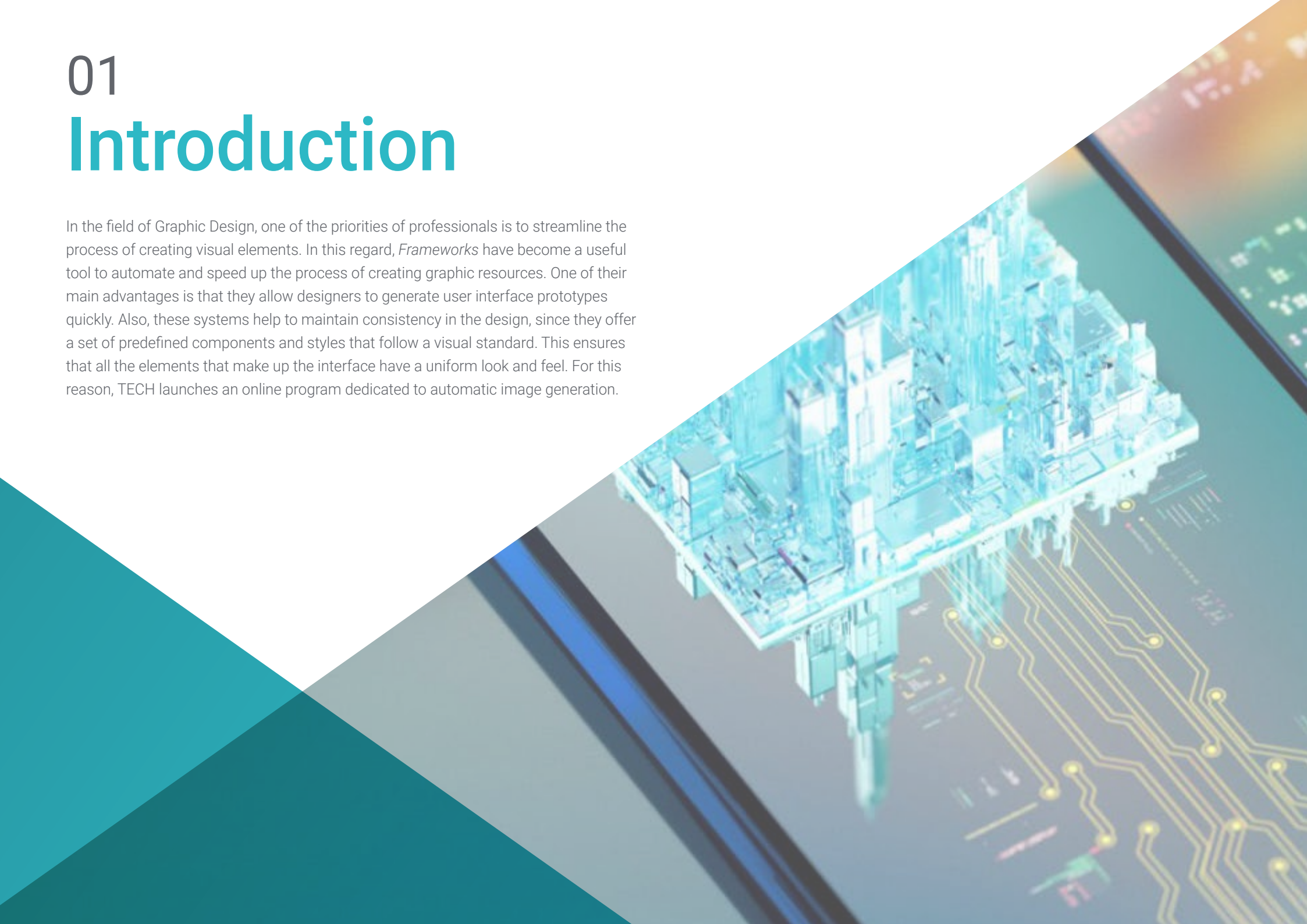
01

Introduction

In the field of Graphic Design, one of the priorities of professionals is to streamline the process of creating visual elements. In this regard, *Frameworks* have become a useful tool to automate and speed up the process of creating graphic resources. One of their main advantages is that they allow designers to generate user interface prototypes quickly. Also, these systems help to maintain consistency in the design, since they offer a set of predefined components and styles that follow a visual standard. This ensures that all the elements that make up the interface have a uniform look and feel. For this reason, TECH launches an online program dedicated to automatic image generation.



Manage procedural content generation in video games at the best digital university in the world according to Forbes"

Computational Design and Artificial Intelligence (AI) are interdisciplinary areas that are combined with the aim of addressing a series of problems in fields such as product creation or artistic creativity. In this sense, Machine Learning serves to develop creative proposals by analyzing large data sets, identifying patterns and proposing novel solutions. Optimization algorithms can also help to find the best solutions based on multiple variables and constraints. This is useful in fields such as Architecture to map out more energy efficient buildings or in Industrial Design to optimize the functionality of products.

In this context, TECH develops a Postgraduate Certificate in Computational Design and AI, which will provide designers with a solid understanding of how Machine Learning is used in order to enhance the creative process in Graphic Design. The syllabus will delve into the principles of personalization in UI/UX. This will allow graduates to optimize user experiences and benefit from continuous user feedback. In addition, the syllabus will examine the automatic creation of editorial *Layouts* with algorithms, aimed at optimizing spaces and proportions in Editorial Design. The program will include the approach of *Machine Learning* models for trend prediction.

This university program is developed through an online learning system, specially designed so that professionals can combine their work with their studies, as it is completely adapted to their personal circumstances. In addition, it will provide the best multimedia resources, including interactive summaries to strengthen knowledge in a dynamic way. In addition, they will have 24-hour access to videos, exercises, readings, case studies and even master classes.

This **Postgraduate Certificate in Computational Design and Artificial Intelligence** contains the most complete and up-to-date program on the market. The most important features include:

- Development of case studies presented by experts in Computational Design and Artificial Intelligence
- The graphic, schematic and practical contents of the book provide technical and practical information on those 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

This course will provide you with the most advanced tools to offer design solutions adapted to current demands"

You will implement Machine Learning models for logo identification"

You will evaluate the impact of automatic optimization on user perception.

The Relearning system applied by TECH in its programs reduces the long hours of study so frequent in other teaching methods.

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

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

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

02

Objectives

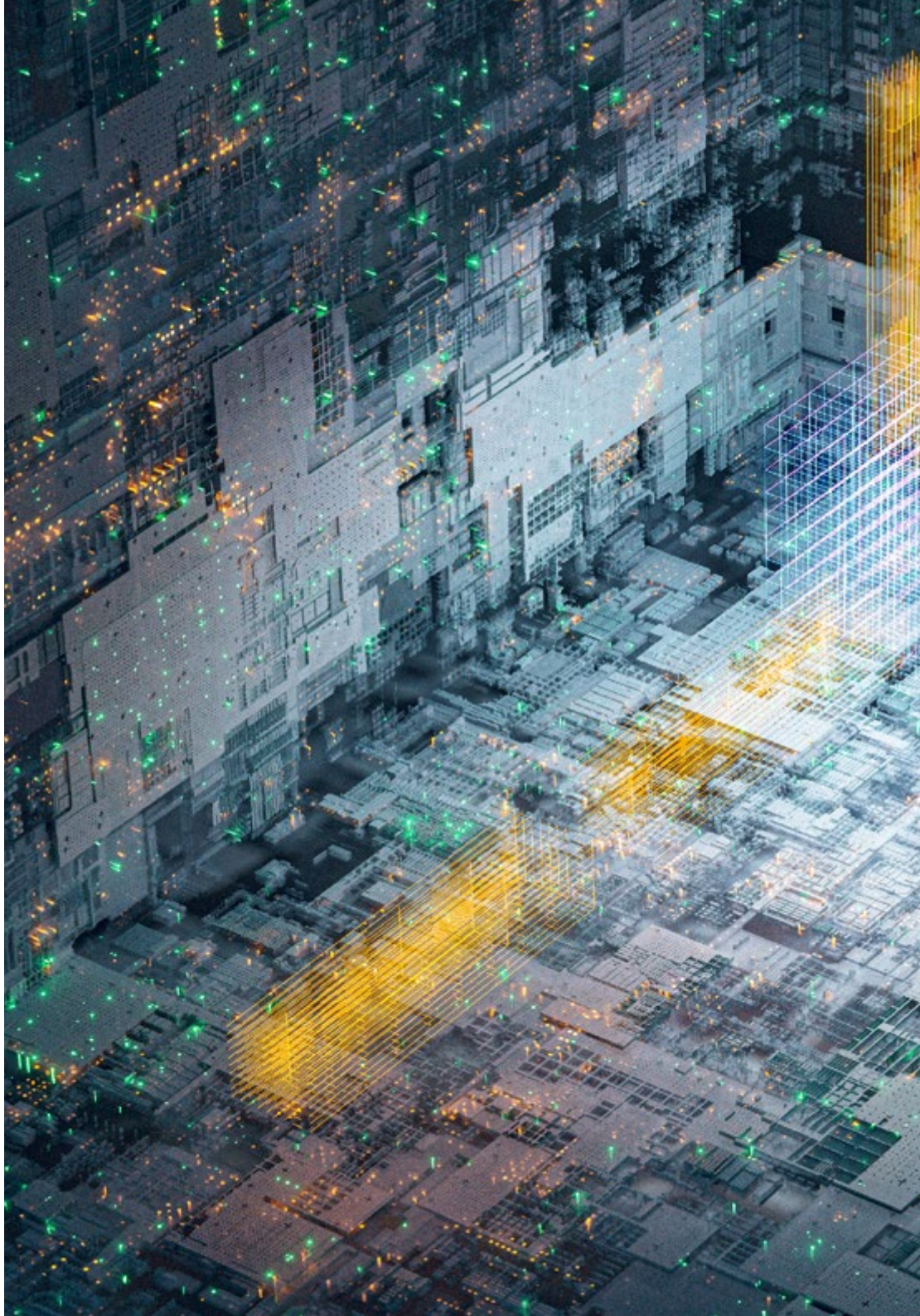
Thanks to this program, specialists will be equipped with both the skills and knowledge necessary to become innovative leaders in the field of Design. Under an eminently practical approach, professionals will effectively master the tools of Machine Learning. Graduates will make the most of these advanced systems to enrich their creative processes. Similarly, designers will bring highly avant-garde proposals to meet the demands of today's market.

A teaching without fixed schedules and with a syllabus available from the first day. Set your own learning pace!"

General Objectives

- Develop skills to implement artificial intelligence tools in design projects, including automatic content generation, design optimization and pattern recognition
- Apply collaborative tools, taking advantage of Artificial Intelligence to improve communication and efficiency in design teams

An academic institution that adapts to you and designs a program that will allow you to reconcile your daily activities with a quality program"



Specific Objectives

- Apply collaborative tools, leveraging AI to improve communication and efficiency in design teams
- Incorporate emotional aspects into designs through techniques that effectively connect with the audience, exploring how AI can influence the emotional perception of Design
- Master tools and frameworks specific to the application of AI in Design, such as GANs (Generative Adversarial Networks) and other relevant libraries
- Employ AI to generate images, illustrations and other visual elements automatically

03

Course Management

Dental professionals studying this university program will have at their disposal a management and teaching team with extensive experience in Computational Design and Artificial Learning. Two axes that will be key in the development of this Postgraduate Certificate, where TECH seeks that students reach the renewal of their knowledge in an innovative way and according to the current academic times. All of this, without losing focus on providing students with quality education that allows them to achieve their goals.

Learn from the best! The diversity of talents and knowledge of the teaching staff will generate a dynamic learning environment"

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
- Professional Master's Degree in Executive MBA by the Isabel I University
- Professional Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Professional Master's Degree in Advanced Information Technologies from the University of Castilla - La Mancha
- Member of: SMILE Research Group

Mr. Maldonado Pardo, Chema

- Graphic Design Specialist
- Graphic Designer at DocPath Document Solutions S.L
- Founding Partner and Head of the Design and Advertising Department at D.C.M. Difusión Integral de Ideas, C.B
- Head of the Design and Digital Printing Department at Ofipaper, La Mancha S.L
- Graphic Designer in Ático, Estudio Gráfico
- Graphic Designer and Craftsman Printer at Lozano Artes Gráficas
- Layout and Graphic Designer in Gráficas Lozano
- ETSI Telecommunications by the Polytechnic University of Madrid
- ETS Computer Systems ETSI by the University of Castilla-La Mancha

Professors

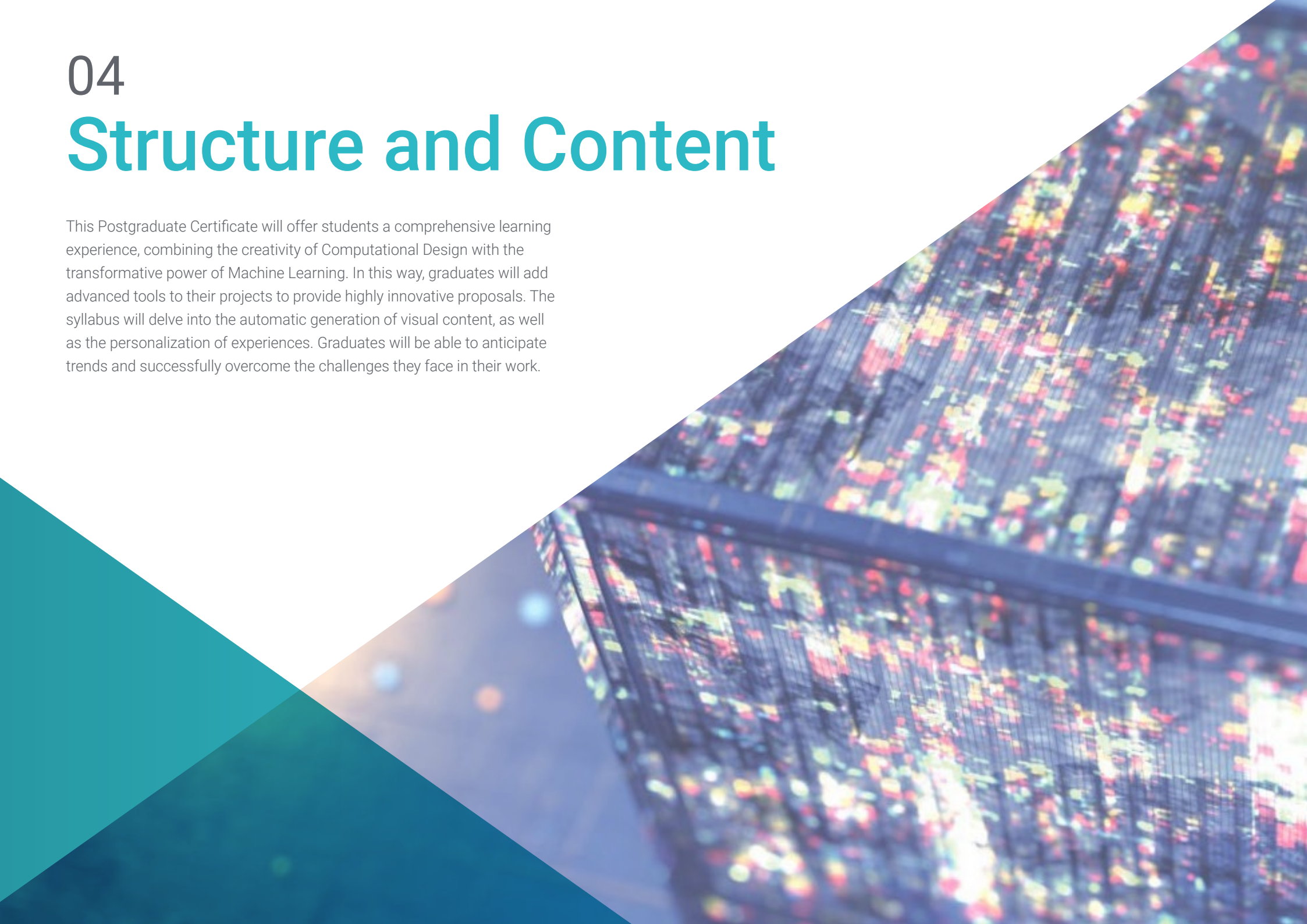
Ms. Parreño Rodríguez, Adelaida

- *Technical Developer & Energy Communities Engineer* at the University of Murcia
- *Manager in Research & Innovation in European Projects* at the University of Murcia
- *Technical Developer & Energy/Electrical Engineer & Researcher* in PHOENIX Project and FLEXUM (ONENET) Project
- Content Creator in Global UC3M Challenge
- Ginés Huertas Martínez Award (2023)
- Professional Master's Degree in Renewable Energies from the Polytechnic University of Cartagena
- Degree in Electrical Engineering (bilingual) from Carlos III University of Madrid

04

Structure and Content

This Postgraduate Certificate will offer students a comprehensive learning experience, combining the creativity of Computational Design with the transformative power of Machine Learning. In this way, graduates will add advanced tools to their projects to provide highly innovative proposals. The syllabus will delve into the automatic generation of visual content, as well as the personalization of experiences. Graduates will be able to anticipate trends and successfully overcome the challenges they face in their work.



You will cover from theoretical foundations to practical applications, acquiring a solid understanding of how Machine Learning empowers Design"

Module 1. Practical Applications of Artificial Intelligence in Design

1.1. Automatic Image Generation in Graphic Design
- 1.1.1. Fundamental Concepts of Image Generation
- 1.1.2. Tools and *Frameworks* for Automatic Graphic Generation
- 1.1.3. Social and Cultural Impact of Generative Design
- 1.1.4. Current Trends in the Field and Future Developments and Applications

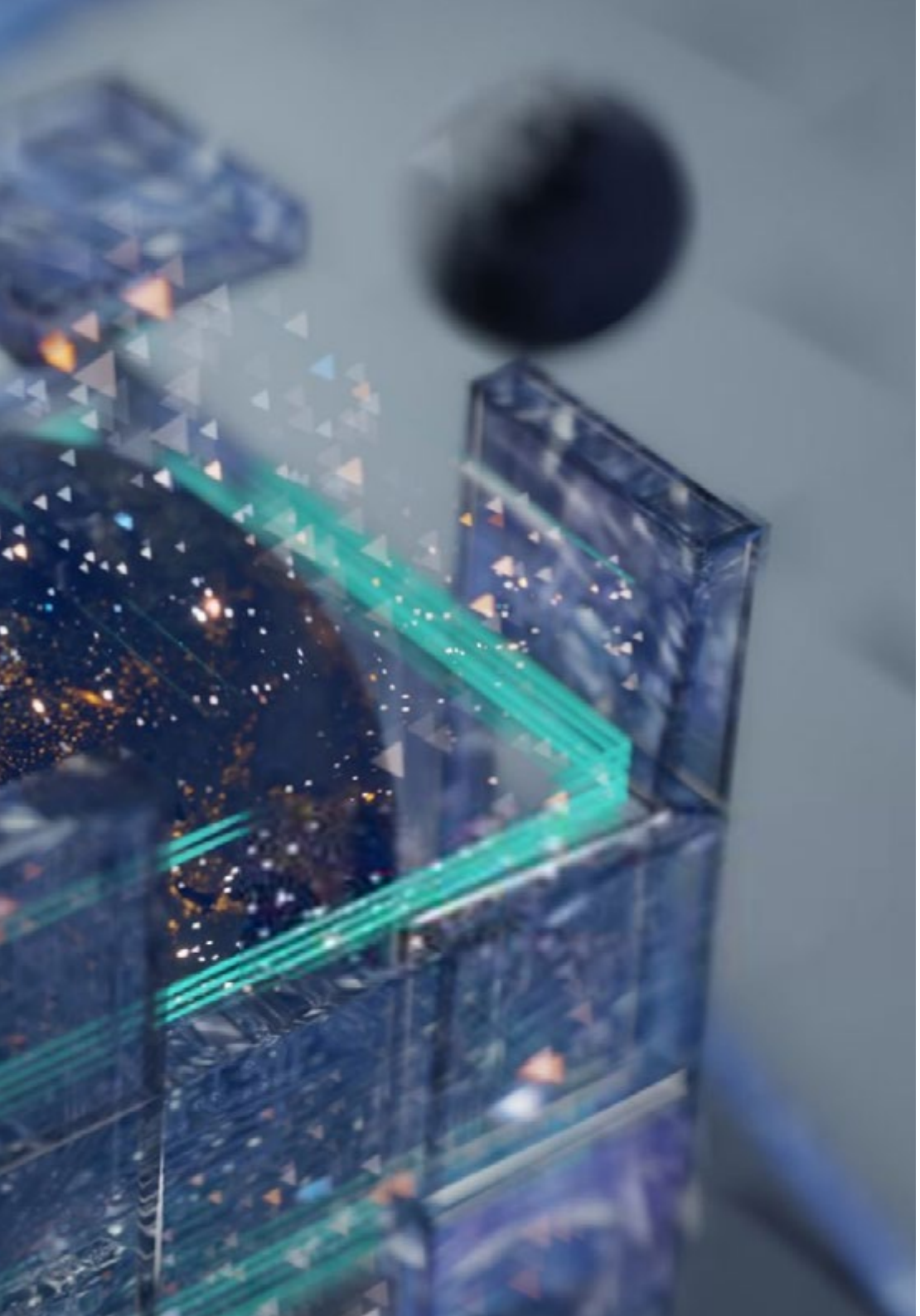
1.2. Dynamic Personalization of User Interfaces Using AI
- 1.2.1. UI/UX Personalization Principles
- 1.2.2. Recommendation Algorithms in UI Customization
- 1.2.3. User Experience and Continuous Feedback
- 1.2.4. Practical Implementation in Real Applications

1.3. Generative Design: Applications in Industry and Art
- 1.3.1. Fundamentals of Generative Design
- 1.3.2. Generative Design in Industry
- 1.3.3. Generative Design in Contemporary Art
- 1.3.4. Challenges and Future Advances in Generative Design

1.4. Automatic Creation of Editorial *Layouts* with Algorithms
- 1.4.1. Principles of Automatic Editorial *Layout*
- 1.4.2. Content Distribution Algorithms
- 1.4.3. Optimization of Spaces and Proportions in Editorial Design
- 1.4.4. Automation of the Revision and Adjustment Process

1.5. Procedural Generation of Content in Videogames
- 1.5.1. Introduction to Procedural Generation in Videogames
- 1.5.2. Algorithms for the Automatic Creation of Levels and Environments
- 1.5.3. Procedural Narrative and Branching in Videogames
- 1.5.4. Impact of Procedural Generation on the Player Experience

1.6. Pattern Recognition in Logos with *Machine Learning*
- 1.6.1. Fundamentals of Pattern Recognition in Graphic Design
- 1.6.2. Implementation of Machine Learning Models for Logo Identification
- 1.6.3. Practical Applications in Graphic Design
- 1.6.4. Legal and Ethical Considerations in Logo Recognition



1.7. Optimization of Colors and Compositions with AI
- 1.7.1. Color Psychology and Visual Composition
- 1.7.2. Color Optimization Algorithms in Graphic Design
- 1.7.3. Automatic Composition of Visual Elements
- 1.7.4. Evaluation of the Impact of Automatic Optimization on User Perception

1.8. Predictive Analysis of Visual Trends in Design
- 1.8.1. Data Collection and Current Trends
- 1.8.2. *Machine Learning* Models for Trend Prediction
- 1.8.3. Implementation of Proactive Design Strategies
- 1.8.4. Principles in the Use of Data and Predictions in Design

1.9. AI-assisted Collaboration in Design Teams
- 1.9.1. Human-IA Collaboration in Design Projects
- 1.9.2. Platforms and Tools for AI-assisted Collaboration
- 1.9.3. Best Practices in AI-assisted Technology Integration
- 1.9.4. Future Perspectives on Human-AI Collaboration in Design

1.10. Strategies for the Successful Incorporation of AI in Design
- 1.10.1. Identification of AI-solvable Design Needs
- 1.10.2. Evaluation of Available Platforms and Tools
- 1.10.3. Effective Integration in Design Projects
- 1.10.4. Continuous Optimization and Adaptability

Enjoy the most up-to-date educational content available in innovative multimedia formats to optimize your studies"

05

Methodology

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

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

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

Case Study to contextualize all content

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

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

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

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

A learning method that is different and innovative

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

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

The case method is the most widely used learning system in the best faculties in the world. 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 we face in the case method, an action-oriented learning method. Throughout the program, the studies 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

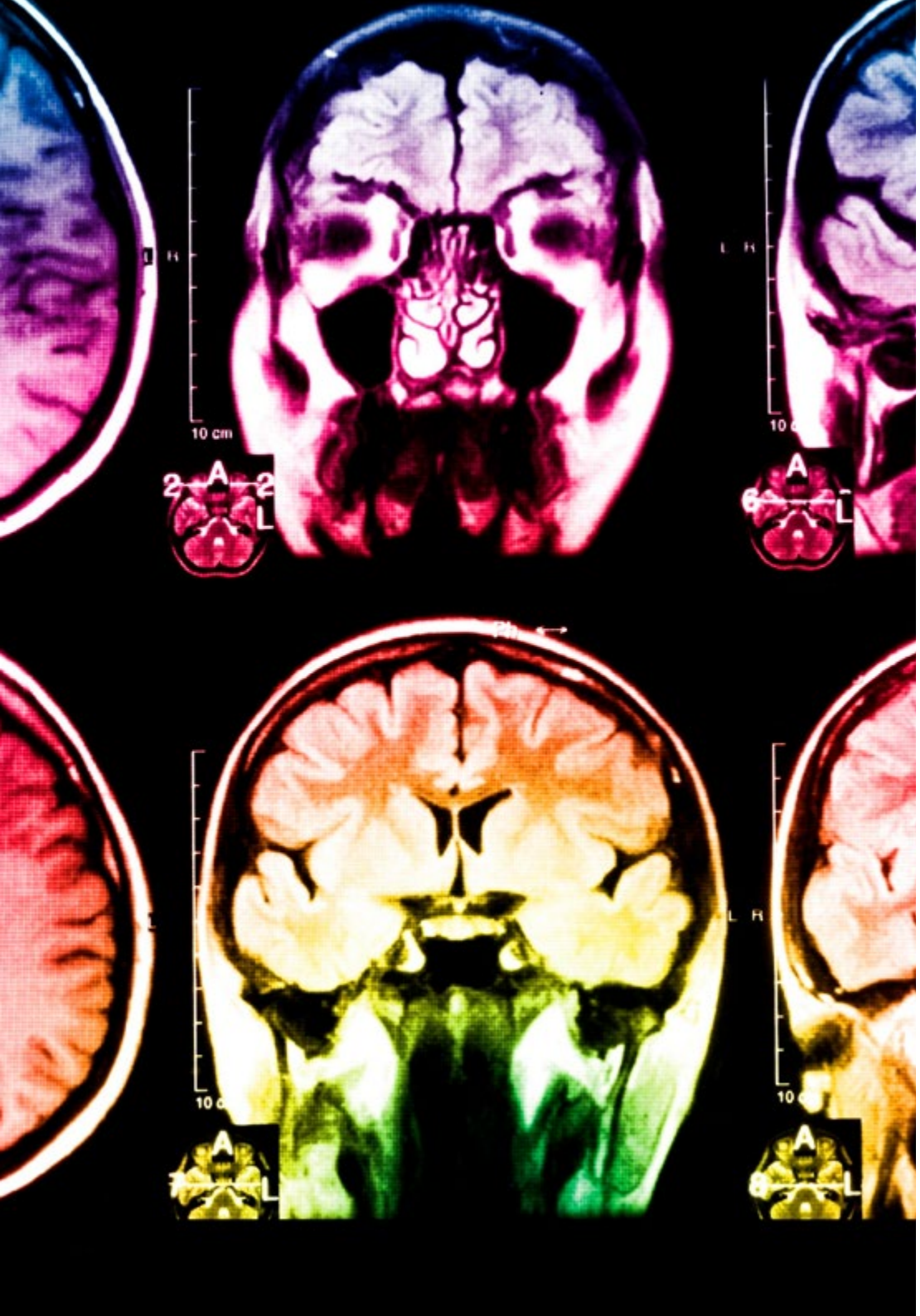
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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. With this methodology we have 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, markets, and financial 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.

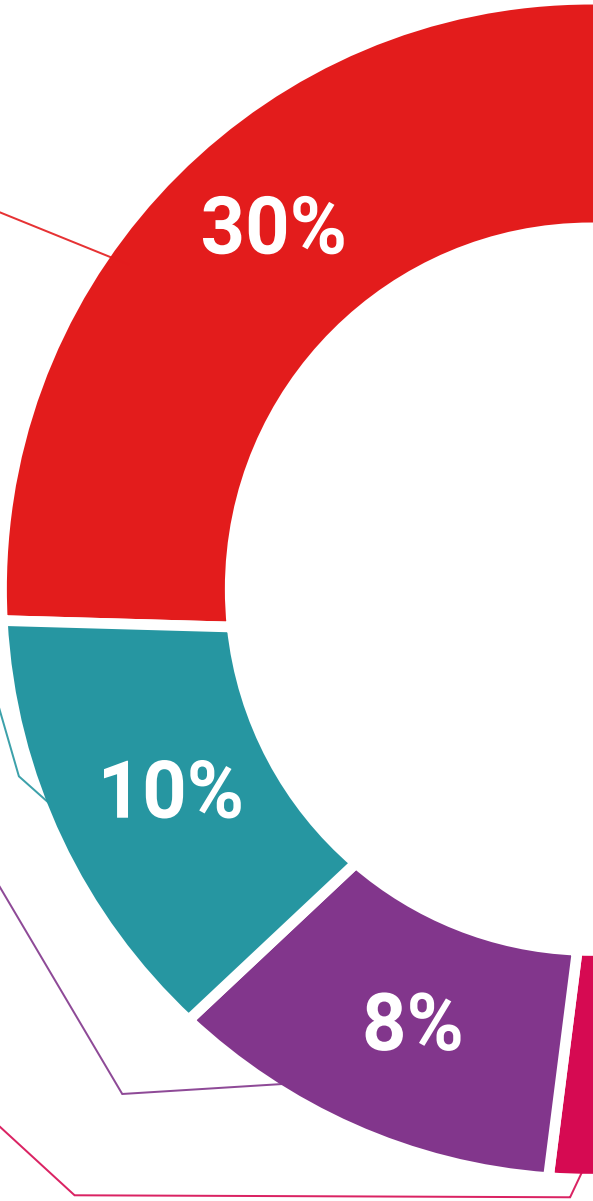
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

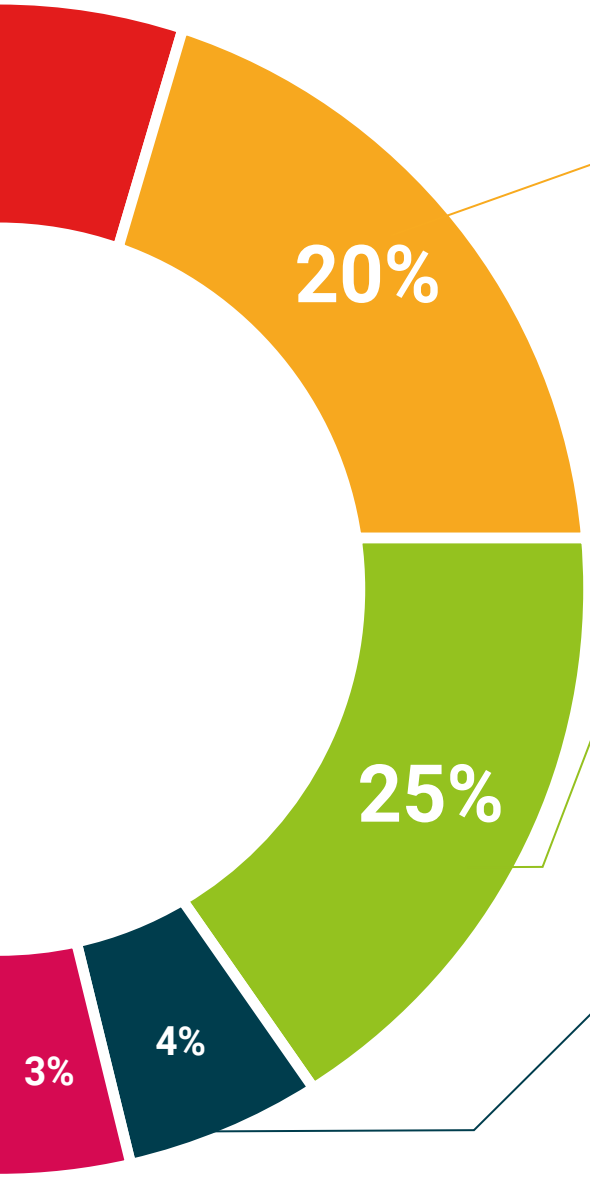
Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic 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 Computational Design and 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 Computational Design and 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 Computational Design and Artificial Intelligence**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

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

Postgraduate Certificate in Computational Design and 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 diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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Postgraduate Certificate
Computational Design and Artificial Intelligence

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Postgraduate Certificate

Computational Design and Artificial Intelligence

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