Professional Master's Degree

Artificial Intelligence in Nursing

tech global university

tech global university

Professional Master's Degree
Artificial Intelligence in Nursing

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Accreditation: **90 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/nursing/professional-master-degree/master-artificial-intelligence-nursing**

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01

Introduction

Artificial Intelligence has transformed the healthcare sector, improving process management and patient care. This transformation requires that nursing professionals need to acquire new skills to integrate these technologies in their work. That is why TECH facilitates the study of a 100% online university program to provide new knowledge to graduates on the applications of Artificial Intelligence in the work of nurses. A program that covers different general tools to specific applications to monitor the recovery or diet of patients remotely. Likewise, the academic itinerary is based on the Relearning methodology and has innovative didactic materials such as explanatory videos, interactive summaries and complementary readings. In addition to having the best teaching staff, composed of true experts in the field.

A 100% online program with which you can train as an expert nurse in the use of digital technologies in healthcare and apply different AI tools"

Artificial Intelligence has revolutionized the healthcare field, boosting the use of digital technologies in the field. This technological advancement has redefined the industry, requiring healthcare professionals, including nurses, to acquire specialized skills to integrate these innovations into their daily practice. With the growth of digital technologies, it has become crucial for healthcare experts to address new areas of expertise beyond their traditional roles. Among the main challenges is the integration of AI in Telemedicine, the optimization of patient databases and the precise control of care resources.

To respond to this need, TECH has designed the program in Artificial Intelligence in Nursing. This program focuses on providing comprehensive training to enable professionals to acquire innovative skills in the use of AI. The curriculum ranges from general concepts on advanced tools to specific applications that enhance care efficiency and personalization of care. Modules include the application of AI in the field of nutrition, enabling more precise management of patients' dietary needs, as well as advanced monitoring of post-procedural recovery.

Upon completion of this program, nurses will not only be trained to implement technological solutions in clinical settings, but will also be able to lead digital health projects, develop personalized care approaches and contribute significantly to innovation in the sector. This not only optimizes outcomes for patients, but also opens doors to new job opportunities in a competitive market, where specialization in AI is increasingly valued and essential.

On the other hand, this program features the exclusive Relearning methodology in which TECH, through repetition, enhances the assimilation of key concepts.
All this from a 100% online Virtual Campus that nurses can consult at any time or place, from their tablet, mobile or computer.

This **Professional Master's Degree in Artificial Intelligence in Nursing** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of case studies presented by experts in Artificial Intelligence in Nursing
- 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 delve into the most innovative tools to play strategic roles in clinical management as a nurse thanks to TECH”

Use remote monitoring systems with AI for the effective follow-up and management of patients with chronic diseases"

You have at your fingertips different multimedia resources such as explanatory videos and interactive summaries to broaden your competencies in a comprehensive way.

No tight schedules, no continuous evaluations: this program adapts to all your academic needs and personal obligations.

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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts in the field of educational coaching with extensive experience.

02

Syllabus

The program prepares professionals in this area to face the technological challenges in the healthcare sector. Its 20 academic modules offer an exhaustive and detailed analysis of tools such as chatbots and conversational assistants that improve patient care and optimize clinical processes. It also delves into Artificial Intelligence and Virtual Reality applications, as well as their advantages in providing emotional support to patients, with innovative approaches in rehabilitation and pain management. In this way, nurses will be up to date on how these personalized clinical management tools allow them to optimize procedures and create fully adapted care plans. All this from a complete Virtual Campus and 100% online content, accessible 24 hours a day.

You are looking at the most integrated and advanced curriculum in terms of resources, applications and procedures to get the most out of Artificial Intelligence technologies in Nursing"

Module 1. Fundamentals of Artificial Intelligence

1.1. History of Artificial Intelligence
- 1.1.1. When Do We Start Talking About Artificial Intelligence?
- 1.1.2. References in Film
- 1.1.3. Importance of Artificial Intelligence
- 1.1.4. Technologies that Enable and Support Artificial Intelligence

1.2. Artificial Intelligence in Games
- 1.2.1. Game Theory
- 1.2.2. Minimax and Alpha-Beta Pruning
- 1.2.3. Simulation: Monte Carlo

1.3. Neural Networks
- 1.3.1. Biological Fundamentals
- 1.3.2. Computational Model
- 1.3.3. Supervised and Unsupervised Neural Networks
- 1.3.4. Simple Perceptron
- 1.3.5. Multilayer Perceptron

1.4. Genetic Algorithms
- 1.4.1. History
- 1.4.2. Biological Basis
- 1.4.3. Problem Coding
- 1.4.4. Generation of the Initial Population
- 1.4.5. Main Algorithm and Genetic Operators
- 1.4.6. Evaluation of Individuals: Fitness

1.5. Thesauri, Vocabularies, Taxonomies
- 1.5.1. Vocabulary
- 1.5.2. Taxonomy
- 1.5.3. Thesauri
- 1.5.4. Ontologies
- 1.5.5. Knowledge Representation Semantic Web

1.6. Semantic Web
- 1.6.1. Specifications RDF, RDFS and OWL
- 1.6.2. Inference/ Reasoning
- 1.6.3. Linked Data

1.7. Expert Systems and DSS
  1.7.1. Expert Systems
  1.7.2. Decision Support Systems
1.8. Chatbots and Virtual Assistants
  1.8.1. Types of Assistants: Voice and Text Assistants
  1.8.2. Fundamental Parts for the Development of an Assistant: Intents, Entities and Dialog Flow
  1.8.3. Integrations: Web, Slack, WhatsApp, Facebook
  1.8.4. Assistant Development Tools: Dialog Flow, Watson Assistant
1.9. AI Implementation Strategy
1.10. Future of Artificial Intelligence
  1.10.1. Understand How to Detect Emotions Using Algorithms
  1.10.2. Creating a Personality: Language, Expressions and Content
  1.10.3. Trends of Artificial Intelligence
  1.10.4. Reflections

Module 2. Data Types and Life Cycle

2.1. Statistics
  2.1.1. Statistics: Descriptive Statistics, Statistical Inferences
  2.1.2. Population, Sample, Individual
  2.1.3. Variables: Definition, Measurement Scales
2.2. Types of Data Statistics
  2.2.1. According to Type
    2.2.1.1. Quantitative: Continuous Data and Discrete Data
    2.2.1.2. Qualitative. Binomial Data, Nominal Data and Ordinal Data
  2.2.2. According to Its Shape
    2.2.2.1. Numeric
    2.2.2.2. Text:
    2.2.2.3. Logical
  2.2.3. According to Its Source
    2.2.3.1. Primary
    2.2.3.2. Secondary
2.3. Life Cycle of Data
  2.3.1. Stages of the Cycle
  2.3.2. Milestones of the Cycle
  2.3.3. FAIR Principles
2.4. Initial Stages of the Cycle
  2.4.1. Definition of Goals
  2.4.2. Determination of Resource Requirements
  2.4.3. Gantt Chart
  2.4.4. Data Structure
2.5. Data Collection
  2.5.1. Methodology of Data Collection
  2.5.2. Data Collection Tools
  2.5.3. Data Collection Channels
2.6. Data Cleaning
  2.6.1. Phases of Data Cleansing
  2.6.2. Data Quality
  2.6.3. Data Manipulation (with R)
2.7. Data Analysis, Interpretation and Evaluation of Results
  2.7.1. Statistical Measures
  2.7.2. Relationship Indexes
  2.7.3. Data Mining
2.8. Datawarehouse
  2.8.1. Elements that Comprise It
  2.8.2. Design
  2.8.3. Aspects to Consider
2.9. Data Availability
  2.9.1. Access
  2.9.2. Uses
  2.9.3. Security
2.10. Regulatory Framework
  2.10.1. Data Protection Law
  2.10.2. Good Practices
  2.10.3. Other Regulatory Aspects

Module 3. Data in Artificial Intelligence

3.1. Data Science
- 3.1.1. Data Science
- 3.1.2. Advanced Tools for Data Scientists

3.2. Data, Information and Knowledge
- 3.2.1. Data, Information and Knowledge
- 3.2.2. Types of Data
- 3.2.3. Data Sources

3.3. From Data to Information
- 3.3.1. Data Analysis
- 3.3.2. Types of Analysis
- 3.3.3. Extraction of Information from a Dataset

3.4. Extraction of Information Through Visualization
- 3.4.1. Visualization as an Analysis Tool
- 3.4.2. Visualization Methods
- 3.4.3. Visualization of a Data Set

3.5. Data Quality
- 3.5.1. Quality Data
- 3.5.2. Data Cleaning
- 3.5.3. Basic Data Pre-Processing

3.6. Dataset
- 3.6.1. Dataset Enrichment
- 3.6.2. The Curse of Dimensionality
- 3.6.3. Modification of Our Data Set

3.7. Unbalance
- 3.7.1. Classes of Unbalance
- 3.7.2. Unbalance Mitigation Techniques
- 3.7.3. Balancing a Dataset

3.8. Unsupervised Models
- 3.8.1. Unsupervised Model
- 3.8.2. Methods
- 3.8.3. Classification with Unsupervised Models

3.9. Supervised Models
- 3.9.1. Supervised Model
- 3.9.2. Methods
- 3.9.3. Classification with Supervised Models

3.10. Tools and Good Practices
- 3.10.1. Good Practices for Data Scientists
- 3.10.2. The Best Model
- 3.10.3. Useful Tools

Module 4. Data Mining. Selection, Pre-Processing and Transformation

4.1. Statistical Inference
- 4.1.1. Descriptive Statistics vs. Statistical Inference
- 4.1.2. Parametric Procedures
- 4.1.3. Non-Parametric Procedures

4.2. Exploratory Analysis
- 4.2.1. Descriptive Analysis
- 4.2.2. Visualization
- 4.2.3. Data Preparation

4.3. Data Preparation
- 4.3.1. Integration and Data Cleaning
- 4.3.2. Normalization of Data
- 4.3.3. Transforming Attributes

4.4. Missing Values
- 4.4.1. Treatment of Missing Values
- 4.4.2. Maximum Likelihood Imputation Methods
- 4.4.3. Missing Value Imputation Using Machine Learning

4.5. Noise in the Data
- 4.5.1. Noise Classes and Attributes
- 4.5.2. Noise Filtering
- 4.5.3. The Effect of Noise

4.6. The Curse of Dimensionality
- 4.6.1. Oversampling
- 4.6.2. Undersampling
- 4.6.3. Multidimensional Data Reduction

4.7. From Continuous to Discrete Attributes
- 4.7.1. Continuous Data Vs. Discreet Data
- 4.7.2. Discretization Process

4.8. The Data
- 4.8.1. Data Selection
- 4.8.2. Prospects and Selection Criteria
- 4.8.3. Selection Methods

4.9. Instance Selection
- 4.9.1. Methods for Instance Selection
- 4.9.2. Prototype Selection
- 4.9.3. Advanced Methods for Instance Selection

4.10. Data Pre-processing in Big Data Environments

Module 5. Algorithm and Complexity in Artificial Intelligence

5.1. Introduction to Algorithm Design Strategies
- 5.1.1. Recursion
- 5.1.2. Divide and Conquer
- 5.1.3. Other Strategies

5.2. Efficiency and Analysis of Algorithms
- 5.2.1. Efficiency Measures
- 5.2.2. Measuring the Size of the Input
- 5.2.3. Measuring Execution Time
- 5.2.4. Worst, Best and Average Case
- 5.2.5. Asymptotic Notation
- 5.2.6. Criteria for Mathematical Analysis of Non-Recursive Algorithms
- 5.2.7. Mathematical Analysis of Recursive Algorithms
- 5.2.8. Empirical Analysis of Algorithms

5.3. Sorting Algorithms
- 5.3.1. Concept of Sorting
- 5.3.2. Bubble Sorting
- 5.3.3. Sorting by Selection
- 5.3.4. Sorting by Insertion
- 5.3.5. Merge Sort
- 5.3.6. Quick Sort

5.4. Algorithms with Trees
- 5.4.1. Tree Concept
- 5.4.2. Binary Trees
- 5.4.3. Tree Paths
- 5.4.4. Representing Expressions
- 5.4.5. Ordered Binary Trees
- 5.4.6. Balanced Binary Trees

5.5. Algorithms Using Heaps
- 5.5.1. Heaps
- 5.5.2. The Heapsort Algorithm
- 5.5.3. Priority Queues

5.6. Graph Algorithms
- 5.6.1. Representation
- 5.6.2. Traversal in Width
- 5.6.3. Depth Travel
- 5.6.4. Topological Sorting

5.7. Greedy Algorithms
- 5.7.1. Greedy Strategy
- 5.7.2. Elements of the Greedy Strategy
- 5.7.3. Currency Exchange
- 5.7.4. Traveler's Problem
- 5.7.5. Backpack Problem

5.8. Minimal Path Finding
- 5.8.1. The Minimum Path Problem
- 5.8.2. Negative Arcs and Cycles
- 5.8.3. Dijkstra's Algorithm

5.9. Greedy Algorithms on Graphs
- 5.9.1. The Minimum Covering Tree
- 5.9.2. Prim's Algorithm
- 5.9.3. Kruskal's Algorithm
- 5.9.4. Complexity Analysis

5.10. Backtracking
- 5.10.1. Backtracking
- 5.10.2. Alternative Techniques

Module 6. Intelligent Systems

6.1. Agent Theory
- 6.1.1. Concept History
- 6.1.2. Agent Definition
- 6.1.3. Agents in Artificial Intelligence
- 6.1.4. Agents in Software Engineering

6.2. Agent Architectures
- 6.2.1. The Reasoning Process of an Agent
- 6.2.2. Reactive Agents
- 6.2.3. Deductive Agents
- 6.2.4. Hybrid Agents
- 6.2.5. Comparison

6.3. Information and Knowledge
- 6.3.1. Difference between Data, Information and Knowledge
- 6.3.2. Data Quality Assessment
- 6.3.3. Data Collection Methods
- 6.3.4. Information Acquisition Methods
- 6.3.5. Knowledge Acquisition Methods

6.4. Knowledge Representation
- 6.4.1. The Importance of Knowledge Representation
- 6.4.2. Definition of Knowledge Representation According to Roles
- 6.4.3. Knowledge Representation Features

6.5. Ontologies
- 6.5.1. Introduction to Metadata
- 6.5.2. Philosophical Concept of Ontology
- 6.5.3. Computing Concept of Ontology
- 6.5.4. Domain Ontologies and Higher-Level Ontologies
- 6.5.5. How to Build an Ontology

6.6. Ontology Languages and Ontology Creation Software
- 6.6.1. Triple RDF, Turtle and N
- 6.6.2. RDF Schema
- 6.6.3. OWL
- 6.6.4. SPARQL
- 6.6.5. Introduction to Ontology Creation Tools
- 6.6.6. Installing and Using Protégé

6.7. Semantic Web
- 6.7.1. Current and Future Status of the Semantic Web
- 6.7.2. Semantic Web Applications

6.8. Other Knowledge Representation Models
- 6.8.1. Vocabulary
- 6.8.2. Global Vision
- 6.8.3. Taxonomy
- 6.8.4. Thesauri
- 6.8.5. Folksonomy
- 6.8.6. Comparison
- 6.8.7. Mind Maps

6.9. Knowledge Representation Assessment and Integration
- 6.9.1. Zero-Order Logic
- 6.9.2. First-Order Logic
- 6.9.3. Descriptive Logic
- 6.9.4. Relationship between Different Types of Logic
- 6.9.5. Prolog: Programming Based on First-Order Logic

6.10. Semantic Reasoners, Knowledge-Based Systems and Expert Systems
- 6.10.1. Concept of Reasoner
- 6.10.2. Reasoner Applications
- 6.10.3. Knowledge-Based Systems
- 6.10.4. MYCIN: History of Expert Systems
- 6.10.5. Expert Systems Elements and Architecture
- 6.10.6. Creating Expert Systems

Module 7. Machine Learning and Data Mining

7.1. Introduction to Knowledge Discovery Processes and Basic Concepts of Machine Learning
- 7.1.1. Key Concepts of Knowledge Discovery Processes
- 7.1.2. Historical Perspective of Knowledge Discovery Processes
- 7.1.3. Stages of the Knowledge Discovery Processes
- 7.1.4. Techniques Used in Knowledge Discovery Processes
- 7.1.5. Characteristics of Good Machine Learning Models
- 7.1.6. Types of Machine Learning Information
- 7.1.7. Basic Learning Concepts
- 7.1.8. Basic Concepts of Unsupervised Learning

7.2. Data Exploration and Pre-Processing
- 7.2.1. Data Processing
- 7.2.2. Data Processing in the Data Analysis Flow
- 7.2.3. Types of Data
- 7.2.4. Data Transformations
- 7.2.5. Visualization and Exploration of Continuous Variables
- 7.2.6. Visualization and Exploration of Categorical Variables
- 7.2.7. Correlation Measures
- 7.2.8. Most Common Graphic Representations
- 7.2.9. Introduction to Multivariate Analysis and Dimensionality Reduction

7.3. Decision Trees
- 7.3.1. ID Algorithm
- 7.3.2. Algorithm C
- 7.3.3. Overtraining and Pruning
- 7.3.4. Result Analysis

7.4. Evaluation of Classifiers
- 7.4.1. Confusion Matrixes
- 7.4.2. Numerical Evaluation Matrixes
- 7.4.3. Kappa Statistic
- 7.4.4. ROC Curves

7.5. Classification Rules
- 7.5.1. Rule Evaluation Measures
- 7.5.2. Introduction to Graphic Representation
- 7.5.3. Sequential Overlay Algorithm

7.6. Neural Networks
- 7.6.1. Basic Concepts
- 7.6.2. Simple Neural Networks
- 7.6.3. Backpropagation Algorithm
- 7.6.4. Introduction to Recurrent Neural Networks

7.7. Bayesian Methods
- 7.7.1. Basic Probability Concepts
- 7.7.2. Bayes' Theorem
- 7.7.3. Naive Bayes
- 7.7.4. Introduction to Bayesian Networks

7.8. Regression and Continuous Response Models
- 7.8.1. Simple Linear Regression
- 7.8.2. Multiple Linear Regression
- 7.8.3. Logistic Regression
- 7.8.4. Regression Trees
- 7.8.5. Introduction to Support Vector Machines (SVM)
- 7.8.6. Goodness-of-Fit Measures

7.9. Clustering
- 7.9.1. Basic Concepts
- 7.9.2. Hierarchical Clustering
- 7.9.3. Probabilistic Methods
- 7.9.4. EM Algorithm
- 7.9.5. B-Cubed Method
- 7.9.6. Implicit Methods

7.10. Text Mining and Natural Language Processing (NLP)
- 7.10.1. Basic Concepts
- 7.10.2. Corpus Creation
- 7.10.3. Descriptive Analysis
- 7.10.4. Introduction to Feelings Analysis

Module 8. Neural Networks, the Basis of Deep Learning

8.1. Deep Learning
- 8.1.1. Types of Deep Learning
- 8.1.2. Applications of Deep Learning
- 8.1.3. Advantages and Disadvantages of Deep Learning

8.2. Operations
- 8.2.1. Sum
- 8.2.2. Product
- 8.2.3. Transfer

8.3. Layers
- 8.3.1. Input Layer
- 8.3.2. Hidden Layer
- 8.3.3. Output Layer

8.4. Layer Bonding and Operations
- 8.4.1. Architecture Design
- 8.4.2. Connection between Layers
- 8.4.3. Forward Propagation

8.5. Construction of the First Neural Network
- 8.5.1. Network Design
- 8.5.2. Establish the Weights
- 8.5.3. Network Training

8.6. Trainer and Optimizer
- 8.6.1. Optimizer Selection
- 8.6.2. Establishment of a Loss Function
- 8.6.3. Establishing a Metric

8.7. Application of the Principles of Neural Networks
- 8.7.1. Activation Functions
- 8.7.2. Backward Propagation
- 8.7.3. Parameter Adjustment

8.8. From Biological to Artificial Neurons
- 8.8.1. Functioning of a Biological Neuron
- 8.8.2. Transfer of Knowledge to Artificial Neurons
- 8.8.3. Establish Relations Between the Two

8.9. Implementation of MLP (Multilayer Perceptron) with Keras
- 8.9.1. Definition of the Network Structure
- 8.9.2. Model Compilation
- 8.9.3. Model Training

8.10. Fine Tuning Hyperparameters of Neural Networks
- 8.10.1. Selection of the Activation Function
- 8.10.2. Set the Learning Rate
- 8.10.3. Adjustment of Weights

Module 9. Deep Neural Networks Training

9.1. Gradient Problems
- 9.1.1. Gradient Optimization Techniques
- 9.1.2. Stochastic Gradients
- 9.1.3. Weight Initialization Techniques

9.2. Reuse of Pre-Trained Layers
- 9.2.1. Transfer Learning Training
- 9.2.2. Feature Extraction
- 9.2.3. Deep Learning

9.3. Optimizers
- 9.3.1. Stochastic Gradient Descent Optimizers
- 9.3.2. Optimizers Adam and RMSprop
- 9.3.3. Moment Optimizers

9.4. Learning Rate Programming
- 9.4.1. Automatic Learning Rate Control
- 9.4.2. Learning Cycles
- 9.4.3. Smoothing Terms

9.5. Overfitting
- 9.5.1. Cross Validation
- 9.5.2. Regularization
- 9.5.3. Evaluation Metrics

9.6. Practical Guidelines
- 9.6.1. Model Design
- 9.6.2. Selection of Metrics and Evaluation Parameters
- 9.6.3. Hypothesis Testing

9.7. Transfer Learning
- 9.7.1. Transfer Learning Training
- 9.7.2. Feature Extraction
- 9.7.3. Deep Learning

9.8. Data Augmentation
- 9.8.1. Image Transformations
- 9.8.2. Synthetic Data Generation
- 9.8.3. Text Transformation

9.9. Practical Application of Transfer Learning
- 9.9.1. Transfer Learning Training
- 9.9.2. Feature Extraction
- 9.9.3. Deep Learning

9.10. Regularization
- 9.10.1. L and L
- 9.10.2. Regularization by Maximum Entropy
- 9.10.3. Dropout

Module 10. Model Customization and Training with TensorFlow

10.1. TensorFlow
- 10.1.1. Use of the TensorFlow Library
- 10.1.2. Model Training with TensorFlow
- 10.1.3. Operations with Graphs in TensorFlow

10.2. TensorFlow and NumPy
- 10.2.1. NumPy Computing Environment for TensorFlow
- 10.2.2. Using NumPy Arrays with TensorFlow
- 10.2.3. NumPy Operations for TensorFlow Graphs

10.3. Model Customization and Training Algorithms
- 10.3.1. Building Custom Models with TensorFlow
- 10.3.2. Management of Training Parameters
- 10.3.3. Use of Optimization Techniques for Training

10.4. TensorFlow Features and Graphs
- 10.4.1. Functions with TensorFlow
- 10.4.2. Use of Graphs for Model Training
- 10.4.3. Grap Optimization with TensorFlow Operations

10.5. Loading and Preprocessing Data with TensorFlow
- 10.5.1. Loading Data Sets with TensorFlow
- 10.5.2. Pre-Processing Data with TensorFlow
- 10.5.3. Using TensorFlow Tools for Data Manipulation

10.6. The tfdata API
- 10.6.1. Using the tf.data API for Data Processing
- 10.6.2. Construction of Data Streams with tf.data
- 10.6.3. Using the tfdata API for Model Training

10.7. The TFRecord Format
- 10.7.1. Using the TFRecord API for Data Serialization
- 10.7.2. TFRecord File Upload with TensorFlow
- 10.7.3. Using TFRecord Files for Model Training

10.8. Keras Pre-Processing Layers
- 10.8.1. Using the Keras Pre-Processing API
- 10.8.2. Construction of Pre-Processing Pipelined with Keras
- 10.8.3. Using the Keras Pre-Processing API for Model Training

10.9. The TensorFlow Datasets Project
- 10.9.1. Using TensorFlow Datasets for Data Loading
- 10.9.2. Preprocessing Data with TensorFlow Datasets
- 10.9.3. Using TensorFlow Datasets for Model Training

10.10. Building a Deep Learning App with TensorFlow
- 10.10.1. Practical Applications
- 10.10.2. Building a Deep Learning Application with TensorFlow
- 10.10.3. Model Training with TensorFlow
- 10.10.4. Using the Application for the Prediction of Results

Module 11. Deep Computer Vision with Convolutional Neural Networks

11.1. The Visual Cortex Architecture
- 11.1.1. Functions of the Visual Cortex
- 11.1.2. Theories of Computational Vision
- 11.1.3. Models of Image Processing

11.2. Convolutional Layers
- 11.2.1. Reuse of Weights in Convolution
- 11.2.2. Convolution D
- 11.2.3. Activation Functions

11.3. Grouping Layers and Implementation of Grouping Layers with Keras
- 11.3.1. Pooling and Striding
- 11.3.2. Flattening
- 11.3.3. Types of Pooling

11.4. CNN Architecture
- 11.4.1. VGG Architecture
- 11.4.2. AlexNet Architecture
- 11.4.3. ResNet Architecture

11.5. Implementing a CNN ResNet using Keras
- 11.5.1. Weight Initialization
- 11.5.2. Input Layer Definition
- 11.5.3. Output Definition

11.6. Use of Pre-Trained Keras Models
- 11.6.1. Characteristics of Pre-Trained Models
- 11.6.2. Uses of Pre-Trained Models
- 11.6.3. Advantages of Pre-Trained Models

11.7. Pre-Trained Models for Transfer Learning
- 11.7.1. Learning by Transfer
- 11.7.2. Transfer Learning Process
- 11.7.3. Advantages of Transfer Learning

11.8. Deep Computer Vision Classification and Localization
- 11.8.1. Image Classification
- 11.8.2. Localization of Objects in Images
- 11.8.3. Object Detection

11.9. Object Detection and Object Tracking
- 11.9.1. Object Detection Methods
- 11.9.2. Object Tracking Algorithms
- 11.9.3. Tracking and Localization Techniques

11.10. Semantic Segmentation
- 11.10.1. Deep Learning for Semantic Segmentation
- 11.10.1. Edge Detection
- 11.10.1. Rule-Based Segmentation Methods

Module 12. Natural Language Processing (NLP) with Recurrent Neural Networks (RNN) and Attention

12.1. Text Generation Using RNN
- 12.1.1. Training an RNN for Text Generation
- 12.1.2. Natural Language Generation with RNN
- 12.1.3. Text Generation Applications with RNN

12.2. Training Data Set Creation
- 12.2.1. Preparation of the Data for Training an RNN
- 12.2.2. Storage of the Training Dataset
- 12.2.3. Data Cleaning and Transformation
- 12.2.4. Sentiment Analysis

12.3. Classification of Opinions with RNN
- 12.3.1. Detection of Themes in Comments
- 12.3.2. Sentiment Analysis with Deep Learning Algorithms

12.4. Encoder-Decoder Network for Neural Machine Translation
- 12.4.1. Training an RNN for Machine Translation
- 12.4.2. Use of an Encoder-Decoder Network for Machine Translation
- 12.4.3. Improving the Accuracy of Machine Translation with RNNs

12.5. Attention Mechanisms
- 12.5.1. Application of Care Mechanisms in RNN
- 12.5.2. Use of Care Mechanisms to Improve the Accuracy of the Models
- 12.5.3. Advantages of Attention Mechanisms in Neural Networks

12.6. Transformer Models
- 12.6.1. Using Transformers Models for Natural Language Processing
- 12.6.2. Application of Transformers Models for Vision
- 12.6.3. Advantages of Transformers Models

12.7. Transformers for Vision
- 12.7.1. Use of Transformers Models for Vision
- 12.7.2. Image Data Pre-Processing
- 12.7.3. Training a Transformers Model for Vision

12.8. Hugging Face's Transformers Library
- 12.8.1. Using Hugging Face's Transformers Library
- 12.8.2. Hugging Face's Transformers Library Application
- 12.8.3. Advantages of Hugging Face's Transformers Library

12.9. Other Transformers Libraries. Comparison
- 12.9.1. Comparison Between Different Transformers Libraries
- 12.9.2. Use of the Other Transformers Libraries
- 12.9.3. Advantages of the Other Transformers Libraries

12.10. Development of an NLP Application with RNN and Attention. Practical Applications
- 12.10.1. Development of a Natural Language Processing Application with RNN and Attention
- 12.10.2. Use of RNN, Attention Mechanisms and Transformers Models in the Application.
- 12.10.3. Evaluation of the Practical Application

Module 13. Autoencoders, GANs and Diffusion Models

13.1. Representation of Efficient Data
- 13.1.1. Dimensionality Reduction
- 13.1.2. Deep Learning
- 13.1.3. Compact Representations

13.2. PCA Realization with an Incomplete Linear Automatic Encoder
- 13.2.1. Training Process
- 13.2.2. Implementation in Python
- 13.2.3. Use of Test Data

13.3. Stacked Automatic Encoders
- 13.3.1. Deep Neural Networks
- 13.3.2. Construction of Coding Architectures
- 13.3.3. Use of Regularization

13.4. Convolutional Autoencoders
- 13.4.1. Design of Convolutional Models
- 13.4.2. Convolutional Model Training
- 13.4.3. Results Evaluation

13.5. Noise Suppression of Automatic Encoders
- 13.5.1. Filter Application
- 13.5.2. Design of Coding Models
- 13.5.3. Use of Regularization Techniques

13.6. Sparse Automatic Encoders
- 13.6.1. Increasing Coding Efficiency
- 13.6.2. Minimizing the Number of Parameters
- 13.6.3. Using Regularization Techniques

13.7. Variational Automatic Encoders
- 13.7.1. Use of Variational Optimization
- 13.7.2. Unsupervised Deep Learning
- 13.7.3. Deep Latent Representations

13.8. Generation of Fashion MNIST Images
- 13.8.1. Pattern Recognition
- 13.8.2. Image Generation
- 13.8.3. Deep Neural Networks Training

13.9. Generative Adversarial Networks and Diffusion Models
- 13.9.1. Content Generation from Images
- 13.9.2. Modeling of Data Distributions
- 13.9.3. Use of Adversarial Networks

13.10. Implementation of the Models
- 13.10.1. Practical Application
- 13.10.2. Implementation of the Models
- 13.10.3. Use of Real Data
- 13.10.4. Results Evaluation

Module 14. Bio-Inspired Computing

14.1. Introduction to Bio-Inspired Computing
- 14.1.1. Introduction to Bio-Inspired Computing

14.2. Social Adaptation Algorithms
- 14.2.1. Bio-Inspired Computation Based on Ant Colonies
- 14.2.2. Variants of Ant Colony Algorithms
- 14.2.3. Particle Cloud Computing

14.3. Genetic Algorithms
- 14.3.1. General Structure
- 14.3.2. Implementations of the Major Operators

14.4. Space Exploration-Exploitation Strategies for Genetic Algorithms
- 14.4.1. CHC Algorithm
- 14.4.2. Multimodal Problems

14.5. Evolutionary Computing Models (I)
- 14.5.1. Evolutionary Strategies
- 14.5.2. Evolutionary Programming
- 14.5.3. Algorithms Based on Differential Evolution

14.6. Evolutionary Computation Models (II)
- 14.6.1. Evolutionary Models Based on Estimation of Distributions (EDA)
- 14.6.2. Genetic Programming

14.7. Evolutionary Programming Applied to Learning Problems
- 14.7.1. Rules-Based Learning
- 14.7.2. Evolutionary Methods in Instance Selection Problems

14.8. Multi-Objective Problems
- 14.8.1. Concept of Dominance
- 14.8.2. Application of Evolutionary Algorithms to Multi-Objective Problems

14.9. Neural Networks (I)
- 14.9.1. Introduction to Neural Networks
- 14.9.2. Practical Example with Neural Networks

14.10. Neural Networks (II)
- 14.10.1. Use Cases of Neural Networks in Medical Research
- 14.10.2. Use Cases of Neural Networks in Economics
- 14.10.3. Use Cases of Neural Networks in Artificial Vision

Module 15. Artificial Intelligence: Strategies and Applications

15.1. Financial Services
- 15.1.1. The Implications of Artificial Intelligence (AI) in Financial Services. Opportunities and Challenges
- 15.1.2. Case Uses
- 15.1.3. Potential Risks Related to the Use of AI
- 15.1.4. Potential Future Developments/Uses of AI

15.2. Implications of Artificial Intelligence in Healthcare Service
- 15.2.1. Implications of AI in the Healthcare Sector. Opportunities and Challenges
- 15.2.2. Case Uses

15.3. Risks Related to the Use of AI in Healthcare Service
- 15.3.1. Potential Risks Related to the Use of AI
- 15.3.2. Potential Future Developments/Uses of AI

15.4. Retail
- 15.4.1. Implications of AI in Retail. Opportunities and Challenges
- 15.4.2. Case Uses
- 15.4.3. Potential Risks Related to the Use of AI
- 15.4.4. Potential Future Developments/Uses of AI

15.5. Industry
- 15.5.1. Implications of AI in Industry. Opportunities and Challenges
- 15.5.2. Case Uses

15.6. Potential Risks Related to the Use of AI in Industry
- 15.6.1. Case Uses
- 15.6.2. Potential Risks Related to the Use of AI
- 15.6.3. Potential Future Developments/Uses of AI

15.7. Public Administration
- 15.7.1. AI Implications for Public Administration. Opportunities and Challenges
- 15.7.2. Case Uses
- 15.7.3. Potential Risks Related to the Use of AI
- 15.7.4. Potential Future Developments/Uses of AI

15.8. Educational
- 15.8.1. AI Implications for Education. Opportunities and Challenges
- 15.8.2. Case Uses
- 15.8.3. Potential Risks Related to the Use of AI
- 15.8.4. Potential Future Developments/Uses of AI

15.9. Forestry and Agriculture
- 15.9.1. Implications of AI in Forestry and Agriculture. Opportunities and Challenges
- 15.9.2. Case Uses
- 15.9.3. Potential Risks Related to the Use of AI
- 15.9.4. Potential Future Developments/Uses of AI

15.10 Human Resources
- 15.10.1. Implications of AI for Human Resources Opportunities and Challenges
- 15.10.2. Case Uses
- 15.10.3. Potential Risks Related to the Use of AI
- 15.10.4. Potential Future Developments/Uses of AI

Module 16. Application of Conversational Assistants in Artificial Intelligence for Nursing

16.1. Introduction to Conversational Assistants in AI for Nursing
- 16.1.1. Context of AI in Health and Its Application in Nursing
- 16.1.2. Benefits of Conversational Assistants in Nursing Care
- 16.1.3. Specific Applications in Nursing
- 16.1.4. Trends in Conversational Assistants in the Healthcare Sector

16.2. Types of Conversational Assistants in Healthcare
- 16.2.1. Types of Conversational Assistants in Healthcare (Synthesia, Heygen)
- 16.2.2. Differences between Assistants in Support, Diagnostic, and Follow-Up Functions
- 16.2.3. Examples of Conversational Assistants and Nursing Use Cases
- 16.2.4. Comparison between Automated Assistants and Hybrid Assistants (with Human Intervention)

16.3. Implementation of Conversational Assistants in Healthcare
- 16.3.1. Advantages of Assistants in the Healthcare Environment for Nurses
- 16.3.2. Challenges in the Implementation of Assistants in Clinical Processes
- 16.3.3. Technical Requirements for Implementation in Healthcare
- 16.3.4. Evaluation of Effectiveness and Benefits in the Educational Healthcare Setting

16.4. Creating Personalized Assistants in ChatGPT
- 16.4.1. Introduction to the Creation of a Chatbot in ChatGPT
- 16.4.2. Process of Customizing a Nursing Assistant (Part 1)
- 16.4.3. Process of Customizing a Nursing Assistant (Part 2)
- 16.4.4. Practical Examples of Personalized Healthcare Assistants

16.5. Impact of AI and Automation in the Health Sector
- 16.5.1. Changes in Job Roles Due to AI
- 16.5.2. Adaptation of Nursing Professionals to AI Technologies
- 16.5.3. Effects of Conversational Assistants on the Training of the Healthcare Workforce
- 16.5.4. Evaluation of the Impact of Automation on the Healthcare Sector

16.6. Integrating Conversational Assistants in Nursing Education
- 16.6.1. Role of Conversational Assistants in Clinical Learning
- 16.6.2. Using Conversational Assistants in Clinical Case Simulations
- 16.6.3. Application in Clinical Practice and Decision Making
- 16.6.4. Tools for Continuing Education with Assistants

16.7. Conversational Assistants in the Emotional Support of Patients
- 16.7.1. Applications of Assistants for Emotional Accompaniment
- 16.7.2. Examples of Conversational Assistants in Psychological Support
- 16.7.3. Limitations in the Emotional Support of Conversational Assistants
- 16.7.4. Considerations for the Use of AI in Emotional Support

16.8. Improving Efficiency and Patient Care with AI Assistants
- 16.8.1. Managing Queries and Frequently Asked Questions with Assistants
- 16.8.2. Optimizing Patient-Nurse Communication
- 16.8.3. Assistant Applications in Care Coordination
- 16.8.4. Evaluation of the Impact of Assistants on Clinical Efficiency

16.9. Development and Customization of Conversational Tools for Nurses
- 16.9.1. Process of Developing a Conversational Nurse Assistant from Scratch
- 16.9.2. Customization for Specific Nursing Needs
- 16.9.3. Updating and Continuous Improvement of Conversational Assistants
- 16.9.4. Implementing Assistants in Various Healthcare Settings

16.10. Virtual Learning and Continuing Education in AI for Nursing
- 16.10.1. Importance of AI Continuous Learning for Nursing
- 16.10.2. AI E-Learning Platforms and Assistants
- 16.10.3. AI Professional Development for Healthcare Workers
- 16.10.4. Future of AI Training for Nursing and Healthcare Workers

Module 17. Using Artificial Intelligence and Virtual Reality in Emotional Support in Nursing

17.1. Introduction to AI-Assisted Emotional Support (Woebot)
- 17.1.1. Concept and Relevance of Emotional Support in AI
- 17.1.2. Benefits and Limitations of AI Emotional Support
- 17.1.3. Main Applications in the Field of Mental Health
- 17.1.4. Differences with Traditional Emotional Support

17.2. Chatbots in Emotional Support
- 17.2.1. Types of Chatbots Available for Emotional Support (Replika, Wysa)
- 17.2.2. Examples of Mental Health Chatbots
- 17.2.3. Limitations of Chatbots in Emotional Support
- 17.2.4. Case Studies of the Use of Chatbots in the Healthcare Sector

17.3. AI Tools for Mental Health (Youper, Koko)
- 17.3.1. AI Success Stories in Mental Health
- 17.3.2. Current Emotional Support Tools
- 17.3.3. Integrating AI in Mental Health Therapies
- 17.3.4. Measuring the Effectiveness of AI Tools

17.4. Privacy and Security in AI-Assisted Emotional Support
- 17.4.1. Importance of Privacy in AI-Assisted Emotional Support
- 17.4.2. Privacy Regulations in the Use of AI in Healthcare
- 17.4.3. Data Security in Emotional Support Systems
- 17.4.4. Ethics and Protection of Sensitive Information

17.5. Comparison between Traditional Emotional Support and Emotional Support with AI
- 17.5.1. Current Challenges in Both Approaches
- 17.5.2. Benefits of Combining AI with Traditional Methods
- 17.5.3. Case Studies in Mixed Emotional Support
- 17.5.4. Implementation Challenges and Acceptance of AI Support

17.6. Virtual Reality in Patient Care (Psious, RelieVRx)
- 17.6.1. Introduction to Virtual Reality in Healthcare
- 17.6.2. Virtual Reality Devices and Their Medical Application
- 17.6.3. Virtual Reality in Patient Preparation
- 17.6.4. Evolution of Virtual Reality in Healthcare

17.7. Virtual Reality Applications in Rehabilitation (MindMotion, VRHealth)
- 17.7.1. Using Virtual Reality in Motor Rehabilitation
- 17.7.2. Pain Management Using Virtual Reality
- 17.7.3. Treatment of Phobias and Anxiety Disorders
- 17.7.4. Examples of Successful Rehabilitation with Virtual Reality

17.8. Ethical Considerations in the Use of Virtual Reality
- 17.8.1. Ethics in Virtual Reality Treatments
- 17.8.2. Patient Safety in Virtual Environments
- 17.8.3. Risks of Addiction and Overexposure to Virtual Reality
- 17.8.4. Regulations in the Use of Virtual Reality in Healthcare

17.9. Comparison of Traditional Treatments and Virtual Reality
- 17.9.1. Differences in the Effectiveness of Both Approaches
- 17.9.2. Use Cases for Mixed Treatments
- 17.9.3. Cost-Benefit Analysis
- 17.9.4. Expert Opinion on the Use of Virtual Reality

17.10. Future of Virtual Reality in Patient Care
- 17.10.1. Technological Advances in Virtual Reality Applied to Healthcare
- 17.10.2. Predictions on the Impact of Virtual Reality on Healthcare
- 17.10.3. Integrating Virtual Reality into Regular Medical Practices
- 17.10.4. Future Possibilities for Virtual Reality Training

Module 18. Clinical Management and Personalization of Care with Artificial Intelligence

18.1. Introduction to Clinical Management with AI (IBM Watson Health)
- 18.1.1. Basic Concepts of AI-Assisted Clinical Management
- 18.1.2. Importance of AI in the Optimization of Clinical Resources
- 18.1.3. Successful Cases in the Implementation of AI in Hospitals
- 18.1.4. Analysis of Results and Improvements in Clinical Management

18.2. Optimizing Hospital Resources with AI (Qventus)
- 18.2.1. Bed and Resource Management with AI
- 18.2.2. AI in Medical Equipment Management
- 18.2.3. Integration of AI with Existing Hospital Systems
- 18.2.4. Benefits and Challenges of Automation in Clinical Resources

18.3. Comparison of Traditional and AI Tools
- 18.3.1. Differences in the Efficiency of Traditional and AI Tools
- 18.3.2. Advantages of AI Tools in Clinical Management
- 18.3.3. Cost Analysis of Traditional vs. AI Tools
- 18.3.4. Case Studies of the Application of AI Tools

18.4. AI in Schedule and Appointment Management (Zocdoc, Qure4u)
- 18.4.1. Optimizing Clinical Schedules Using AI
- 18.4.2. AI for Appointment Management and Consultation Scheduling
- 18.4.3. Reducing Waiting Times through AI
- 18.4.4. Efficiency in the Allocation of Time Resources with AI

18.5. Remote Patient Monitoring with AI (Current Health, Biofourmis)
- 18.5.1. Introduction to Remote Patient Monitoring
- 18.5.2. AI Tools for Remote Monitoring
- 18.5.3. Early Warning Systems in Assisted Monitoring
- 18.5.4. Telemedicine Platforms with AI

18.6. AI Applications in Chronic Diseases (Glytec, Kaia Health)
- 18.6.1. Using AI to Monitor Chronic Diseases
- 18.6.2. Using ORMON CONNECT
- 18.6.3. Comparison of Traditional and AI-Assisted Monitoring
- 18.6.4. Benefits of AI in the Management of Chronic Diseases

18.7. Ethical Considerations in AI Monitoring
- 18.7.1. Ethics in the Use of AI in Patient Monitoring
- 18.7.2. Data Protection in Remote Monitoring
- 18.7.3. Privacy Regulations in AI Systems
- 18.7.4. Examples of Successful and Ethical Practices in Monitoring

18.8. Personalized Care Management Using AI
- 18.8.1. Introduction to Personalized Care with AI
- 18.8.2. Clinical Decision Support Systems
- 18.8.3. Creating Personalized Advice with ChatGPT
- 18.8.4. AI Tools for Care Personalization

18.9. Care Planning with AI (Mediktor)
- 18.9.1. Creating Personalized Care Plans
- 18.9.2. Benefits and Applications of Assisted Care Plans
- 18.9.3. Comparison of Traditional and Personalized Care
- 18.9.4. Case Studies of AI Care Plans

18.10. Implementing Personalized Nursing Plans
- 18.10.1. Implementing AI in Personalized Nursing
- 18.10.2. Case Studies on Care Personalization with AI
- 18.10.3. Implementation Strategies in Care Plans
- 18.10.4. Future of AI in Nursing and Personalized Care

Module 19. Physical Activity Improvement with Artificial Intelligence and Virtual Reality for Nursing

19.1. Introduction to AI in Physical Activity (Google Fit)
- 19.1.1. Importance of AI in the Field of Physical Activity
- 19.1.2. Applications of AI in Fitness Tracking
- 19.1.3. Advantages of Using AI to Improve Physical Performance
- 19.1.4. Successful Cases of AI in Training Optimization

19.2. AI Tools for Physical Activity Tracking (Whoop, Google Fit)
- 19.2.1. Types of AI Tracking Devices
- 19.2.2. Smart Sensors and Wearables
- 19.2.3. Advantages of Using AI for Continuous Monitoring
- 19.2.4. Examples of Monitoring Platforms

19.3. Virtual and Augmented Reality in Physical Training
- 19.3.1. Introduction to Virtual Reality (VR) and Augmented Reality (AR)
- 19.3.2. Applying VR and AR in Fitness Programs
- 19.3.3. Benefits of Immersion in Extended Reality Environments
- 19.3.4. Case Studies of VR and AR Training

19.4. Platforms and Apps for Physical Activity Tracking (MyFitnessPal, Jefit)
- 19.4.1. Mobile Apps for Physical Activity Monitoring
- 19.4.2. Innovative AI-Based Platforms
- 19.4.3. Comparison of Traditional and AI Applications
- 19.4.4. Examples of Popular Platforms

19.5. Customizing AI Training Plans
- 19.5.1. Creating Customized Training Plans
- 19.5.2. Data Analysis for Real-Time Adjustments
- 19.5.3. AI in the Optimization of Routines and Targets
- 19.5.4. Examples of Customized Plans

19.6. Motivation and Progress Tracking with AI Tools
- 19.6.1. AI for Progress and Performance Analysis
- 19.6.2. AI-Assisted Motivation Techniques
- 19.6.3. Real-Time Feedback and Personalized Motivation
- 19.6.4. Success Stories in Improving Exercise Adherence

19.7. Comparative Analysis of Traditional and AI Methods
- 19.7.1. Efficiency of Traditional Methods versus AI
- 19.7.2. Costs and Benefits of Using AI in Training
- 19.7.3. Challenges and Limitations of Technology in Physical Training
- 19.7.4. Expert Opinion on the Impact of AI

19.8. Ethics and Privacy in Monitoring Physical Activity with AI
- 19.8.1. Protection of Personal Data in AI Tools
- 19.8.2. Privacy Regulations in AI Devices
- 19.8.3. Liability in the Use of Physical Activity Data
- 19.8.4. Ethics in Monitoring and Analysis of Personal Data

19.9. Future of AI in Training and Physical Activity
- 19.9.1. Technological Advances in AI and Fitness
- 19.9.2. Predictions on the Impact of AI on Physical Activity
- 19.9.3. Possibilities for Development in Extended Reality
- 19.9.4. Long-Term Vision of AI in the Sports Environment

19.10. Case Studies in Physical Activity Improvement with AI
- 19.10.1. Case Studies on Training Optimization
- 19.10.2. Experiences of Users in Improving Their Performance
- 19.10.3. Analysis of Data from AI and Fitness Studies
- 19.10.4. Results and Conclusions on the Impact of AI

Module 20. Optimizing Nutrition and Health Education with Artificial Intelligence in Nursing

20.1. Principles of Personalized Nutrition with AI in Nursing
- 20.1.1. Fundamentals of Personalized Nutrition
- 20.1.2. Role of AI in Individualized Nutrition
- 20.1.3. Benefits of Personalization in Nutritional Plans
- 20.1.4. Examples of Success in Personalized Nutrition

20.2. AI Applications for Nutrition
- 20.2.1. AI Mobile Nutrition Applications (MyFitnessPal, Foodvisor, Yazio)
- 20.2.2. Dietary Tracking Tools
- 20.2.3. Comparison of AI Apps for Nutrition
- 20.2.4. Review of Popular Applications

20.3. Personalized Nutrition Assistants
- 20.3.1. AI for Nutritional Recommendations (Nutrino, Viome, Noom)
- 20.3.2. Virtual Assistants in Nutrition
- 20.3.3. Examples of Personalization in Nutrition
- 20.3.4. Challenges in the Development of Nutritional Assistants

20.4. Comparison of Traditional and AI Tools in Nutrition
- 20.4.1. Effectiveness of Traditional versus AI Methods
- 20.4.2. Benefits of AI over Conventional Tools
- 20.4.3. Costs and Accessibility of AI Tools
- 20.4.4. Comparative Case Studies

20.5. Future of AI-Assisted Nutrition
- 20.5.1. Technological Innovations in Nutrition
- 20.5.2. Predictions on the Impact of AI in Nutrition
- 20.5.3. Future Challenges in the Personalization of Nutrition
- 20.5.4. Long-Term Vision of AI in Nutrition

20.6. AI Tools for Outreach and Health Education
- 20.6.1. Introduction to AI Tools in Health Education
- 20.6.2. Guide for Creating Effective Educational Prompts
- 20.6.3. Introduction to Gemini
- 20.6.4. Introduction to ChatGPT

20.7. Optimizing Educational Searches with AI
- 20.7.1. AI-Assisted Search Engines
- 20.7.2. Examples of Search Engines in Health Education
- 20.7.3. Advanced AI Search Functions
- 20.7.4. Using Special Operators to Improve Searches

20.8. AI-Enhanced Academic Presentations
- 20.8.1. AI Tools for Academic Presentations
- 20.8.2. ChatGPT for Scientific Presentations
- 20.8.3. Gemini for Event Presentations
- 20.8.4. Additional Platforms such as Gamma.app, Beautiful AI and Tome

20.9. Creating Scientific Posters with AI
- 20.9.1. Introduction to AI Tools for Posters
- 20.9.2. Visme as a Tool for Scientific Posters
- 20.9.3. Biorender for Visualizing Scientific Information
- 20.9.4. Jasper and Canva in the Creation of Posters

20.10. Creating Educational Avatars and Assistants
- 20.10.1. AI Applied to the Creation of Educational Avatars
- 20.10.2. Conversation Engines for Educational Assistants
- 20.10.3. Tools such as Heygen and Synthesia
- 20.10.4. Studio D-ID in the Creation of Interactive Avatars

03

Teaching Objectives

This TECH program is aimed at training nurses in the effective use of Artificial Intelligence applied to the healthcare environment. Professionals who opt for this program will acquire skills to use advanced technologies, from data analysis to the implementation of virtual tools, in order to optimize patient care and personalize care. In other words, the educational objectives of this program ensure that its graduates are well prepared to face the technological challenges in hospitals, clinics and health centers, also participating in the transformation of health care services.

The teaching objectives of this program have been designed to enhance the use of AI and Virtual Reality in the care of the patients under their care"

General Objectives

- Develop advanced knowledge in artificial intelligence applied to the field of nursing, understanding its impact and potential in the optimization of healthcare processes
- Identify AI applications in clinical management and personalization of care, improving quality and efficiency
- Implement conversational assistant tools and chatbots to automate and facilitate communication between patients and nursing professionals
- Integrate the use of virtual and augmented reality in rehabilitation and pain management, enhancing the recovery and well-being of patients
- Apply data mining and statistical analysis techniques to improve evidence-based clinical decision-making
- Use AI-enabled remote monitoring systems for effective follow-up and management of patients with chronic diseases
- Design and personalize care and nutrition plans using AI tools, promoting individualized and effective approaches
- Encourage continuous training in AI technologies and their implementation in healthcare settings, ensuring that professionals are up to date

Specific Objectives

Module 1. Fundamentals of Artificial Intelligence

- Analyze the historical evolution of Artificial Intelligence, from its beginnings to its current state, identifying key milestones and developments
- Understand the functioning of neural networks and their application in learning models in Artificial Intelligence
- Study the principles and applications of genetic algorithms, analyzing their usefulness in solving complex problems
- Analyze the importance of thesauri, vocabularies and taxonomies in the structuring and processing of data for AI systems
- Explore the concept of the semantic web and its influence on the organization and understanding of information in digital environments

Module 2. Data Types and Life Cycle

- Understand the fundamental concepts of statistics and their application in data analysis
- Identify and classify the different types of statistical data, from quantitative to qualitative data
- Analyze the life cycle of data, from generation to disposal, identifying key stages
- Explore the initial stages of the data life cycle, highlighting the importance of data planning and structure
- Study data collection processes, including methodology, tools and collection channels
- Explore the Datawarehouse concept, with emphasis on the elements that comprise it and its design
- Analyze the regulatory aspects related to data management, complying with privacy and security regulations, as well as best practices

Module 3. Data in Artificial Intelligence

- Master the fundamentals of data science, covering tools, types and sources for information analysis
- Explore the process of transforming data into information using data mining and visualization techniques
- Study the structure and characteristics of datasets, understanding their importance in the preparation and use of data for Artificial Intelligence models
- Analyze supervised and unsupervised models, including methods and classification
- Use specific tools and best practices in data handling and processing, ensuring efficiency and quality in the implementation of Artificial Intelligence

Module 4. Data Mining. Selection, Pre-Processing and Transformation

- Master the techniques of statistical inference to understand and apply statistical methods in data mining
- Perform detailed exploratory analysis of data sets to identify relevant patterns, anomalies, and trends
- Develop skills for data preparation, including data cleaning, integration, and formatting for use in data mining
- Implement effective strategies for handling missing values in datasets, applying imputation or elimination methods according to context
- Identify and mitigate noise present in data, using filtering and smoothing techniques to improve the quality of the data set
- Address data preprocessing in Big Data environments

Module 5. Algorithm and Complexity in Artificial Intelligence

- Introduce algorithm design strategies, providing a solid understanding of fundamental approaches to problem solving
- Analyze the efficiency and complexity of algorithms, applying analysis techniques to evaluate performance in terms of time and space
- Study and apply sorting algorithms, understanding their performance and comparing their efficiency in different contexts
- Explore tree-based algorithms, understanding their structure and applications
- Investigate algorithms with Heaps, analyzing their implementation and usefulness in efficient data manipulation
- Analyze graph-based algorithms, exploring their application in the representation and solution of problems involving complex relationships
- Study Greedy algorithms, understanding their logic and applications in solving optimization problems
- Investigate and apply the backtracking technique for systematic problem solving, analyzing its effectiveness in various scenarios

Module 6. Intelligent Systems

- Explore agent theory, understanding the fundamental concepts of its operation and its application in Artificial Intelligence and software engineering
- Study the representation of knowledge, including the analysis of ontologies and their application in the organization of structured information
- Analyze the concept of the semantic web and its impact on the organization and retrieval of information in digital environments

- Evaluate and compare different knowledge representations, integrating these to improve the efficiency and accuracy of intelligent systems
- Study semantic reasoners, knowledge-based systems and expert systems, understanding their functionality and applications in intelligent decision making

Module 7. Machine Learning and Data Mining

- Introduce the processes of knowledge discovery and the fundamental concepts of machine learning
- Study decision trees as supervised learning models, understanding their structure and applications
- Evaluate classifiers using specific techniques to measure their performance and accuracy in data classification
- Study neural networks, understanding their operation and architecture to solve complex machine learning problems
- Explore Bayesian methods and their application in machine learning, including Bayesian networks and Bayesian classifiers
- Analyze regression and continuous response models for predicting numerical values from data
- Study clustering techniques to identify patterns and structures in unlabeled data sets
- Explore text mining and natural language processing (NLP), understanding how machine learning techniques are applied to analyze and understand text

Module 8. Neural Networks, the Basis of Deep Learning

- Master the fundamentals of Deep Learning, understanding its essential role in Deep Learning
- Explore the fundamental operations in neural networks and understand their application in model building
- Analyze the different layers used in neural networks and learn how to select them appropriately
- Understand the effective linking of layers and operations to design complex and efficient neural network architectures
- Use trainers and optimizers to tune and improve the performance of neural networks
- Explore the connection between biological and artificial neurons for a deeper understanding of model design
- Tune hyperparameters for Fine Tuning of neural networks, optimizing their performance on specific tasks

Module 9. Deep Neural Networks Training

- Solve gradient-related problems in deep neural network training
- Explore and apply different optimizers to improve the efficiency and convergence of models
- Program the learning rate to dynamically adjust the convergence speed of the model
- Understand and address overfitting through specific strategies during training

- Apply practical guidelines to ensure efficient and effective training of deep neural networks
- Implement Transfer Learning as an advanced technique to improve model performance on specific tasks
- Explore and apply Data Augmentation techniques to enrich datasets and improve model generalization
- Develop practical applications using Transfer Learning to solve real-world problems
- Understand and apply regularization techniques to improve generalization and avoid overfitting in deep neural networks

Module 10. Model Customization and Training with TensorFlow

- Master the fundamentals of TensorFlow and its integration with NumPy for efficient data management and calculations
- Customize models and training algorithms using the advanced capabilities of TensorFlow
- Explore the tfdata API to efficiently manage and manipulate datasets
- Implement the TFRecord format for storing and accessing large datasets in TensorFlow
- Use Keras preprocessing layers to facilitate the construction of custom models
- Explore the TensorFlow Datasets project to access predefined datasets and improve development efficiency
- Develop a Deep Learning application with TensorFlow, integrating the knowledge acquired in the module
- Apply in a practical way all the concepts learned in building and training custom models with TensorFlow in real-world situations

Module 11. Deep Computer Vision with Convolutional Neural Networks

- Understand the architecture of the visual cortex and its relevance in Deep Computer Vision
- Explore and apply convolutional layers to extract key features from images
- Implement clustering layers and their use in Deep Computer Vision models with Keras
- Analyze various Convolutional Neural Network (CNN) architectures and their applicability in different contexts
- Develop and implement a CNN ResNet using the Keras library to improve model efficiency and performance
- Use pre-trained Keras models to leverage transfer learning for specific tasks
- Apply classification and localization techniques in Deep Computer Vision environments
- Explore object detection and object tracking strategies using Convolutional Neural Networks
- Implement semantic segmentation techniques to understand and classify objects in images in a detailed manner

Module 12. Natural Language Processing (NLP) with Recurrent Neural Networks (RNN) and Attention

- Develop skills in text generation using Recurrent Neural Networks (RNN)
- Apply RNNs in opinion classification for sentiment analysis in texts
- Understand and apply attentional mechanisms in natural language processing models
- Analyze and use Transformers models in specific NLP tasks

- Explore the application of Transformers models in the context of image processing and computer vision
- Become familiar with the Hugging Face Transformers library for efficient implementation of advanced models
- Compare different Transformers libraries to evaluate their suitability for specific tasks
- Develop a practical application of NLP that integrates RNN and attention mechanisms to solve real-world problems

Module 13. Autoencoders, GANs and Diffusion Models

- Develop efficient representations of data using Autoencoders, GANs and Diffusion Models
- Perform PCA using an incomplete linear autoencoder to optimize data representation
- Implement and understand the operation of stacked autoencoders
- Explore and apply convolutional autoencoders for efficient visual data representations
- Analyze and apply the effectiveness of sparse automatic encoders in data representation
- Generate fashion images from the MNIST dataset using Autoencoders
- Understand the concept of Generative Adversarial Networks (GANs) and Diffusion Models
- Implement and compare the performance of Diffusion Models and GANs in data generation

Module 14. Bio-Inspired Computing

- Introduce the fundamental concepts of bio-inspired computing
- Explore social adaptation algorithms as a key approach in bio-inspired computing
- Analyze space exploration-exploitation strategies in genetic algorithms
- Examine models of evolutionary computation in the context of optimization
- Continue detailed analysis of evolutionary computation models
- Apply evolutionary programming to specific learning problems
- Address the complexity of multi-objective problems in the framework of bio-inspired computing
- Explore the application of neural networks in the field of bio-inspired computing
- Delve into the implementation and usefulness of neural networks in bio-inspired computing

Module 15. Artificial Intelligence: Strategies and Applications

- Develop strategies for the implementation of artificial intelligence in healthcare services
- Analyze the implications of artificial intelligence in the delivery of healthcare services
- Identify and assess the risks associated with the use of AI in the healthcare field
- Assess the potential risks associated with the use of AI in industry
- Apply artificial intelligence techniques in industry to improve productivity
- Design artificial intelligence solutions to optimize processes in public administration

- Evaluate the implementation of AI technologies in the education sector
- Apply artificial intelligence techniques in forestry and agriculture to improve productivity
- Optimize human resources processes through the strategic use of artificial intelligence

Module 16. Application of Conversational Assistants in Artificial Intelligence for Nursing

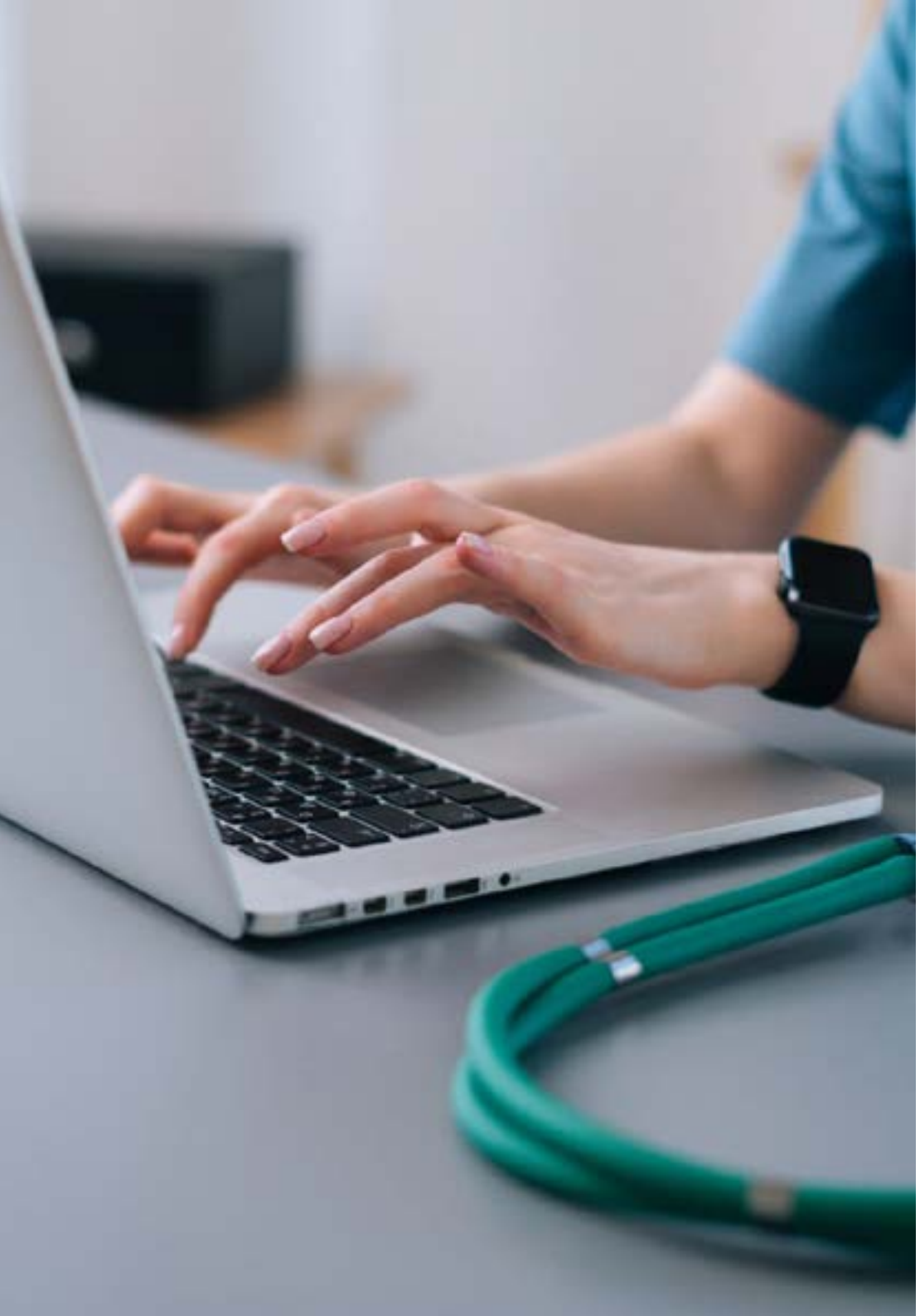
- Identify the applications and benefits of conversational assistants in the nursing care environment
- Compare the different typologies of conversational assistants and their specific uses in the healthcare setting
- Evaluate the challenges and advantages of implementing conversational assistants in clinical processes
- Design and customize a conversational assistant in ChatGPT for specific nursing needs
- Analyze the impact of automation and conversational assistants on healthcare staff roles and training
- Integrate conversational assistants in simulations and continuing education processes in the field of nursing

Module 17. Using Artificial Intelligence and Virtual Reality in Emotional Support in Nursing

- Describe the concept and relevance of AI-assisted emotional support and how it compares to traditional methods
- Explore the different types of chatbots and AI tools used in emotional support and their efficacy in mental health
- Analyze privacy regulations and ethical challenges in the use of AI for emotional support
- Evaluate the impact of virtual reality in patient preparation and rehabilitation in healthcare settings
- Identify applications of virtual reality in emotional patient care and rehabilitation
- Project the future of AI and virtual reality in improving patient care and emotional support

Module 18. Clinical Management and Personalization of Care with Artificial Intelligence

- Explain how AI optimizes clinical management and hospital resources in healthcare settings
- Compare the efficiency of traditional and AI-based tools in clinical resource management
- Evaluate the impact of AI in managing scheduling, appointments and reducing waiting times in the hospital setting
- Explore the applications of remote monitoring with AI and its relevance to chronic diseases
- Analyze ethical considerations and privacy regulations in AI-assisted monitoring
- Design personalized AI-based care plans and study their effective implementation in nursing practice



Module 19. Physical Activity Improvement with Artificial Intelligence and Virtual Reality for Nursing

- Describe the importance and applications of AI in the field of physical activity and physical performance monitoring
- Analyze the advantages of AI-based tracking devices and the benefits of continuous monitoring
- Explore the use of virtual and augmented reality in physical training and rehabilitation programs
- Evaluate the differences in efficiency and cost between traditional methods and AI technologies in physical activity
- Consider the ethical and privacy implications of AI-assisted fitness tracking
- Predict future advances of AI in physical activity enhancement and expected technological innovations

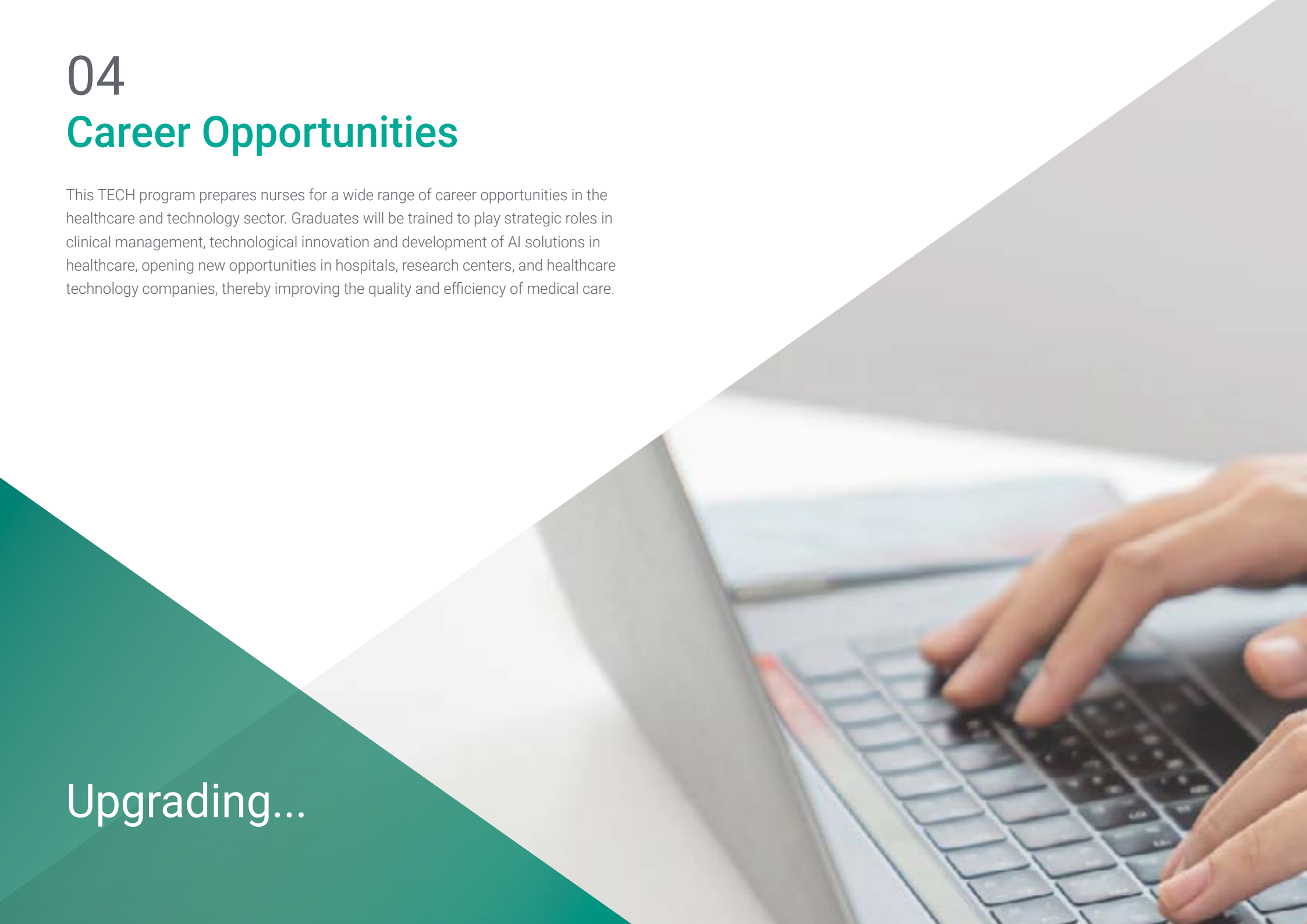
Module 20. Optimizing Nutrition and Health Education with Artificial Intelligence in Nursing

- Identify the principles and benefits of AI-assisted personalized nutrition in Nursing practice
- Compare AI tools for nutrition and evaluate their efficacy in tracking and personalizing diets
- Develop personalized nutrition assistants using AI technology and study their applications
- Evaluate the differences in efficiency and accessibility between traditional methods and AI tools in nutrition
- Analyze the future of AI-assisted nutrition and technology predictions in this field
- Explore the use of AI in the creation of educational content and tools for health outreach

04

Career Opportunities

This TECH program prepares nurses for a wide range of career opportunities in the healthcare and technology sector. Graduates will be trained to play strategic roles in clinical management, technological innovation and development of AI solutions in healthcare, opening new opportunities in hospitals, research centers, and healthcare technology companies, thereby improving the quality and efficiency of medical care.



Upgrading...

Become a highly skilled nurse to coordinate Telemedicine tasks and tools, based on AI, through this study"

Graduate Profile

Thanks to this TECH program, nurses will be able to become highly qualified professionals when it comes to integrating digital technologies and AI resources into healthcare practice. Through the study of this program, they will possess skills to manage and analyze health data, being able to personalize patient care and improve operational efficiency in healthcare environments. In addition, they will design and implement technology-based solutions, such as virtual assistants, being broadly competent to lead digital health projects.

You will identify and use AI applications in clinical management and personalization of care, improving your nursing practice, after this TECH program.

- **Technological Adaptation in Clinical Environments:** Ability to incorporate Artificial Intelligence technologies in Nursing practice, improving the efficiency and quality of patient care
- **Clinical Problem Solving:** Ability to use critical thinking in identifying and resolving challenges in healthcare, optimizing care through Artificial Intelligence-based solutions
- **Ethical Commitment and Data Security:** Responsibility in the application of ethical principles and privacy regulations, ensuring the protection of patient data when using advanced technologies
- **Interdisciplinary Collaboration:** Aptitude for communicating and working effectively with other healthcare professionals and technical teams, facilitating the integration of AI into nursing care

After completing the program, you will be able to use your knowledge and skills in the following positions:

1. **Nurse Practitioner in Health Technology Innovation:** you will be responsible for integrating and managing AI solutions in hospital settings to improve clinical efficiency and patient experience
   Responsibilities: Develop protocols for the use of AI tools and train nurses in their correct application
2. **Nurse in charge of Clinical Data Management:** responsible for the management of large volumes of clinical data using Artificial Intelligence, ensuring
   Responsibilities: Supervise the security and confidentiality of sensitive data stored and processed by Artificial Intelligence systems
3. **Nurse specialized in Telemedicine with Artificial Intelligence:** in charge of remote patient monitoring, using Artificial Intelligence tools for continuous health assessment and preventive intervention
   Responsibilities: Configure and analyze alerts generated by smart devices, making quick decisions to avoid patient complications
4. **Consultant in Healthcare AI and Nursing Projects:** dedicated to the implementation of Artificial Intelligence in healthcare environments, collaborating with multidisciplinary teams to ensure that technological solutions are adapted to clinical needs
   Responsibilities: Conduct feasibility studies and provide recommendations on the integration of AI systems into clinical processes
5. **Internal Trainer in Artificial Intelligence Technologies for Nursing:** From a hospital, clinic or health center, teach specialized courses or workshops about the use of AI tools to healthcare professionals, improving technological competence in the sector
   Responsibilities: Design and deliver workshops and hands-on courses for healthcare staff on the safe and efficient use of AI systems

6. **Nurse in charge of Coordinating Personalized Care:** Responsible for designing and managing individualized care plans, using AI algorithms to adapt to the specific needs of each patient
   Responsibilities: Continuously evaluate the results of personalized plans and adjust care strategies based on AI-generated data
7. **Clinical Innovation Project Supervisor:** lead projects that seek to incorporate AI into nursing practice, improving workflows and optimizing care resources
   Responsibilities: Coordinate work teams and ensure that project objectives are met in a timely manner, guaranteeing the quality and safety of innovations
8. **Healthcare Artificial Intelligence Security and Ethics Nurse:** master the regulations and ethics applied to the use of artificial intelligence in healthcare, in charge of assessing and mitigating risks related to privacy and data management
   Responsibilities: Develop policies and best practice guidelines to ensure ethical and legal compliance of AI technologies implemented in healthcare institutions

You will develop transversal skills such as the ethical management of your patients' clinical data thanks to this TECH program"

Academic and Research Opportunities

In addition to all the jobs you will be qualified for by studying this TECH program, you will also be able to pursue a solid academic and research career. After completing this university program, you will be ready to continue your studies associated with this field of knowledge and thus progressively achieve other scientific merits.

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.

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.

"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.

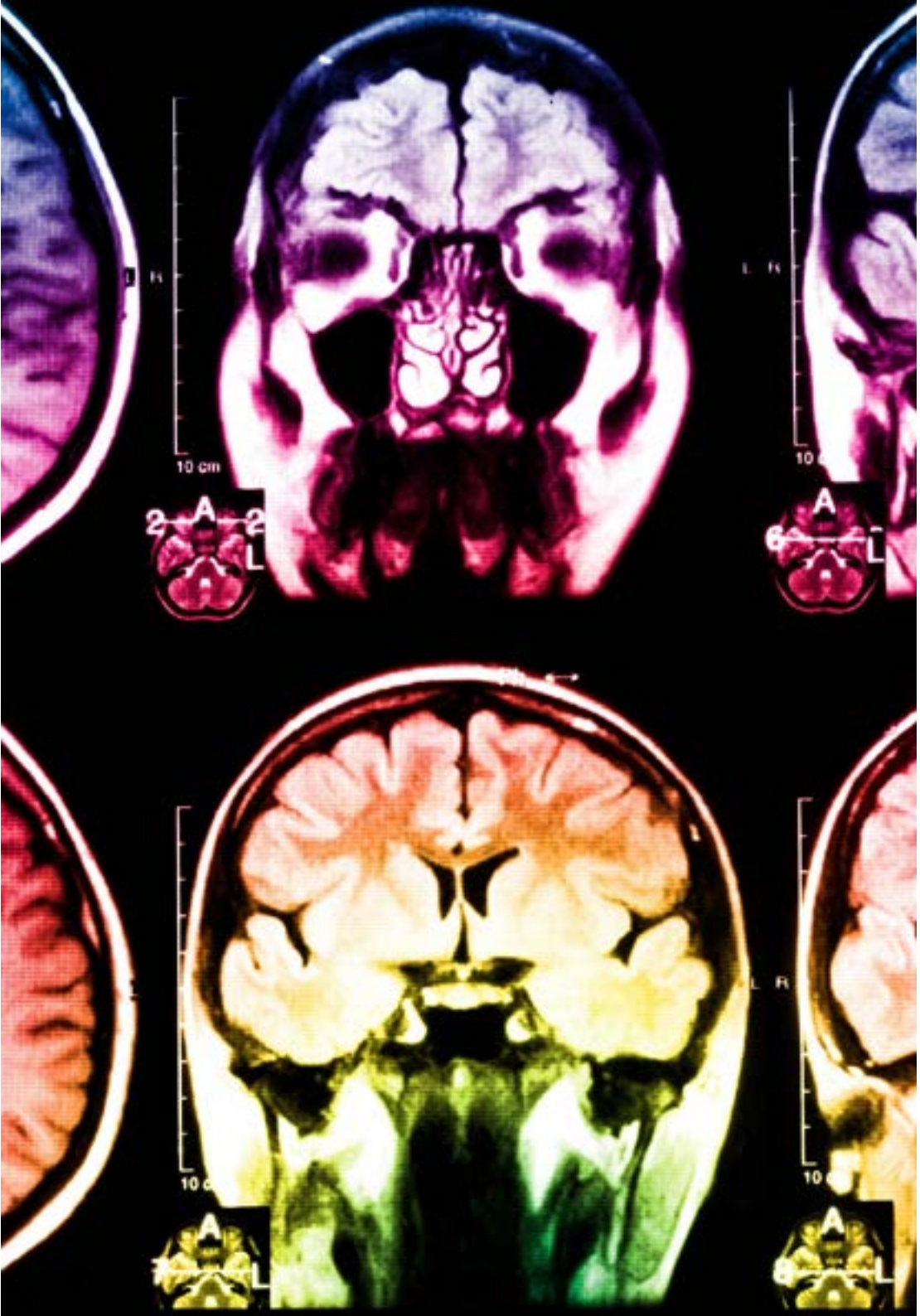
In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

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 quality of teaching, quality of materials, course structure and objectives is excellent. Not surprisingly, the institution became the best rated university by its students on the Trustpilot review platform, 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.

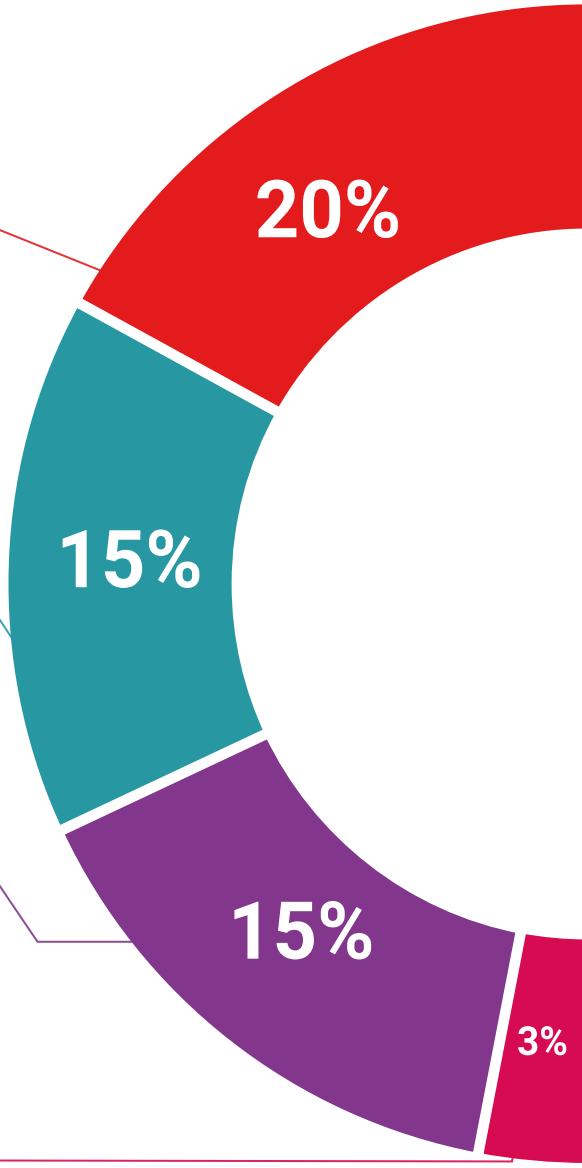
Interactive Summaries

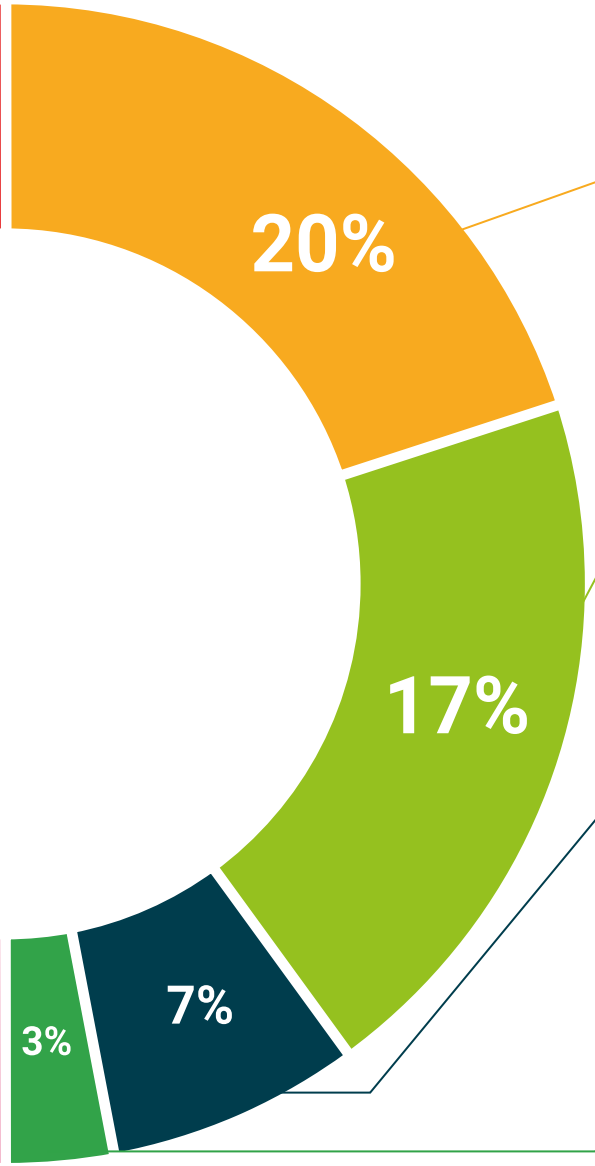
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

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 for future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

06

Teaching Staff

The TECH professors who teach the Artificial Intelligence in Nursing program stand out for their experience in the health sector as well as for their advanced knowledge of technological applications in this field. They are professionals who have innovated in the application of AI in hospitals, healthcare environments or in the development of apps for remote patient monitoring. In addition, the practical approach of these experts, based on daily work with real situations, ensures that nurses receive the most innovative notions, aligned with the current demands of the sector.

This teaching staff has mastered the applications of AI in the health care setting and its importance in maximizing the development of nursing practice. Join this program now and you will have the best academic guidance"

Management

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus 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
- PhD in Psychology from the University of Castilla La Mancha
- PhD in Economics, Business and Finance from the Camilo José Cela University
- PhD 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, 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 the research group SMILE

Professors

Mr. Martín-Palomino Sahagún, Fernando

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

Mr. Popescu Radu, Daniel Vasile

- Independent Specialist in Pharmacology, Nutrition and Dietetics
- Freelance Producer of Teaching and Scientific Content
- Nutritionist and Community Dietitian
- Community Pharmacist
- Researcher
- Master's Degree in Nutrition and Health at the Open University of Catalonia
- Master's Degree in Psychopharmacology from the University of Valencia
- Pharmacist from the Complutense University of Madrid
- Nutritionist-Dietitian by the European University Miguel de Cervantes

Dr. Carrasco González, Ramón Alberto

- 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
- Specialist and Research in Computer Science and Artificial Intelligence
- Doctor in Artificial Intelligence by the University of Granada
- Higher Engineering Degree in Computer Science from the University of Granada

An unparalleled faculty is integrated into this program of study to offer you a disruptive and unique academic approach to broaden your professional profile"

07

Certificate

The Professional Master's Degree in Artificial Intelligence in Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree issued by TECH Global University.

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 **Professional Master's Degree diploma in Artificial Intelligence in Nursing** 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.

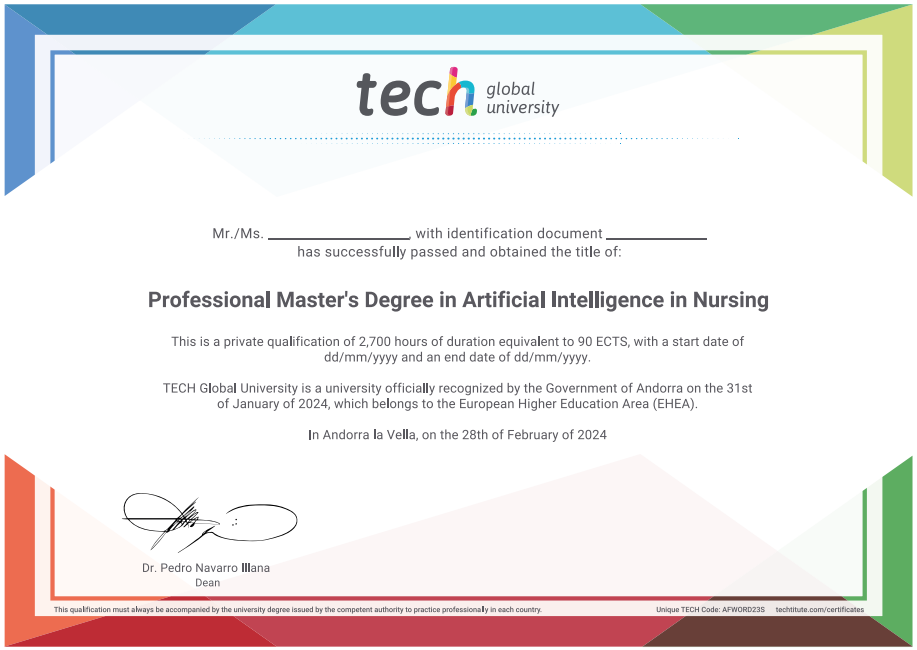
This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program

Title: **Professional Master's Degree in Artificial Intelligence in Nursing**

Modality: **online**

Duration: **12 months**

Accreditation: **90 ECTS**


tech global university

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

Professional Master's Degree in Artificial Intelligence in Nursing

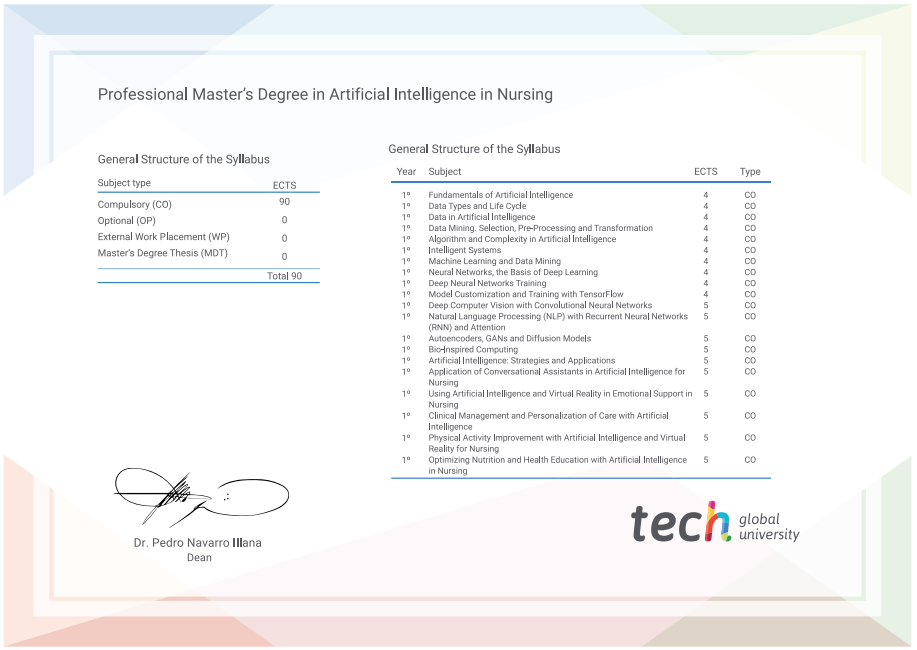
This is a private qualification of 2,700 hours of duration equivalent to 90 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Artificial Intelligence in Nursing

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	90
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 90

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Fundamentals of Artificial Intelligence	4	CO
1º	Data Types and Life Cycle	4	CO
1º	Data in Artificial Intelligence	4	CO
1º	Data Mining. Selection, Pre-Processing and Transformation	4	CO
1º	Algorithm and Complexity in Artificial Intelligence	4	CO
1º	Intelligent Systems	4	CO
1º	Machine Learning and Data Mining	4	CO
1º	Neural Networks, the Basis of Deep Learning	4	CO
1º	Deep Neural Networks Training	4	CO
1º	Model Customization and Training with TensorFlow	4	CO
1º	Deep Computer Vision with Convolutional Neural Networks	5	CO
1º	Natural Language Processing (NLP) with Recurrent Neural Networks (RNN) and Attention	5	CO
1º	Autoencoders, GANs and Diffusion Models	5	CO
1º	Bio-Inspired Computing	5	CO
1º	Artificial Intelligence: Strategies and Applications	5	CO
1º	Application of Conversational Assistants in Artificial Intelligence for Nursing	5	CO
1º	Using Artificial Intelligence and Virtual Reality in Emotional Support in Nursing	5	CO
1º	Clinical Management and Personalization of Care with Artificial Intelligence	5	CO
1º	Physical Activity Improvement with Artificial Intelligence and Virtual Reality for Nursing	5	CO
1º	Optimizing Nutrition and Health Education with Artificial Intelligence in Nursing	5	CO

Dr. Pedro Navarro Illana
Dean

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*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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Professional Master's Degree

Artificial Intelligence in Nursing

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Accreditation: **90 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Artificial Intelligence in Nursing

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