

DOMITILA EDUCATION PLATFORM

The Wonderful World of Artificial Intelligence

AI PROGRAM FOR SCHOOL STUDENTS

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- Technology requirements
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- AI framework Years 6-13
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ONLINE COURSE LESSONS

- Lesson 1:
Introduction to AI
- Lesson 2:
How does AI work?
- Lesson 3:
Object recognition
- Lesson 4:
Human Pose Estimation
- Lesson 5:
Speech recognition and NLP
- Lesson 6:
Facial Analysis, emotion analysis
- Lesson 7:
Ethics in AI
- Lesson 8:
Societal implications
- Lesson 9:
How AI can help
- Lesson 10:
Hall of fame

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PROJECT

- Project workshop 1:
How AI is creating a smarter world
- Project workshop 2:
The math behind an "artificial" brain
- Project planning
- Implementation of AI project
- Presentation

CURRICULUM OVERVIEW



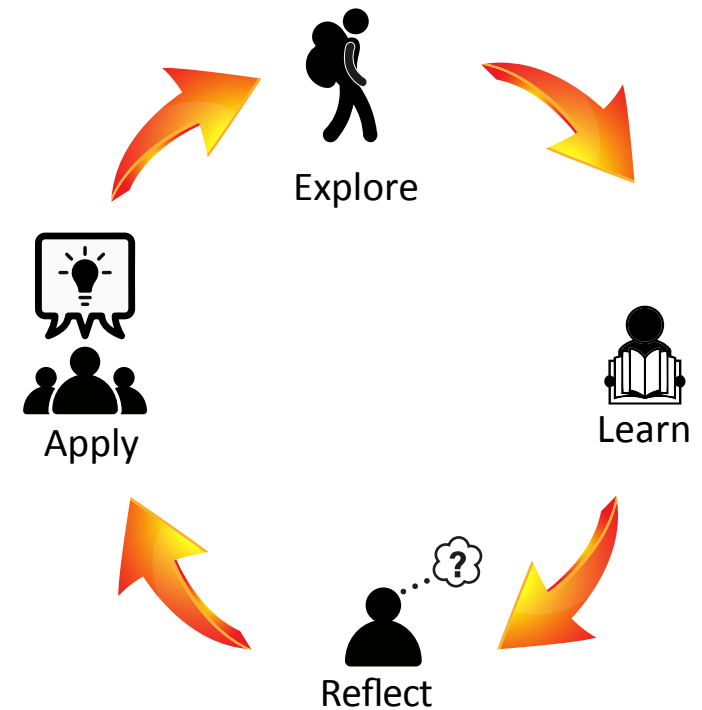
AI AND EMERGENT TECHNOLOGIES EDUCATION PLATFORM

WHO MADE THIS

Artificial Intelligence is the future, and students must be prepared for it. At Domitila Technologies, we want to make AI education in schools a reality and help students to be empowered to use AI to change the world for social good.

Domitila Technologies' online courses and program are built on five basic principles:

- 1 We teach AI and emergent technologies for social good:** the core of our curriculum surrounds impacting society positively through AI, helping students to understand the key concepts underlying new technologies, analyze their surroundings and proposing how AI can help, all while recognizing the ethical concerns and the inevitable societal impact of AI technologies.
- 2 Learning AI is fun:** we put emphasis on interactive exercises and developing critical thinking skills first, giving the opportunity to interact with current AI technologies in a fun way. Then, we focus on the technical learning.
- 3 Motivation-based Learning:** we follow an approach that uses motivation-based learning techniques to give students a deeper understanding of how and why things work.
- 4 Project-based learning:** students learn through exploring, learning, reflecting and applying knowledge to propose and implement AI projects with teammates. Thus, students also learn soft-skills such as problem solving, presentation techniques, leadership, and collaboration.
- 5 Knowledge was meant to be shared:** the best way to learn is to teach, thus our courses are designed to facilitate the discussion and sharing knowledge between students and family members at home "Whanau time". This way, we extend AI education to families and care about diversity and inclusion since encouragement and motivation starts at home.



CURRICULUM OVERVIEW



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WHO IS THIS FOR

This curriculum focuses on school students, ideally from Years 6 to 13

However, this curriculum is not limited to those ages. Younger students, including Year 1-5 can be benefited too. We are currently working to adjust the curriculum for younger ages.

School Teachers, After School Programs, and Homeschoolers

Domitila Technologies will be piloting this curriculum with school systems as well as after school programs. We also have parents who want their children to follow an introductory curriculum that teaches AI concepts. We encourage everyone to begin learning about AI and how to engage it in individually and socially beneficial ways. This curriculum requires no prerequisite AI skills or computer science background.

An informed society is an empowered one; one that can collectively seek out and develop the beneficial aspects of AI while actively mitigating the potential risks



CURRICULUM OVERVIEW



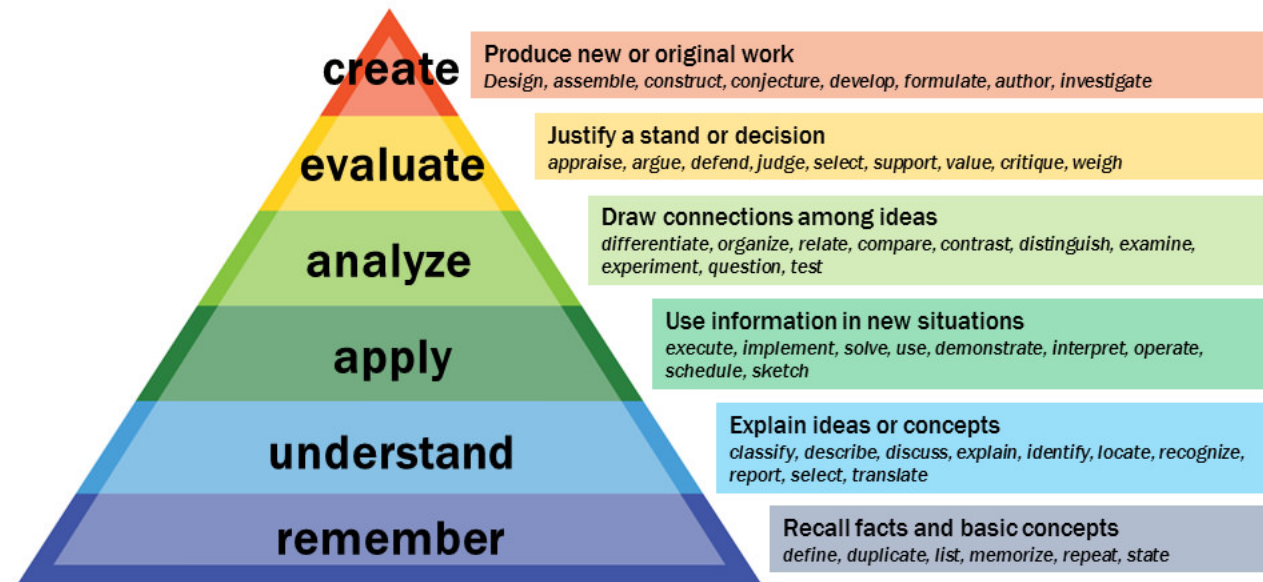
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COURSE STRUCTURE

In this overview, you will find the course objectives, lessons, and key activities meant to reinforce those objectives. Within the 10 lessons sequence itself, you will find assessment techniques ranging from peer's discussion to interactive exercises and assignments.

This curriculum also relies on Bloom's Taxonomy 2.0, with "Creation" being placed as the highest level of critical thinking. In fact, the entire ten-lesson series culminates in project-based learning of AI concepts.

Bloom's Taxonomy



Vanderbilt University Center for Teaching

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TECHNOLOGY REQUIREMENTS

- Laptop/desktop computer with built-in camera and microphone.
- Web browsers: Google Chrome, Mozilla, Firefox.
- Internet connection.

GETTING HELP

If you are an educator or school administrator and you'd like to attend a free training on our curriculum, please contact contact@domitila-technologies.com
Alternatively, we host trainings at schools as well. Please contact us about these via the same email address.

CURRICULUM OVERVIEW



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THE WONDERFUL WORLD OF ARTIFICIAL INTELLIGENCE

COURSE OBJECTIVES

Students should be able to:

- 1 Define basic concepts in the field of AI.
- 2 Describe functions of AI as well as current limitations.
- 3 Evaluate applications of AI technologies.
- 4 Understand the ethical issues in AI as well as implications for society.
- 5 Propose a project that uses AI to solve real-world problems.

Level	Beginner
Commitment	10 lessons, 50 minutes per lesson
Language	English
How to pass	Pass all graded assignments to complete the course

STUDENTS WILL LEARN



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1 Developing skills

- Critical thinking
- Problem solving
- Collaboration
- Communication
- Presentation

2 AI Framework

- Machine learning
- Cognitive technologies
- Societal impact
- Ethics in AI
- Human-centered AI

3 AI Applications

- Object recognition
- Human Pose estimation
- Speech recognition
- Facial recognition
- Emotion analysis

Lesson 1

What is AI
Types of data
AI and related fields
Why now

Lesson 2

How does AI work
Machine Learning
ML process
Neural networks

Lesson 3

How we are teaching
computers to “see”:
Object recognition
& image classification

Lesson 4

Life is better with
dancing!
Human Pose
Estimation

Lesson 5

We are because
we speak:
Speech recognition
and NLP

Lesson 6

Your faceprint
is data!:
Face recognition
and emotion analysis

Lesson 7

Ethical issues in AI
Discrimination/bias
When is appropriate
What is our role

Lesson 8

Impact for society
Data rights
and Privacy
AI and jobs

Lesson 9

How AI can help
Make your impact,
let's bombard the
world with good AI

Lesson 10

Wall of fame
Get inspired by
the top AI female
scientists in the world!

STUDENTS WILL LEARN



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Example: Human Pose Estimation Lesson

Overview	Learning objectives	Activities
<p>Understanding what is Human Pose Estimation (HPE), how it works (data and process), and main applications. Students will access Domitila Education platform and interact with HPE Google TensorFlow API and evaluate the accuracy of human poses on real time.</p>	<p>Understanding of human pose estimation technology and the intersection of human body, sports, dancing and AI technology Understand the process and steps needed to develop a machine learning pipeline to predict human poses Learn about main applications</p>	<p>Play and test Google TensorFlow API for HPE Ordering blocks to understand the machine learning pipeline for HPE Word puzzle to reinforce computing terms Share acquired knowledge with a caregiver at home</p>
Main activities	Discussion	Extension ideas
<p>Play and test Google TensorFlow API for HPE on real time.</p>	<p>What body joints were correctly identified? Are some poses easier to identify than others?, why? Do backgrounds, light or clothing affect the correct identification of the body joints? What will happen if you test with your pet? Discuss about potential applications Discuss about implications of this AI technology</p>	<p>Students to read the following news (additional resources section). Website. Students debate “How does HPE technology may be used for health and wellness?”</p>
Cross curricular	Computing terms	Additional resources
<p>Physical education Mathematics Digital Technology Health</p>	<ul style="list-style-type: none"> ○ Deep learning ○ Convolutional neural network ○ Big Data ○ Single person human pose ○ Multiple person human pose ○ Data annotation ○ Top Down approach ○ Bottom up approach 	<p>https://en.wikipedia.org/wiki/Articulated_body_pose_estimation https://wrnch.ai/ https://www.youtube.com/watch?v=KBLlvNiI0Gs</p>

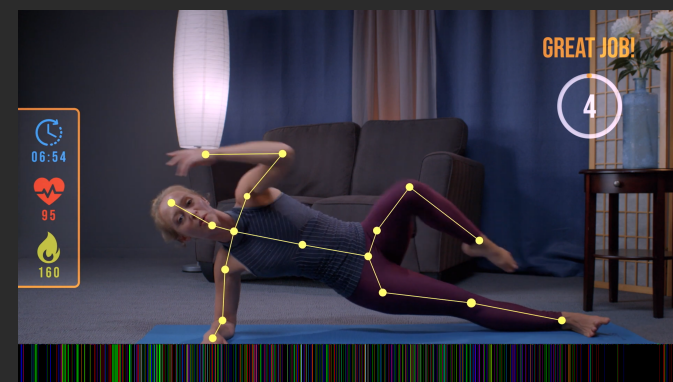
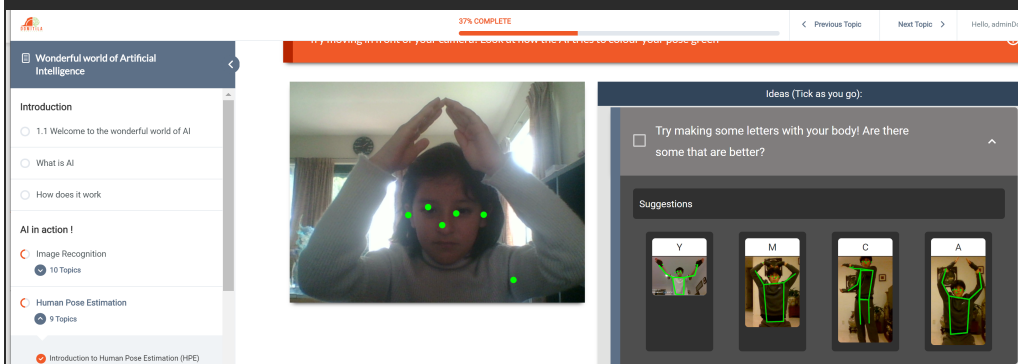
STUDENTS WILL LEARN



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Example: Human Pose Estimation Lesson

Audio Example #2



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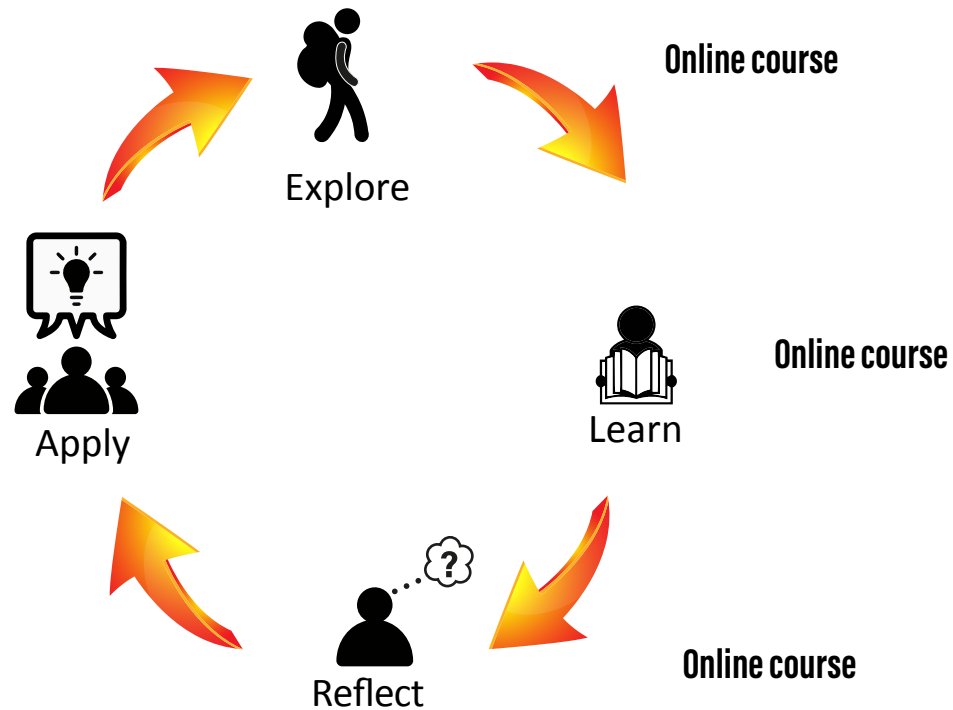


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Domitila AI program = **Online course** + **AI project**
10 lessons Workshops

AI project:

- Workshops
- Project planning
- Implementation
- Presentation



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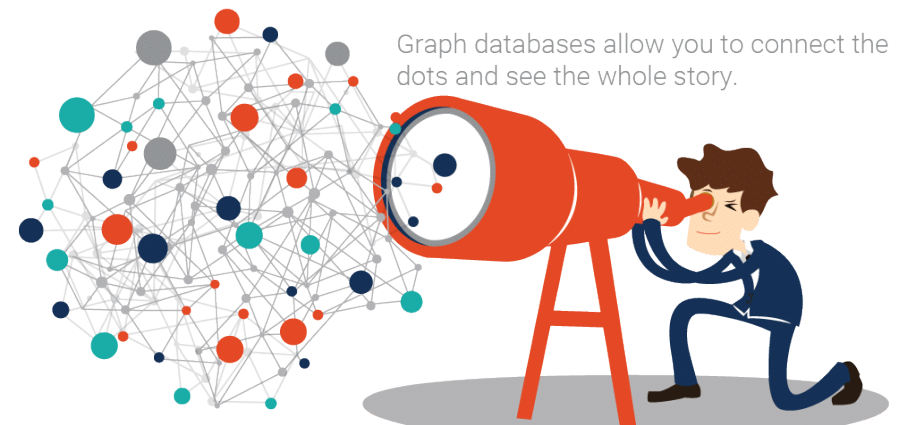
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Domitila Technologies is already working to add the following online courses:

- **Machine Learning for students:** beginner, intermediate and advanced programs for students that want to gain deeper knowledge.
- **Sport analytics for everyone.**
- **AI for climate change.**
- **Introduction to Blockchain technologies:** currently working with a certified company in UK.
- **The value of connected data:** Graph databases Technology for school students: FREE!
- **Careers of the future.**



Source: Open Access Government



Graph databases allow you to connect the dots and see the whole story.

Source: Ontotex

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SHARING FORTUNE AND LOVE

Developing AI talent globally