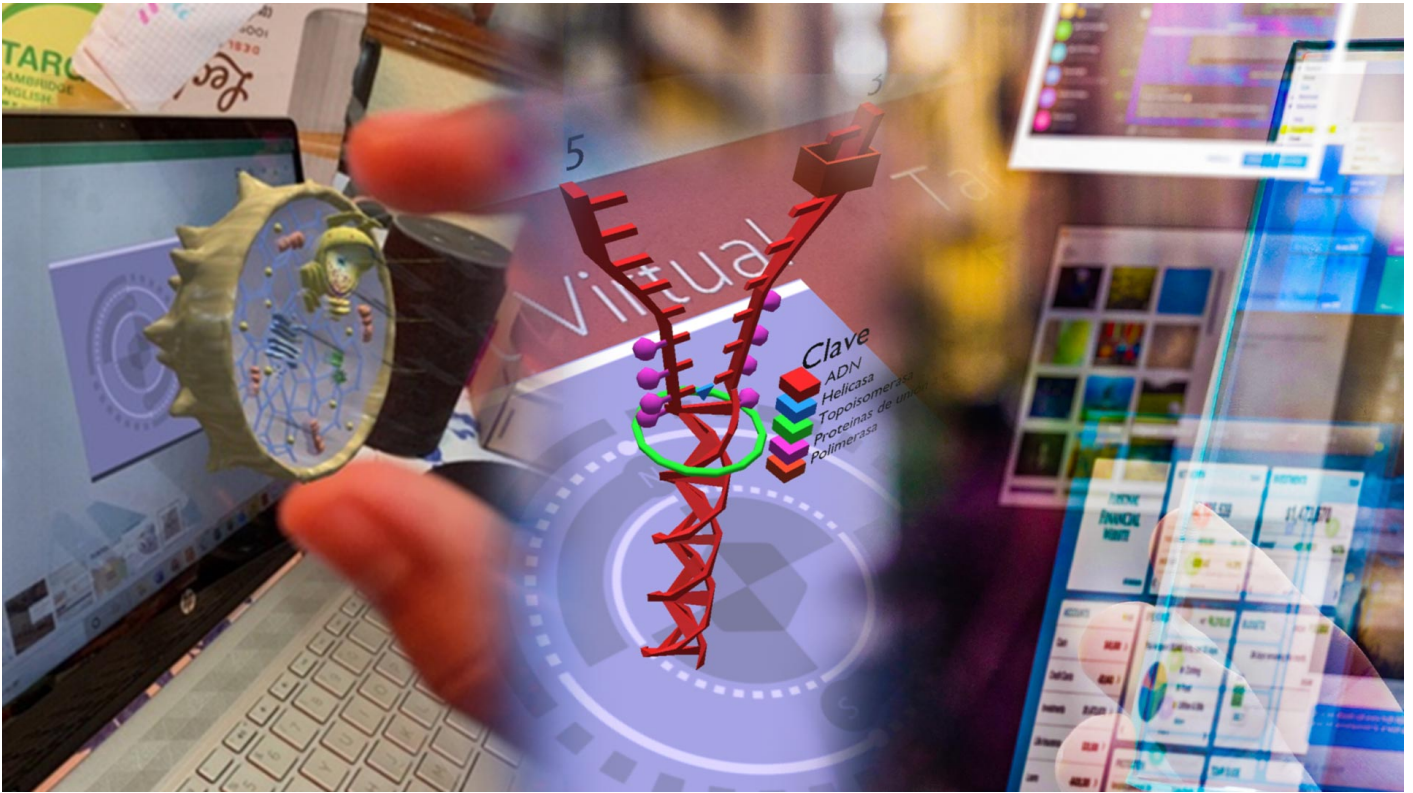


Education in the palm of your hand using augmented reality in class



A student is looking at a **cell in the palm of his hand**. He can zoom in to get a closer look or rotate it to view its parts thanks to the **augmented reality** effect.

This is part of [Tec de Monterrey's](#) project to use this technology to make online **classes more innovative** and motivating using **smartphones**.

Professor **Jorge Membrillo** explains that **augmented reality** brings something from the **virtual world** into the **real world** by simulating its physical existence using technology such as a **telephone** or a **visor**.

In class, he places **cells** or **DNA molecules** from the **screen** into his students' **hands** using an [app](#) developed by the **Tec** for smartphones that simulates **3D models**.

*"It's a **project** that turns a **remote class**, which can sometimes be boring, into one that's more **comfortable** and **interesting** for **students** in a world with 10,000 distractions," he says.*

La Realidad Aumentada fue diseñada por el Tec de Monterrey width="900" loading="lazy">

Young people are interested in augmented reality

After receiving **positive feedback** from students at the beginning of **2021**, the professor at the **Mexico City campus** says that this is the **second time** he has used this **technology** in his **classes**.

*“A **fundamental part of the process** is for students to **learn through doing**. Here we do by **learning**, and we learn by doing,”* says the professor.

*“Students think they’re **relevant activities**. They feel **motivated** because they learn **better skills**. They say it’s **entertaining** and **original**, and they even get excited when they see the molecule and can take photos of it,”* he says.

The **two courses** he teaches are **Scientific Foundations** and **Biomimetics and Sustainability**.

They’re taught **online** and in a **Global Classroom** in which not only **Tec de Monterrey** students participate but also students from **two other foreign universities**, in this case from Spain and Colombia.

*“A **fundamental part of the process** is for students to learn through doing. Here we do by learning, and we learn by doing.”*

Do this to see a cell in your hand

Membrillo says that to use the **technology** you need to download the **Art3D mobile application**, available **free** for **Android** and **iOS** devices.

During the course, students are asked to **use the app**, which automatically opens the camera, and point their phone at some **QR codes** on the screen.

These **codes** are made by the **Tec’s Digital Education** department and can be shared with teachers for their courses.

After reading the codes, the phone performs the “magic” of projecting a **3D model** of things such as an **organism**, a **cell**, or a **mathematical** or **physics equation**.

Once the code has been scanned, it’s added to a **gallery** where students can **later** view the **model** without the need for the QR code.

*“For example, I was talking about the **parts** of a **cell** in my **classes**, and when we went to look at the cells, I shared the code with the students.*

La Realidad Aumentada puede observarse mediante códigos QR y una app width="900" loading="lazy">

“This augmented reality is fantastic.”

Originally, this project was being used by the Tec for **online classes** led by one or more teachers with groups of students from **different states**.

*“There have been **many changes** in **education** because of the **pandemic**. Many of us had planned **in-person courses** that we had to **change** to **remote** ones,” says Jorge.*

One of the reasons the professor gives for looking to **implement** this **technology** within the **Tec21 Model** is its compatibility with essential issues related to the model.

The Tec21 Model is based on **challenge-based learning** that’s **flexible**, provides a memorable college experience, and has inspiring teachers.

*“There have been many changes in education with much of what’s happened with the **pandemic**.”*

Los alumnos utilizan la app 3DArt del Tec para usar Realidad Aumentada en clase width="900" loading="lazy">

*“This **augmented reality** is **fantastic**. You can create **challenges**, and students can see and **solve them**.”*

*“As **teachers**, we need to **study**, **stay up to date**, **innovate**, and provide a place for students to express themselves,” he says.*

Likewise, Membrillo points out that **technology** must **complement** the **pedagogical aspect**, and the teacher must be clear about the **competency** to be **developed** before using the technology.

He also points out that he’s looking to work on other **projects** that involve this **technology** and that imply a **deeper development** of the subject and its **pedagogical application**.

*“I have an idea to write a **book** based on these **codes**. Imagine a book in which you can turn the pages and see the molecules with only **QR codes** instead of **images**,” says the professor smiling.*

*“This **augmented reality** is **fantastic**. You can create **challenges**, and students can see and **solve them**.”*

La Realidad Aumentada está siendo aplicada en la clase de este profesor del Tec de Monterrey width="900" loading="lazy">

One step closer to turning fiction into reality

Membrillo says there are **students in his classes** from **various areas** such as **health, engineering, biotechnology**, and even the **visual arts**.

*“I have students who are studying **art and digital design**, and when they saw this, they said, ‘This is what we want to do.’*

*“A student told me that he wanted to go to **Pixar or Disney**, but he realized that **science** can also include **art**,” he says.*

“A student told me that he wanted to go to Pixar or Disney, but he realized that science can also include art.”

Membrillo says that some of them are also **interested** in the **development and improvement** of this **technology** and want to use it to add **special effects**.

*“The **main challenge** of this **technology** is that it’s at a **basic** stage. I think it can develop into something **more dynamic** and even be **applied** to many **other areas** such as **health**,” Membrillo concludes.*

You can see the [**ART3D project here**](#)

READ MORE:

<https://tec.mx/en/news/national/education/my-professor-hologram-tec-gives-its-first-class-la-star-wars>