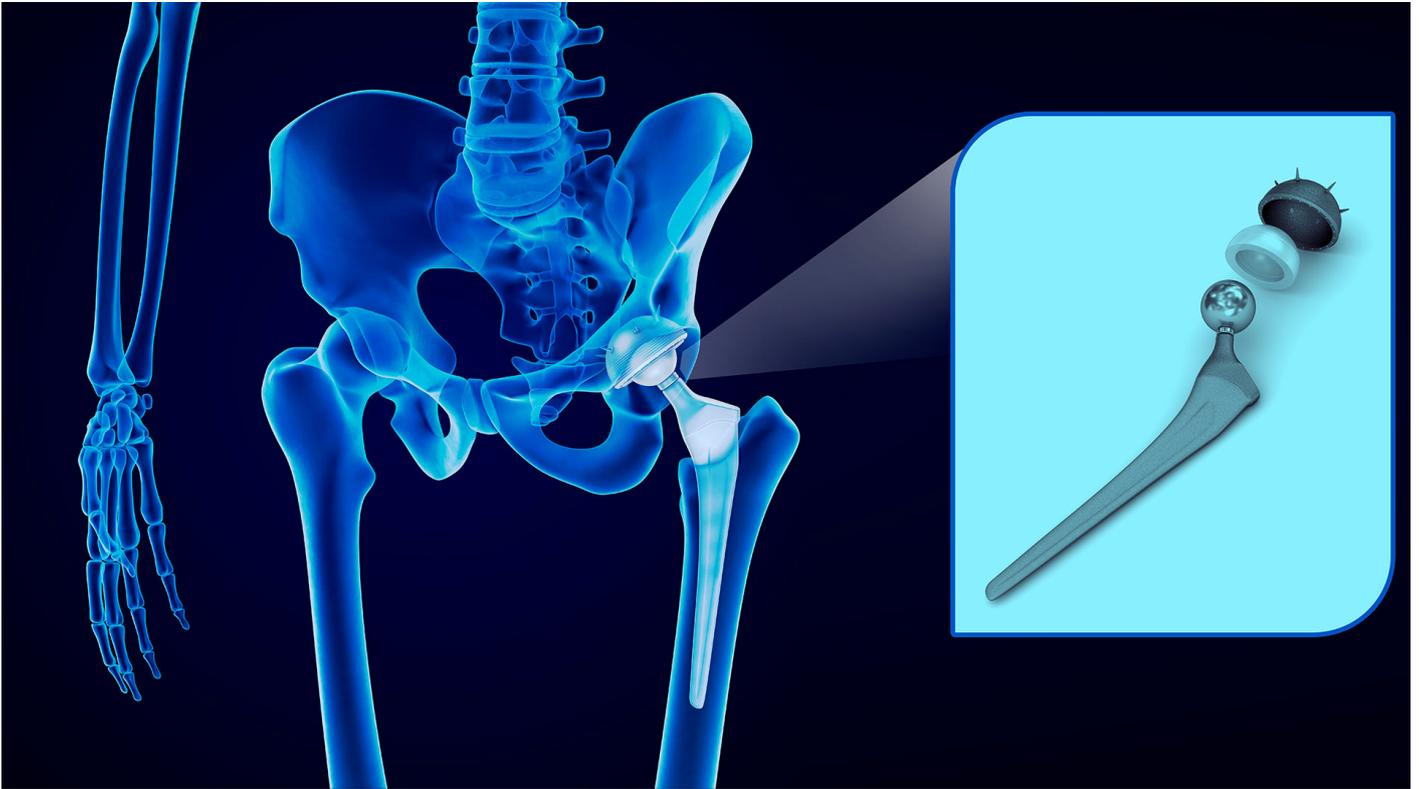


# 3D Technology! Augmented reality to improve pelvic surgery



**David Arturo Rodríguez Sánchez**, a Tec de Monterrey graduate, is developing an augmented reality project **that seeks to reduce risks** to patients during **pelvic surgery**.

**In conjunction with a research group**, he is working on **a monitoring system which uses augmented reality** to reduce possible risks during hip surgeries.

The group is made up of **consultants, specialist doctors, traumatologists, and surgeons**, who intend to **perform the first surgery using the new model** within the next **three years**.

*“During the development of this project, we have encountered different challenges, mainly to do with the augmented reality programming, as it is a technology with a high development cost,”* said David Arturo.



width="1366" loading="lazy">

**The use of augmented reality in the operating room** allows an evaluation **to be carried out without having to make an incision in the body**. This is possible thanks to **a monitor sending real time** data about what is happening inside the patient.

The **monitor is important** because **doctors need to have their eyes free at all times during surgery**, so other technologies such as **virtual reality glasses** are not feasible.

Likewise, **the device will be able to show the exact position of the bones to the millimeter** and the tools used during the surgical procedure through different sensors.

Through **accelerometers or Kinect technology**, surgeons will be able to undertake a **1:1 timescale scan to be able** to generate an accurate report of the patient's condition, **have greater precision, and reduce the possible margin of error**.

It is important to note that **the development of this project is focused on pelvic or hip surgeries**, since it is a **complex procedure** involving different small bones such as the **iliopubic branches**.

It has been proposed that, in the future, **this model will have the ability to suggest an optimal location for incisions** and introducing the necessary tools.

{"preview\_thumbnail":"/sites/default/files/styles/video\_embed\_wysiwyg\_preview/public/video\_thumbnails/a  
Video (Adaptable)."}]

David mentioned to **CONECTA** that this **computer-assisted surgery model is innovative as there is no current model of this type in Mexico**, and the most similar developments are focused on **knee surgeries**.

### **What sparked his passion**

He **graduated in Mechatronic Engineering at the Aguascalientes campus** and completed his master's degree at the Monterrey campus in **science and manufacturing**, with a medical focus.

He considers himself **passionate about research**. During his master's degree, **he carried out mechanical analysis for prosthetic hands**, and later began a **doctorate in engineering sciences**.

At the start of his doctorate, **David decided to be the first in Mexico** to develop a **Computer Assisted Surgery (CAS) System** focused on the **pelvis**.

*"At the beginning of the doctorate, it seemed like an interesting project but, now that I see it fully, it is a fascinating and far-reaching project because of the impact it will have,"* said Rodríguez.

**During his doctorate, his interest in research** took him to the United Kingdom, where he discovered that **augmented reality** would become his **true passion**, he said.

**Jorge Alberto Pérez**, Director of the School of Engineering and Sciences, mentioned that **the inclusion of technology** to achieve greater wellbeing for human beings **is on the rise, and proof of that** can be seen in the work of Tec graduates.

*"It's impressive to see things that we believed unattainable as children becoming a reality today,"* said director Jorge Alberto.

Finally, **David suggests that young people should be more curious**, as **doing research and proposing** new challenges can lead them to create great things.

*"Doing everything with passion and determination is the key for today's youth to succeed in a globalized and constantly evolving world,"* said David.

### **YOU'LL DEFINITELY WANT TO READ:**

<https://tec.mx/en/news/aguascalientes/research/mexican-helps-cure-heart-diseases-nanotechnology>