

Tux and the project that's the “champion” of engineering education



Imagine learning online and finding that a **plush toy penguin** was the assistant to an expert **civil engineering professor** during your class.

These two are **Tux**, the [Linux](#) mascot, and **Miguel Xicoténcatl Rodríguez Paz**, a.k.a. **Dr. X**, a [Tec de Monterrey](#) professor and well-known **YouTube**r, who has more than **38,000 followers** from **around the world**.

Dr. X recently won an award at [EDUCON 2021](#), an event organized by the [Institute of Electrical and Electronics Engineers \(IEEE\)](#).

*“It’s something I’ve been working on for years. I’ve experimented with techniques that take advantage of digital social networks, particularly YouTube, to **facilitate learning in subjects often thought to be complicated or difficult, such as Structures in Architecture and Civil Engineering.**”*



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The Champions League of education

EDUCON, which was held in April in **Vienna, Austria**, is often thought of as the “**Champions League**” of education, being **the best Engineering Education conference in Europe**.

Its rigorous selection process meant that **only 270 entries** from more than **600** around the world were presented at this year’s conference.

Each paper accepted by **EDUCON** is subjected to scholarly peer review, and the papers it publishes are added to the important [Scopus](#) database.

<https://www.youtube.com/user/MiguelXicotencatl>

*“The title of our project is ‘A Hybrid and Flexible Teaching Model for Engineering Courses Suitable for Pandemic Conditions towards the New Normality’. It was recognized as the **Most Innovative Paper regarding Engineering Education.**”*

The birth of an innovative project

Dr. X explains that his project began several years ago, with the aim of **motivating students through new learning formats**. Later, because of the pandemic, the project was modified and adapted for **online teaching**.

*“It all started in **2017**, as a long-term project from the **research group in educational innovation at the School of Engineering and Sciences**. The group also works on other projects such as **using virtual and augmented reality for skills development.**”*



Best Paper Awards

Most Innovative Paper regarding Engineering Education

A Hybrid and Flexible Teaching Model for Engineering Courses Suitable for Pandemic Conditions towards the New Normality

Miguel X. Rodriguez-Paz, Jorge A. Gonzalez-Mendivil, Israel Zamora-Hernandez, Benjamin Sanchez

Andreas Pester

For outstanding contribution to the development of the conference

Thomas Klinger

Christian Kollmitzer

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Dr. X confesses that, although students adapted quickly to the project, it was difficult at first to **convince them to participate in a different teaching model**.

*“In semesters prior to the pandemic, we had to work to convince students that **using videos could be of benefit to them. Now, the courses using this model are filled within hours of registration opening.**”*

A big challenge for **Dr. X** was finding the time to record additional material, so **he would use empty classrooms on weekends** to record videos for his courses.



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Dr. X's team

Jorge González Mendivil, Israel Zamora Hernández, and Benjamín Sánchez Andrade, professors at the **School of Engineering and Sciences (EIC) on Puebla campus**, are co-authors of the winning project.

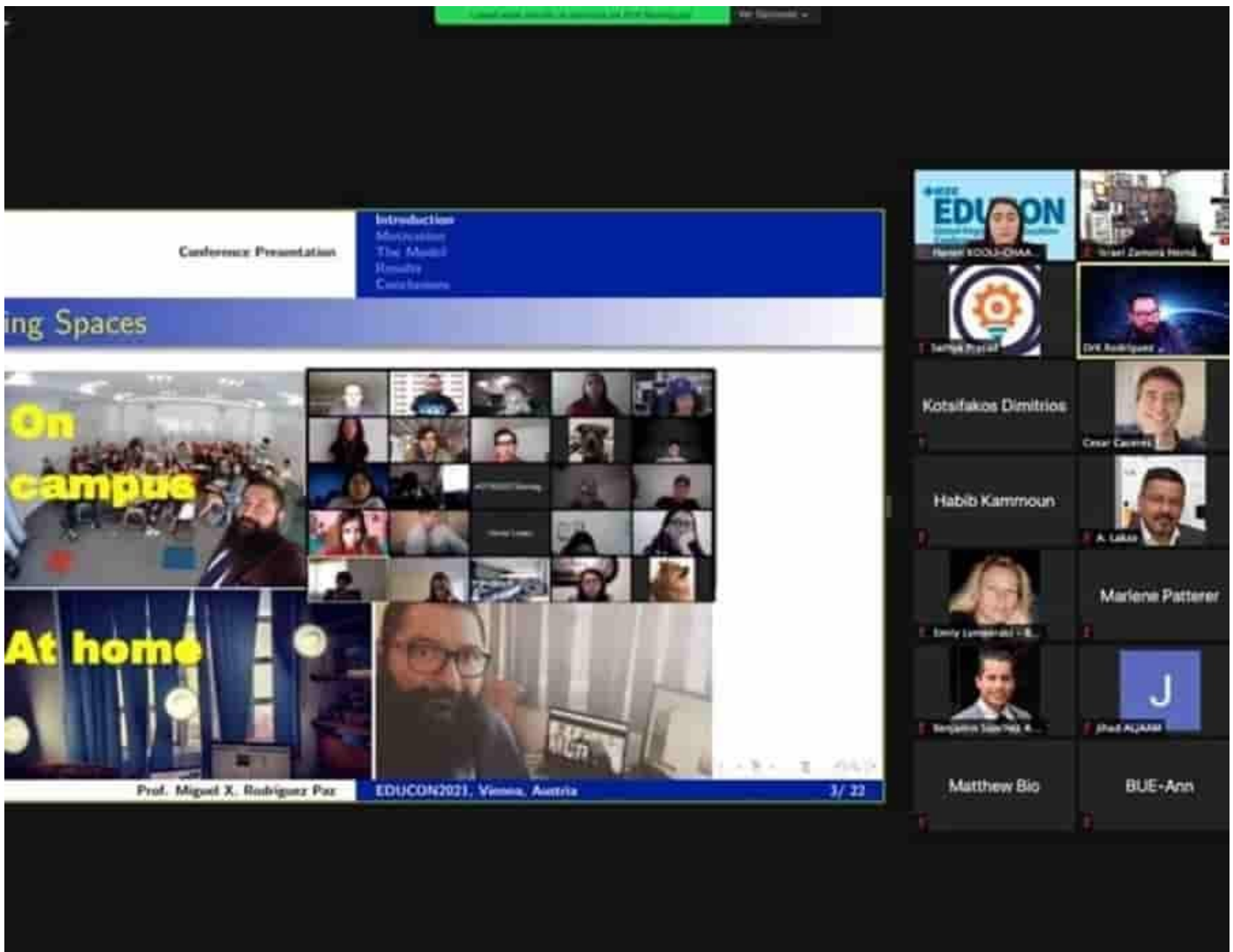
They each **submitted individual papers at EDUCON 2021**. As a group, they discuss ideas and results and work together on NOVUS projects.

Since **2012, Tec de Monterrey initiative NOVUS** has provided financial support to projects in which more than **1,200** professors have participated so far.

The team applying the winning model has some **unusual “assistants”**. These are plush toys of characters including **Tux** and a **Baby Yoda**.

*“The pandemic has been difficult for both students and teachers who were used to working in a classroom. However, their ability to adapt has been fantastic. **Decades of experience in using the latest technology** have helped make the transition quick and effective.”*

Dr. X mentions that there were other resources from **Tec de Monterrey** which helped him achieve success at **EDUCON**, such as the Center for Teacher Development and Educational Innovation (CEDDIE) and the Writing Lab at the Institute for the Future of Education.



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*“They are a sign of the institution’s commitment to its teachers and students, **so that the educational experience is the best it can be.**”*

This year, **more than 20 projects** from different **Tec** campuses were submitted to **EDUCON**, **8 of those papers** being written by **EIC** professors at the **Puebla campus**.



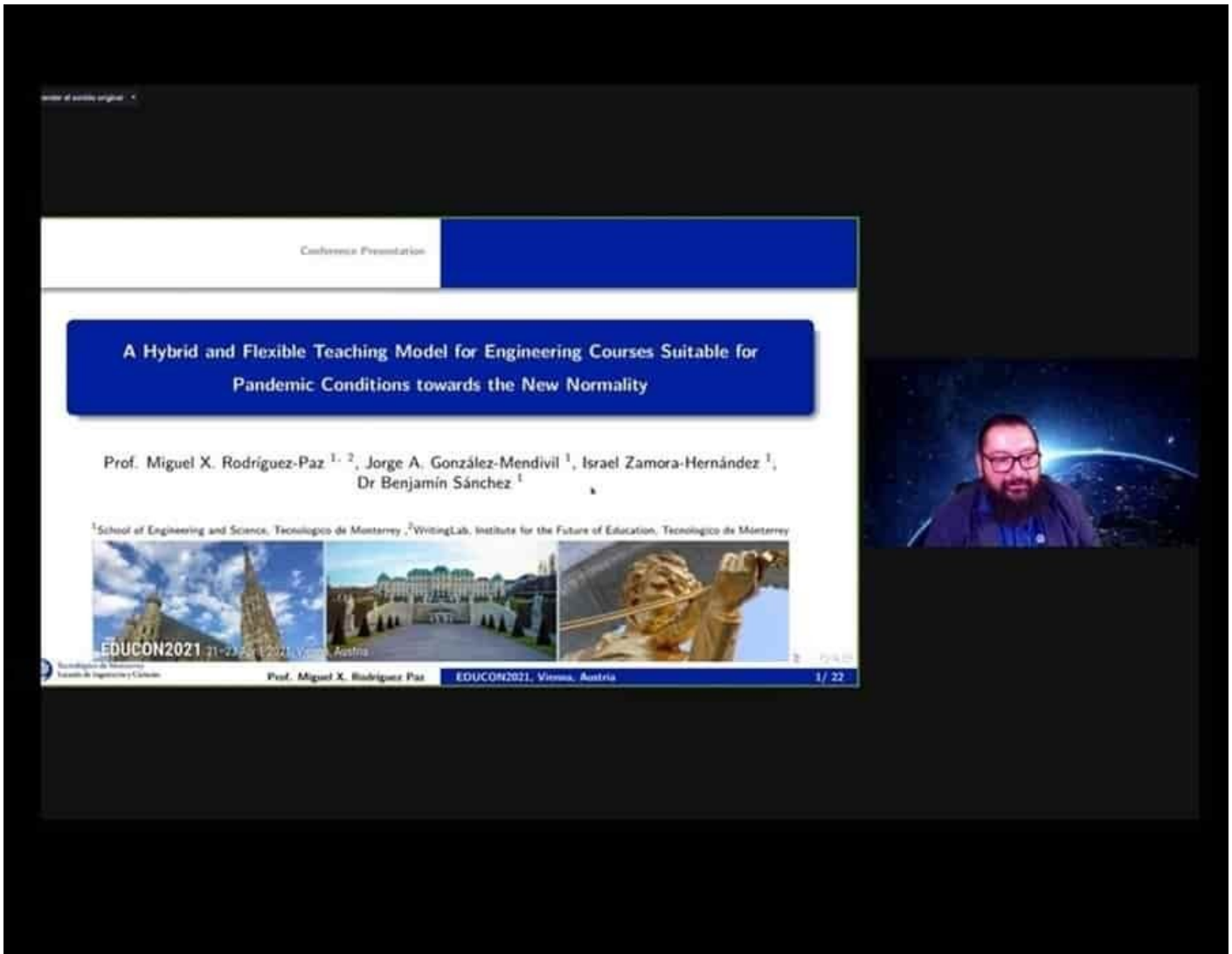
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Who is Dr. X?

Dr. Miguel Xicoténcatl Rodríguez Paz is currently **Director of the Central-South Region Department for Sustainable Technologies and Civil Engineering** at **Tec de Monterrey's School of Engineering and Sciences**.

He has been a full-time professor at the **Puebla campus since 2004** and is known for **using videos and his educational YouTube channel** in his classes.

*"My projects never come to an end. **Instead, they evolve and are nourished by knowledge I get from being in the classroom.**"*



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He adapted his model from what he has been using with positive results in his **Structural Engineering** courses for several years, **as reflected in his students' grades.**

*"I thank the students who've participated in the project and the institution, which **always motivates its teachers to participate in educational innovation on a scientific basis.** This means that students have the best possible experience in the classroom," he concluded.*

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