

## **EDITORIAL**

*Ingeniería, Investigación y Desarrollo I2+D Journal* is a publication of the Universidad Pedagógica y Tecnológica de Colombia, Sogamoso Seat, aimed at inform research developments in the field of engineering and technology. In this issue, the journal offers articles in the area of engineering and technology with interdisciplinary application, in which highlights the focus on technological applications to environmental problems.

Valvuela *et al.*, in their article "Auditory effects in Haptic perception during drill simulation", present the preliminary results of an investigation on multimodality applied to the simulation of an industrial process. In this experimental study, in which there were several participants, the possibility of using sound as compensation for Haptic feedback was found, which is a task that has multiple applications in medicine, elaboration and construction.

Zuluaga Valencia *et al.*, in the article entitled "Potential use of patent consultation to determine the state of the art. Analysis in micro network with renewable energies", show the importance of the consultation of patents in the framework of the scientific and technological development, through the main characteristics of the patents, and the advantages that these documents can offer on the most used sources of information in traditional research.

Similarly, *Ingeniería, Investigación y Desarrollo I2+D Journal* has three literature reviews. The first one, "The use of video games as a teaching tool to improve teaching and learning: state of the art review", Roncancio-Ortiz *et al.* show that video games will stop being simply an element of distraction, to become a valuable tool to help solve learning problems, improving motor and cognitive skills, and the promotion of creativity.

In the second review, "Using technological tools in fish production: a systematic review of literature", Rojas-Molina *et al.* describe the use of technological tools in fish production, in activities related to the recognition and control of physical and chemical variables of water and the regulation of water levels and fish feeding; they also highlight the importance of using alternative energies to maximize natural resources and minimize environmental impact.

And in the third review article, "Applied technology in operation and detection of landmines: state of the art", Ledezma-Rios shows the different technologies implemented to detect landmines, as well as the updates used for detection of buried objects and the factors that affect the loss of energy of the waves as transmitters of information.

Moreover, Vera-Romero *et al.* in "Development of an application for calculating properties of the ammonia-water mixture" expose their research on an application in Excel TM using Visual Basic (VBA) from a formulation based on the Gibbs energy of excess, for simulating various systems, such as refrigeration, air conditioning, heat pumps, among others, without the need to purchase commercial simulators for this purpose.

As internal participation, Salamanca-Medina *et al.*, show in "Scale physical modeling of individual, free-head piles subjected to lateral loading in cohesive soils" the results of the small-scale modeling of free-head wood piles subjected to horizontal loading on cohesive soils tested in order to compare the results with analytical models proposed by several authors. Similarly, Pinto-Salamanca *et al.*, in their paper titled "Dielectric rigidity test to protection elements for work with TCT voltage", show the design and assembly of a system of tests of sustained voltage to elements and equipment used in live line maneuvers, through tests to gloves and poles, which are the first points of contact that guarantee safe operations.

In the last article, "Identification and quantification of wave energy potential on the coast of Atlántico state, Colombia", Pérez-Zapata reveals the progress made in relation to the identification and quantification of wave energy potential on the coast of Atlántico State. It also notes the progress of designing a *near shore* system for verifying energy potential, which is a device that converts the kinetic energy of ocean waves into mechanical energy.

Finally, in addition to expressing our sincere thanks to the team of reviewers of this publication for their collaboration, we want to say that the Editorial Committee of *Ingeniería, Investigación y Desarrollo 12+D Journal*, taking into account that universities in Colombia and in the world are focusing their resources and efforts in the consolidation of research, and that is why their teachers, researchers and students seek to show the results of their research through conferences, patents or publication in

journals, and further recognizing that the best way of publishing is through the web, invites the entire academic and research community to consult the articles of this publication and to participate with their scientific contributions for the edition of the next volume ([www.uptc.edu.co/enlaces/ringinvedesa](http://www.uptc.edu.co/enlaces/ringinvedesa)), where, we are sure, they will find articles of high quality.

***M.Sc. Oscar Iván Higuera Martínez***  
***Editor***