



Preface. Neutrosophic Decision-Making, Artificial Intelligence and Large Language Models: Applications in Engineering, Education and Public Policy in Latin America. Special Issue of the International Academic Meeting at Universidad Bernardo O'Higgins, Santiago, Chile (2026)

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Abstract: This special issue collects the papers presented at, and derived from, the international academic meeting held at Universidad Bernardo O'Higgins (UBO) in Santiago, Chile, over two days: Tuesday, June 30 and Wednesday, July 1, 2026. The meeting, organized by Professors Maikel Yelandi Leyva Vazquez and Alexis Matheu Perez, was honored by the presence of Professor Florentin Smarandache, founder of neutrosophy. Sessions covered the foundations of neutrosophic logic, NeutroAlgebra and AntiAlgebra, plithogenic statistics and probability, the epistemic auditing of large language models, and their applications to higher education, institutional evaluation, and public policy, in connection with the FONDECYT Regular 2026 project (ANID) and UBO's new interdisciplinary doctoral program.

Keywords: neutrosophy; neutrosophic decision-making; multi-criteria decision-making; AHP-TOPSIS; artificial intelligence; large language models; cybersecurity; digital transformation; higher education; public policy; Latin America

1. The Meeting

Universidad Bernardo O'Higgins, founded in 1990 in the center of Santiago, bears the name of one of the fathers of Chilean independence, and seems to embrace the very mission he set for his country: achieving independence through education, courage, and openness to the future. In that setting, over two days—Tuesday, June 30 and Wednesday, July 1, 2026—the international academic meeting behind this special issue took place. It brought together faculty members, researchers, doctoral and master's students, and the teams of the Institutional Research Center (CII) and of the FONDECYT Regular 2026 project, funded by the Chilean National Agency for Research and Development (ANID) and devoted to evaluating the impact of Chilean public policies in the post-pandemic period.



Figure 1. Arrival at Universidad Bernardo O'Higgins, Santiago, Chile.

2. First Day: Tuesday, June 30, 2026

After the official reception by the university authorities and the presentation of the goals of the academic visit, Professor Smarandache delivered the keynote lecture 'The Third Answer: Artificial Intelligence, Uncertainty, and the Future of Engineering Education,' together with the presentation of the books *The Third Answer* and *The Honest Classroom*. The lecture started from a deceptively simple question: what does artificial intelligence do when it does not know? The answer led naturally to the neutrosophic triplet (T, I, F) as a language for representing what is confirmed, what is refuted, and what remains indeterminate, with applications to education, assessment and accreditation, Type-K neutrosophic sets, and the auditing of large language models.



Figure 2. Keynote lecture 'The Third Answer: Artificial Intelligence, Uncertainty, and the Future of Engineering Education.'

In the afternoon, the working meeting with the Institutional Research Center discussed the integration of neutrosophic models and explainable artificial intelligence into the FONDECYT project, and the session with the CREA and DGOA teams analyzed applications of artificial intelligence in university processes and the development of joint research lines. The audience was diverse, and that matters: a mathematical idea acquires its true value when it can be understood and used beyond mathematics as well.



Figure 3. Academic session with UBO researchers, doctoral students, and master's students.

3. Second Day: Wednesday, July 1, 2026

The second day took the form of workshops and working sessions. A lecture is, by its nature, a monologue; a workshop is a dialogue, and it is in dialogue that ideas are born. The meeting with the Faculty of Engineering, Science and Technology addressed doctoral programs, data analysis and data science, and the strengthening of international collaboration; the session with the Directorate of Institutional Analysis and Management Control examined real datasets, predictive models, and applications of artificial intelligence to the evaluation of public policies. The discussions made clear that uncertainty is not a philosophical abstraction but a concrete methodological difficulty: incomplete data, contradictory information, and effects that are hard to isolate demand tools able to distinguish degrees of truth, falsehood, and indeterminacy.

The meeting also left lasting traces. The university library received a donation of books on neutrosophy and related fields, together with the complete collections of several international journals, among them *Neutrosophic Sets and Systems* and *Neutrosophic Computing and Machine Learning*, now incorporated into the institutional repository. Agreements were reached on joint work with UBO's new interdisciplinary doctoral program, on joint special issues, on doctoral co-supervision, and on the integration of Chilean researchers into international neutrosophic research networks. Because a book is not an object but an invitation: an invitation to dialogue, the only form of knowledge that never ends.



Figure 4. Participants of the meeting in the auditorium of Universidad Bernardo O'Higgins.

4. This Special Issue

The spirit of those two days is well captured by an idea Professor Smarandache recorded in his travel diary 'Between the Andes and the Future': between what we believe we know and what we do not yet know there is always a space of indeterminacy; it is not a void, but a territory waiting to be explored. The articles gathered in this issue explore precisely that territory in three directions: neutrosophic multi-criteria decision-making for engineering and digital transformation (cybersecurity, DevOps and DevSecOps, IoT architectures, disaster recovery, software planning, satellite-based quality assessment); artificial intelligence and large language models examined through neutrosophic lenses (indeterminacy in model outputs, multi-model analysis of public information); and neutrosophic approaches to education and public policy in Latin America (generative AI in teaching, competency-based learning, economic, social and cultural rights).

A special mention, and our gratitude, go to the Centro de Estudios para la Calidad Educativa y la Investigación Científica (CECEIC, Mexico; <https://www.ceceic.org.mx/>) for its role in the dissemination of neutrosophy through its Postdoctoral Program in Scientific Research, Neutrosophy and Complexity, whose participants — postdoctoral researchers from across Latin America — took part in the meeting and contribute several of the papers gathered here. That a postdoctoral program devoted specifically to neutrosophy is now running in Latin America, and that its researchers publish in this issue, is in itself a sign of how far neutrosophy has advanced in the region.

Artificial intelligence needs not only answers, but honest answers. So do people. We trust that this special issue contributes to that epistemic honesty, and that the projects begun in Santiago will confirm another conviction born there: true academic friendships are built upon the projects we have not yet started.

The Editors

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