Title: Artificial Intelligence Applications Today and Tomorrow

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Abstract:

This talk will showcase the evolution and impact of applied artificial intelligence from an engineering perspective, highlighting a career-long journey in developing robust AI solutions. As an engineer with an extensive portfolio of projects in artificial intelligence, I will share how our work to date in algorithm design, data analytics, and system integration has contributed to advancements across various industrial sectors. More importantly, I will draw parallels between these engineering breakthroughs and their potential applications in neurology and psychiatry.

During the presentation, I will review the technical foundations of AI—including deep learning, computer vision, and natural language processing—demonstrating how these methods have been successfully deployed to solve complex problems such as early anomaly detection and real-time decision support in industrial contexts. I will illustrate with concrete case studies how techniques originally developed for optimizing manufacturing processes, predictive maintenance, and quality control can be reimagined to support clinical diagnostics, patient monitoring, and personalized treatment planning. For instance, similar to how our algorithms detect subtle patterns in vast datasets to predict system failures, comparable approaches can be applied to analyze neurological imaging or to extract meaningful insights from patient records and clinical narratives.

Additionally, I will discuss the practical challenges encountered in building scalable, secure, and ethically responsible AI systems, underscoring the importance of transparent methodologies and adherence to international ethical guidelines. These insights, born out of rigorous engineering practice, are directly transferable to the clinical arena, where the reliability and interpretability of AI tools are paramount.

Ultimately, this session aims to bridge the gap between engineering and clinical practice. By presenting our experiences and learnings, I hope to offer neurologists and psychiatrists a fresh perspective on how advanced AI technologies can be tailored to enhance diagnostic precision, optimize treatment strategies, and ultimately improve patient outcomes. Attendees will leave with a deeper understanding of how interdisciplinary collaboration can drive innovation in healthcare, leveraging proven engineering solutions to address some of the most pressing challenges in neurology and psychiatry.

Biography:

Full Professor at the Faculty of Engineering, University of Deusto. He holds a PhD in Computer Engineering, specializing in the application of Artificial Intelligence to Cybersecurity and Intrusion Detection. Currently, he serves as the Vice Dean of Deusto Ingeniería. His curriculum vitae includes over 150 R&D projects secured and led as the principal investigator of the DeustoTech Computing - D4K team (an excellence team recognized by GV), over 300 peer- reviewed scientific publications, 28 supervised doctoral theses, and more than 15 million euros secured in project funding. He led the Deusto Master's in Information Security for 11 years. Additionally, he regularly leads international scientific and academic events, such as DEXA, CISIS, SOCO, ICEUTE, HAIS, INFOSEC, MATEMOZIOA, WEBST, BIGDAT, CSFR, DEEP LEARNING BILBAO!, and IQSoft 2025.