Pioneering Computational Music and Sound Analysis

Juan Pablo Bello

Associate Professor, Music Technology, Music and Performing Arts ProfessionsAssociate Professor, Electrical and Computer EngineeringAffiliate Faculty, New York University Center for Data Science

CURRENT RESEARCH

Developing machine listening systems for real-world applications

Imagine you are a musician, improvising music — while your computer is listening and suggesting harmonic accompaniments to complete your music-making. Or a hiker, using her smartphone to identify a bird species by its song. The development of robust listening machines has many potential applications that can have transformational impact in music, biology, urban studies and other areas of scholarly and professional practice. Dr. Juan Bello, Associate Professor of Music Technology and Electrical and Computer Engineering at New York University, studies the fundamentals of sound and develops cutting-edge computational methods in the arising field of machine listening. By examining the patterns of information in music and environmental sounds, Dr. Bello hopes to create systems that can intelligently interact with humans.

Further advancements in machine listening research will enhance the ability to automatically recognize the sources in an auditory scene, determine the pitch, rhythmic, structural, and emotional content in recorded music, and help characterize the similarities that exist between sounds or musical pieces. Dr. Bello's research sits at the intersection of the fields of music, acoustics, electronic engineering, and computer science, while seeking to advance the state of the art in all of them. A fundamental step towards context awareness in machines, new machine listening technologies can enable novel applications in fields as diverse as robotics, human-computer interaction, hearing aids, and security.

Current research projects include:

- Foundations of Machine Listening: One of the key components of Dr. Bello's research is how to improve existing audio representations by...

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AFFILIATION

New York University

EDUCATION

- Post-doctoral in Electrical and Electronic Engineering 2006,Queen Mary University of London (Centre for Digital Music), London, UK
- Ph.D. in Electrical and Electronic Engineering 2003, King's College/Queen Mary University of London, London, UK
- B.Eng. in Electronic Engineering 1998,Universidad Simón Bolívar, Caracas, Venezuela

AWARDS

- US Fulbright Research Scholar – Multidisciplinary Studies, 2013-2014
- Faculty Early Career Development Award, 2009-2014
- Best Paper Award at the 11th International Conference on Music Information Retrieval (co-authored with R.J. Weiss), August 2010
- Best Special Session Paper, 11th International Conference on Machine Learning and Applications (co-authored with E.J. Humphrey), December 2012

RESEARCH AREAS

Technology, Computational Sciences / Mathematics, Electronics / Sensors, IOT, Devices, Data

FUNDING REQUEST

Your contributions will support Dr. Juan Bello and his team of talented researchers at New York University as they continue to develop the core science of machine listening and explore its applications. Donations will help fund the $500K/year needed to support the salary and activities of students and post-doctoral researchers. Partner with them in redefining the future of music and sound technology.