

Marcelo Caetano

Marcelo Caetano received the PhD degree in signal processing from UPMC Paris 6 University/IRCAM in 2011 under the supervision of Xavier Rodet, then head of the Analysis/Synthesis group at IRCAM. He was a postdoctoral fellow at FORTH (Greece), INESC TEC (Portugal), and ATIC-UMA (Spain). Between 2020 and 2023, Dr. Caetano was a Marie-Curie fellow with CIRMMT-McGill and CNRS-PRISM developing the [MORPH](#) project, which uses musical instrument sound morphing to investigate the perception of timbre and to allow composers and performers to explore sound morphing creatively. His research interests range from musical instrument sounds to music modeling, including analysis/synthesis for sound transformations and music timbre. In 2023, Dr. Caetano joined the Department of Music from the University of California San Diego (UCSD).

The MORPH project

“From Timbre Perception to the Creative Exploration of Musical Instrument Sound Morphing”

The MORPH project uses sound morphing to investigate timbre in traditional musical instruments. Timbre is a complex multi-dimensional perceptual phenomenon considered to be one of the last frontiers of auditory science. Sound morphing is a transformation that gradually blurs the categorical distinction between sounds by blending their sensory attributes. Thus, sound morphing has the potential to advance our understanding of timbre and to deliver innovative virtual hybrid musical instruments for the creative exploration of the timbral gap between traditional musical instrument sounds. We used sound morphing to create continuous timbre spaces by filling the gaps between traditional musical instruments and therefore breaking the categorical perception of musical instrument timbre by the auditory illusion of hybrid musical instruments.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 831852 (MORPH)

