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Tchaikovsky Riddles, or How Software Technology Can Contribute to Musicology

Abstract – In this talk, I will introduce the aspects of using computer and software technology for better understanding of how humans perceive the art works. I will go through a number of our projects where we studied the models, which are helpful for the areas that seem to be very distant, but very connected in fact. In particular, these areas include speech prosody processing, modeling, visualization, and estimation for the benefits of computer-assisted language learning, algorithms of music similarity evaluation and their links to speech processing algorithms, as well as our recent approach to study the phenomenon of Tchaikovsky’s “Children Album” as an excellent example of transdisciplinary research.

Though exploring rich metaphors hidden in the musical compositions lay usually in scope of musicology, there is still large space for formal methods based on mathematical models and software technology that can be helpful in discovering complementary insights to how the composition is structured, what are its relationships to the precursors’ works, and how it affects the later works of the same or other authors. Interestingly, signal processing algorithms used in speech intonation analysis and evaluation along with the functional music representation models, can be promising for finding the new ways to improve our understanding of the hidden language of music. Thus, I will try to make a somewhat visionary journey connecting the studies of the melody of voice to the investigation on how computational models can enhance traditional musicology research.