

# Orchestral Accompaniment for a Reproducing Piano

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## **Abstract**

A system that generates flexible orchestral accompaniment of a computer-enabled piano is presented. We introduce a probabilistic model for the piano data that can be used for on-line and off-line score following of the piano performance. The system is designed to have the ability to accompany imperfect performances well. Such performances may contain a large amount of extra notes and missing notes that performers accidentally add or skip respectively. The model is automatically trainable to the specific performers and piece under consideration.

The on-line position estimates form the observable data for a trainable prediction engine that anticipates the future evolution of the performance. These ongoing predictions drive a phase-vocoded audio performance of the orchestra. We present results on a highly challenging gem from the Romantic piano concerto repertoire.

What we want to accomplish is a system that can intelligently anticipate serious pianists' performances. We look forward to use our system in public concerts.