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**Samuel Jinglian Li\*** ([samuel.wgx@gmail.com](mailto:samuel.wgx@gmail.com)), 204 Krider Rd., Sanford, FL 32773. *Polyphonic Piano Transcription with an Infinite Training Dataset*. Preliminary report.

We suggest the use of a procedurally generated dataset to train a supervised learning system for polyphonic piano transcription. Data can be generated quickly, on-demand, and in large quantities, reducing the chance of overfitting and avoiding the time-consuming process of curating large training datasets. The data generation algorithm is based on the linearity of sound, and creates training data for arbitrary note combinations by linearly combining the spectra of individual notes. Additional transformations and distortions are added to improve generalization. The generated data are used to train a standard feedforward neural network by using the backpropagation supervised learning algorithm. The network input is a high-dimensional vector representing the frequency spectrum of the input sound, calculated through a constant Q transform; the network output is an 88-dimensional binary vector representing note activations. The resulting networks are run on the MAPS piano dataset and evaluated through note- and frame-based metrics. We show that even very simple neural network architectures achieve reasonable transcription performance and excellent generalization qualities when trained using this procedurally generated data. (Received September 20, 2016)