ScPy – A SuperCollider extension for performing numerical computation via embedded Python

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Abstract

SuperCollider, a language for live coding and algorithmic synthesis of audio, includes features for performing spectral analysis and manipulation of audio streams using the Short-Time Fourier Transform (STFT). However, available spectral operations are limited to those implemented individually as Unit Generators (UGens). Many basic operations exist and can be composed to produce complex effects, however this process is tedious and leaves many of the possible effects impossible to create. We present ScPy, a UGen which embeds Python scripts within SuperCollider to extend the space of possible effects using the optimized vector operations provided by the NumPy and SciPy libraries.