Imagine being inside a piano. Imagine the piano expanded to the size of a concert hall. This EMPAC-commissioned concert and installation is grounded in the idea of “prepared piano,” a tradition where screws, rubbers, bolts, etc., are attached to the strings inside a piano, altering the sound. Building on the many famous mechanically prepared piano compositions from John Cage to Aphex Twin, _Expanded Piano_ transforms the idea into a uniquely electronic form. An acoustic piano is wired with both regular microphones and contact microphones attached to the body of the piano, its strings, and mechanisms. Each microphone’s signal is manipulated in real time through a computer and then routed to its own loudspeaker, creating a multichannel space around the audience that puts the listeners “inside” the piano.

Stavros Gasparatos is a composer and digital sound artist who lives and works in Athens, Greece. He composes music for dance, theater, and cinema, and frequently works on solo music projects. His music has been performed in all major Greek theaters and concert venues, including the ancient Epidaurus Theatre, the Onassis Cultural Centre, and the Megaron Mousikis Concert Hall. His work has been performed internationally in London, Macao, Naples, Berlin, Toronto, Amsterdam, Paris, and Sofia. Gasparatos is a frequent collaborator of the National Greek Theatre. He has composed music for over 90 productions and is considered one of the most important composers of the new Greek wave.

The performance “Expanded Piano,” by the composer Stavros Gasparatos, pays homage to this ever-evolving aesthetic character of the instrument. Here the spectral and spatial piano properties are not merely extended via stylistic or recording and postproduction means. Instead, these aspects are expanded into the real physical space so that the listeners are immersed within a virtual new instrument, whose aural size is only bounded by the extremities of the concert hall. This is now the piano heard through a sonic magnifying glass so that the listener embarks into an _Alice in Wonderland_-like acoustic journey.
The Expanded Piano Project
John Mourjopoulos

In essence, piano is a percussive instrument that transforms hammer activations into string vibrations, sympathetic coupling, inharmonicity and rich resonances of interconnected, mechanical, vibrating components, each having individual properties, which finally generate an elaborate acoustical radiation through the soundboard. The individual responses, especially those of the soundboard can be thus seen as filters shaping the timbre of the sound generated by the vibrating strings. The properties (responses) of these filters can be also measured via suitable excitation and recording. Such “piano filter” responses can be modeled with computer programs and constitute one element of the present piece by Gasparatos. Along with this, the technical concept of the expanding piano piece relies on the following elements:

The acoustic capturing of the piano sound via multiple microphones in different positions along its soundboard and strings.

The direct capturing of soundboard vibrations through contact microphones.

The triggering of electronic sounds from the normal playing action on the piano keyboard.

The filtering and shaping of the direct piano sounds picked up by the diverse microphones through the programmed piano response filters.

The acoustic projection into the space of the concert hall (“spatialization”) of these individual sound elements, through their dynamic distribution to 24 loudspeakers arranged at two different height levels. The allocation of sound to loudspeakers above the heads of the audience offers an increased listener immersion, which is an emerging feature of current cinematic audio technology offered in selected movie theaters.

The performer-composer navigates through preselected “scenes,” which consist of a set of parameters for all these options and combinations, ultimately triggered by his playing action.

These technical extensions of the piano sound, on the one hand, magnify, reinforce and expand the instrument’s natural timbral features; on the other hand, these sounds are filtered through the “piano filters” and radiated through the loudspeakers encircling the audience, spatially immersing the listener into otherwise-unheard sonic details and combinations: a true reinvention of the piano.
Upcoming Events

An updated schedule for the 2014 Fall season is available online at empac.rpi.edu. Check back often for more information.

WORKSHOP

LAURIE ANDERSON
Tai Chi, Meditation, and Making Art

Wednesday, November 12 / 6:30 + 8:30 PM

FILM / VIDEO

LEVIATHAN
Lucien Castaing-Taylor, Ernst Karel, + Véréna Paravel

Thursday, November 13 / 7:00 PM
$6

MUSIC / SOUND

JACQUELINE KIYOMI GORDON
The Only Thing that Makes Life Possible is Not Knowing What Comes Next

Friday, November 14 / 7:00 PM
FREE