

“GigaPop Ritual”

A Live Networked Performance Piece for Two Electronic Dholaks, Digital Spoon, DigitalDoo, 6 String Electric Violin, Rbow, Sitar, Tabla, and Bass Guitar

McGill Performers:

Ajay Kapur, (Sitar and EDholak⁽¹⁾)

Perry R. Cook, (DigitalDoo⁽²⁾)

Ge Wang (Digital Spoon)

Philip Davidson (Real-time Graphics)

Princeton Performers:

Dan Trueman, (Electric Violin and RBow⁽³⁾)

Tae Hong Park (Bass Guitar)

Manjul Bhargava, (Tabla and EDholak)

This live collaborative musical performance, weaving cyber electronics and Indian classical tradition, will take place simultaneously at McGill University in Canada, and at Princeton University in the United States. The performance will involve hi bandwidth, bi-directional real-time streaming of audio, video, and controller data from multiple sources and players at both sites. The melodies and harmonic schemes are based on two related Ragas of north Indian Classical Music: Raga Jog and Jai Jai Vanti. The musicians will explore different rhythms and soundscapes, reacting to one another over a high-bandwidth network. A number of new musical controllers will be employed:

The Dholak is a barrel shaped hand drum originating in Northern India, with two membranes on either side of the barrel. Two musicians play the Dholak. The first musician strikes the two membranes with their left and right hands. The second musician sits on the other side of the drum, striking the barrel with a hard object, such as a spoon or stick, giving rhythmic hits similar to a woodblock sound. We created the Electronic Dholak inspired by the collaborative nature of this traditional drum. Two musicians play the ⁽¹⁾**EDholak**, the first striking both heads of the double-sided drum, and the second keeping time with a “**Digital Spoon**” and manipulating the sounds of the first player with custom built controls on the barrel of the drum and in software. We further explore multiplayer controllers by networking four drummers playing two EDholaks at the two geographically diverse sites.

The ⁽²⁾**DigitalDoo** is a traditional aboriginal digeridoo, enhanced with various electronic sensors, signal processing circuits, and a six channel hemispherical loud speaker. It allows the capture and processing of the sounds from the digeridoo, and the control of various synthetic sound sources.

The ⁽³⁾**RBow** consists of a traditional violin bow with motion, position, and pressure sensors, which can be played by itself, using other surfaces as a point of resistance, or on any violin. Trueman uses it primarily with a six-string, solid-body electric violin, and in combination with pitch, amplitude, and overtone detection of the electric violin signal.

Ajay Kapur (Sitar and EDholak)

Ajay Kapur graduated with a BSE computer science degree from Princeton University in 2002. He studied tabla and sitar in Mumbai, India, for 6 months this year at the Alla Rakha Institute of Music and The Ustad Siraj Khan Institute of Sitar. Ajay has been playing percussion instruments for 12 years while studying world rhythms, composition, Indian classical theory, and computer based music theory. He is currently a music technology researcher and developer at Princeton University, working with his mentor and guru Professor Perry Cook.

<http://cs.princeton.edu/sound/people/ajay>

Perry Cook (DigitalDoo)

Perry R. Cook attended the University of Missouri at Kansas City Conservatory of Music from 1973 to 1977, studying voice and electronic music. He worked as a sound engineer and designer from 1976 - 1981. He received the BA in music 1985, and the BS in Electrical Engineering in 1986 from UMKC. He received a Masters and PhD in Electrical Engineering from Stanford in 1990. He continued at Stanford's Technical Director of the Center for Computer Research in Music and Acoustics, until joining the faculty of Princeton University in 1996, where he is now Associate Professor of Computer Science, with a joint appointment in Music. He has published nearly 100 technical/music papers, and presented lectures throughout the world on the acoustics of the voice and musical instrument simulation, human perception of sound, and interactive devices for expressive musical performance.

<http://cs.princeton.edu/~prc>

Ge Wang (Digital Spoon)

Ge Wang received his B.S. in computer science from Duke University in 2000, and is currently a graduate student of Perry Cook in Computer Science at Princeton University. Ge studies and researches computer music languages, interactive systems for synthesis, composition, performance, and physical modeling.

<http://www.cs.princeton.edu/~gewang>

Philip Davidson (Real-Time Graphics)

Philip Davidson is a Brooklyn-based graphics programmer and visual artist. He holds a degree in Computer Science from Princeton University.

<http://veldt.lobitlandscapes.com/>

Dan Trueman (6-string electric Violin and RBow)

Dan Trueman is a composing performer on both the 6-string electric violin and the Norwegian Hardanger fiddle. He has been active as an experimental instrument designer and has built sensor bows, spherical speakers, and the Bowed-Sensor-Speaker-Array (BoSSA). Dan is an assistant professor of music, teaching composition and electronic music at Princeton University.

<http://music.princeton.edu/~dan>

Tae Hong Park (Bass Guitar)

Tae Hong Park received his B.E degree in Electronics at Korea University in 1994 and has worked in the area of digital communication systems and digital musical keyboards at the GoldStar Central Research Laboratory in Seoul, Korea from 1994 to 1998. He received his M.A. from Dartmouth's Electroacoustic Music Program in June 2000 and is currently a Ph.D. student at Princeton's Composition program. His current interests are primarily in musical and technical issues in computer and electroacoustic music, which include composition and research in multi-dimensional aspects of timbre.

<http://silvertone.princeton.edu/~park>

Manjul Bhargava (Tabla and EDholak)

Manjul received a Ph.D. in Mathematics from Princeton University in 2001. He is now a Long-Term Prize Fellow with the Clay Mathematics Institute, and holds visiting positions at both Harvard University and Princeton University. As a child, he learned classical Indian music in Jaipur, India, and has since studied tabla extensively from his gurus Pandit Prem Prakash Sharma and Ustad Zakir Hussain. This concert marks Manjul's first performance on the "EDholak".