DXARTS co-founders Richard Karpen, left, and Juan Pampin discuss the musicians' brain waves during a rehearsal on the UW campus in Meany Studio Theater. (Alan Berner/The Seattle Times)

Patients suffering from motor disability improvise with professional musicians in this performance led by composers Juan Pampin and Richard Karpen and neuroscientist Thomas Deuel. In a research project hosted at DXARTS' Art + Brain lab in collaboration with Swedish Neuroscience Institute, the patients learned to perform the Encephalophone, a novel Brain Computer Music Interface allowing the creation of music without movement. Made possible with funding from a Creativity Connects grant from the National Endowment for the Arts.

ARTIST BIOS

THOMAS DEUEL

Thomas Deuel received his B.A. in Molecular Biology from Princeton University, after initially concentrating in Music Composition. He received both an M.D. and a Ph.D. in Neurobiology from Harvard University, where his doctoral dissertation focused on genetics and neurophysiology of cortical development. In parallel, he studied jazz composition and performance at New England Conservatory in Boston. He did a residency in Neurology at Massachusetts General Hospital and Brigham and Women's Hospital, and fellowships in Neurophysiology at Beth Israel Hospital in Boston and the University of Washington. His post-doctoral research focused on complex sound and music processing in the human cortex.

He also brings several years of practice as a sound artist, making site-specific sound installations, interactive music devices, and sound sculptures. His current work involves development of a brain-music interface, using thought control of the subject to create music compositions without movement. He is currently on medical staff at Swedish Hospital as a practicing neurologist, and an epilepsy and EEG specialist.

JUAN PAMPIN
Juan Pampin (b. Buenos Aires, 1967) is Associate Professor of composition at University of Washington and founding faculty member of the Center for Digital Arts and Experimental Media (DXARTS) for which he currently serves as Associate Director.

Pampin received an MA in Composition from Conservatoire National Supérieur de Musique de Lyon, France and a DMA in Composition from Stanford University, where he studied with composer Jonathan Harvey. Juan Pampin's works explore the territory articulated by the concepts of space, memory, and material, using algorithmic composition and signal processing tools of his own development.

Juan Pampin's music compositions, including works for instrumental, digital, and mixed media, have been performed around the world by world-class soloists and ensembles. His work "On Space" -for percussion sextet and 3D electronic sounds- has been recently released on CD as part of Les Percussions de Strasbourg 50th anniversary historical edition box published by Universal France.

**RICHARD KARPEN**

Richard Karpen is a composer and researcher in multiple areas of music and the arts. His compositions for both electronic media and live performance are widely known, recorded, and performed internationally. Over the last 30 years, he has also been in the forefront of the development of computer applications for music composition, interactive performance, and the sonic arts. He recently returned to the stage and the studio as a pianist.

Karpen was the founding director of DXARTS and is currently Director of the School of Music at the University of Washington, where he is also Professor of Music Composition. He has been the recipient of many awards, grants, and prizes, including those from the National Endowment for the Arts, the Bourges Contest in France, and the Luigi Russolo Foundation in Italy. Karpen has composed works for many leading international soloists, such as soprano Judith Bettina, violinists Garth Knox and Melia Watras, trombonist Stuart Dempster, flutists Laura Chislett and Jos Zwaanenberg, guitarist Stefan Östersjö, and ensembles such as The Six Tones, JACK Quartet, The Seattle Symphony, and the Harry Partch Ensemble. Karpen is a founding member, with Cuong Vu, of the experimental improvisation ensemble Indigo Mist. As a pianist, Karpen has performed and recorded with Cuong Vu, Bill Frisell, Ted Poor, Steve Rodby, and others. Karpen's compositions and performances have been recorded on a variety of labels including Wergo, Centaur, Neuma, Le Chant du Monde, DIFFUSION i MedIA, Fleur du Son, Capstone, and RareNoise.