1. INTRODUCTION

The Bregman Electronic Music Studio at Dartmouth College is dedicated to the composition, performance, and production of electro-acoustic music, and related research. The faculty includes Jon Appleton, Charles Dodge, Kui Dong, Eric Lyon, Larry Polansky (Music), Jamshed Baruched (Psychology), Charles Sullivan (Engineering), and Mary Roberts (Research associate).

The cornerstone is the graduate program leading to a Master of Arts degree in Electro-Acoustic Music - a two-year interdisciplinary program combining the study of electro-acoustic music composition with studies in areas such as digital signal processing, electrical engineering, computer science, acoustics, psycho-acoustics, and cognition.

The program also serves the needs of Dartmouth undergraduates through undergraduate classes in electro-acoustic music and full studio access for qualified students. Many undergraduates undertake independent study with Bregman faculty for specific electro-acoustic research and composition projects.

The studio regularly invites distinguished artists and researchers for concerts, lectures, and research projects. The faculty, guest researchers, and artists, graduate students, and undergraduates work closely together in a tight-knit community, often collaborating on musical performance, research, or software development projects.

3. THE GRADUATE PROGRAM

The Electro-Acoustic Music program is small and intense. All students develop their skills at both electro-acoustic composition and computer programming through a fixed set of proseminars and coursework. An individual course of study is devised in consultation with each student to provide any additional technical background required for thesis work.

The second year is devoted to the masters thesis. This is most often either a work of art, research, or software project, although in some cases the lines between these categories are blurred. "Play! An Exploration of Game Music" by recent graduate Jonathan Rayback is an original piece of Java software - an interactive, evolving artwork which is based on philosophical inquiry into the overlap between games and art. Recent trends we have observed in thesis work include timbre research, and Web-based interactive artworks.

Graduates of the program have moved into many related areas: some have continued to work as composers and performers, some have started their own music software companies or worked with music-related hardware and software projects in the computer industry. It is not the aim of the program to educate future academics, although all of our graduates are fully qualified to teach computer music.

4. THE STUDIO

The technological basis for most of the work at Bregman is computers. The studio maintains the fastest available Macintosh computers and Intel PCs running Linux, Windows, and BeOS. Most research, development, and composition is done with programming languages C, C++, Perl and Java, and core signal processing languages Csound, Matlab, Max/MSP, and SuperCollider. Peripherals are acquired as
needed for live control of digital systems, although in many cases students choose to build their own hardware in addition to designing their own software.

5. THE FUTURE

As the technology to produce electro-acoustic music becomes increasingly accessible, we consider the role of providing state-of-the-art technology to our students as an important, but no longer central institutional issue (although we continue to do so, of course). Our first priority is to provide a first-class education in the theory and practice of electro-acoustic music. Equally important is to provide a supportive intellectual community for an intense, immersive study of electro-acoustic music. To this end, we treat graduate students as colleagues, value their contributions, and hold them to the highest standards. Finally, we highly value cooperation and collaboration with other institutions. To that end, we have recently begun an artistic exchange program with the International Academy of Media Arts and Science of Gifu, Japan.

Recent Guests Researchers and Artists
Francois Bayle, Eve Beglarian, David Dunn, Beatriz Ferreyra, Kelly Fitz, Mari Kimura, Max Mathews, James McCartney, Masahiro Miwa, Gordon Mumma, Steve Reich, Jean-Claude Risset, Carter Scholz, Daniel Terrugi, Pamela Z.

Selected Graduate Thesis Topics
A Theoretical Model of Timbre Perception Based on Morphological Representations of Time-Varying Spectra Christopher Langmead, 1995
Wavelet Signal Processing of Digital Audio with Applications in Electro-Acoustic Music Corey Cheng, 1996
The Daemon (text/sound composition) Albina Stoianova, 1997
Subcultural Dissemination of Electroacoustic Music Matthew B. Smith, 1998
The Correlation Dimension as a Metric for Timbre Leslie Stone, 1998
Bits and Pieces (a web-based sampling installation) Peter Traub, 1999
Vocal formant controller for Real-time Audio Processing Owen Grace, 1999
Polyrhythmic Modulation Studies Mike Frengel, 1999
Salient Feature Extraction of Musical Instrument Signals Tae Hong Park, 2000
Play!: An Exploration of Game Music Jonathan Rayback, 2000

Program Web Site
http://eamusic.dartmouth.edu