

*FUTURE MUSIC OREGON  
The Computer Music Center  
at the University of Oregon School of Music*

Future Music Oregon, the Computer Music Center at the University of Oregon School of Music, is dedicated to the innovative use of computers and other recently developed technologies to create unique and expressive music compositions. Composers working in the center are also involved in multidisciplinary collaborations with dance, theater, acoustic music, and visual art. Student composers working in the FMO studios have been tremendously successful at having their work presented at national and international computer music events. FMO sponsors a concert series each year and invites guest speakers to campus.

If you would like more information about Future Music Oregon or would like to support the work at Future Music Oregon, you may contact Jeffrey Stolet at the School of Music or via e-mail at: [stolet@darkwing.uoregon.edu](mailto:stolet@darkwing.uoregon.edu)

Future Music Oregon is on the Internet at:  
<http://darkwing.uoregon.edu/~fmo>

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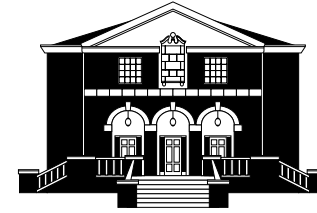
*SPECIAL THANKS*

*We would like to take this opportunity to thank  
**Sony Disc Manufacturing** for their exceptional and significant  
gifts to the School of Music. We have also received the valuable  
support from a number of other wonderful individuals and  
groups. We wish to take this moment to sincerely thank them.*

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102nd Season, 111th program



**UNIVERSITY OF OREGON • SCHOOL OF MUSIC**

Room 198  
8:00 p.m.

Saturday evening  
June 1, 2002

**UNIVERSITY OF OREGON  
SCHOOL OF MUSIC**

presents

***FUTURE MUSIC OREGON  
Jeffrey Stolet, director***

with guest artist

***Barry Truax***

PROGRAM

**Machine Study No. 1** (2002) Troy Rogers  
for two-channel digital audio media

**Rhythm Song** (2002) Paul Smadbeck/Mendel Lee  
for Two-Channel Digital Audio Media and Marimba  
Dave Constantine, marimba

**Computer Blues** (2002) Josh Lazar  
for two-channel digital audio media

**Equinox** (1999) David Ozab  
for two-channel digital audio media  
and Yamaha Disklavier

**Roots Electronica** (2002) Brian Hall  
for two-channel digital audio media

**Sequence of Later Heaven** (1993) Barry Truax  
for four digital soundtracks

INTERMISSION

**Invasion of the Mind** (2002) Melissa Stark  
for two-channel digital audio media

**External/Internal** (2002) Alex Kelly  
for two-channel digital audio media  
and amplified/processed cello  
Alex Kelly, cello

**Density Study No. 2** (2002) Mike Winter  
for two-channel digital audio media

**Riverrun** (1986) Barry Truax  
for four computer-synthesized soundtracks

*Riverrun* is available on the Cambridge Street Records and Wergo CD Digital Soundscapes., as well as the GMEB CD Cultures Electroniques 6.

*Riverrun* was commissioned by the Music Section of the Biennale di Venezia with the financial assistance of the Canada Council. It was awarded the Magisterium at the International Competition of Electroacoustic Music in Bourges, France, in 1991.

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ABOUT BARRY TRUAX

**Barry Truax** is one of the leading figures in electroacoustic music today. Truax is known for his pioneering work in computer music and acoustic ecology. He is a Professor in both the School of Communication and the School for the Contemporary Arts at Simon Fraser University where he teaches courses in acoustic communication and electroacoustic music. He has worked with the World Soundscape Project, editing its Handbook for Acoustic Ecology, and has published a book Acoustic Communication dealing with all aspects of sound and technology. His articles have appeared in Contemporary Music Review, Organised Sound, Leonardo Music Journal, Leonardo, Computers and the Humanities, and Computer Music Journal. As a composer, Truax is best known for his work with the PODX computer music system which he has used for tape solo works and those which combine tape with live performers or computer graphics. In 1991 his work *Riverrun* was awarded the Magisterium at the International Competition of Electroacoustic Music in Bourges, France, a category open only to electroacoustic composers of 20 or more years experience.

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*If you are in the company of a small child or someone who may inadvertently cause distractions, kindly sit near a rear exit and be prepared to leave in a timely fashion. Please respect our artists and your fellow concert goers. House management reserves the right to request exiting the Hall when appropriate.*

## **Riverrun**

### **Barry Truax**

*Riverrun* creates a sound environment in which stasis and flux, solidity and movement co-exist in a dynamic balance. The corresponding metaphor is that of a river, always moving yet seemingly permanent. From the smallest rivulet to the fullest force of its mass, a river is formed from a collection of countless droplets and sources. So too with the sound in this composition which bases itself on the smallest possible 'unit' of sound in order to create larger textures and masses. The title is the first word in James Joyce's Finnegans Wake.

*Riverrun* is entirely realized with the method of sound production known as granular synthesis. With this method small units or 'grains' of sound are produced, usually with very high densities (100-2000 grains/sec), with each grain having a separately defined frequency and duration. When the grains all have similar parameters, the result is a pitched and amplitude modulated sound, but when random variation is allowed in a parameter, a broad-band noise component is introduced.

All sounds in this piece were generated with real-time synthesis by the DMX-1000 Digital Signal Processor, up to a maximum density of 2375 grains/second. However, in many cases, lesser densities were also used since often the progression from isolated sounds or a rapid sequence of events to a fused texture is the most interesting feature of the synthesis method. All layers were multi-tracked with four simultaneous stereo versions and later up to 32 such tracks were mixed. Considerable use was made of ramps applied to the synthesis variables; that is, certain parameters were made to change over time at a specific rate, sometimes with several parameters simultaneously ramped at different rates. Therefore, all sound in the piece is in a constant state of flux, much like environmental sound generally and water sound in particular.

The fundamental paradox of granular synthesis - that the enormously rich and powerful textures it produces result from its being based on the most 'trivial' grains of sound - suggested a metaphoric relation to the river whose power is based on the accumulation of countless 'powerless' droplets of water. The opening section of the work portrays that accumulation, as individual 'droplets' of sound gradually multiply into a powerful broad-band texture. The piece, I find, also captures some of the awe one feels in the presence of the overpowering force of such a body of water, whether in a perturbed or calm state, and as such it seems to create a different mode of listening than does conventional instrumental or electroacoustic music.

## *PROGRAM NOTES*

### **Sequence Of Later Heaven**

#### **Barry Truax**

The work is entirely based on musical instruments found in Pacific Rim cultures, including the Javanese gamelan gongs, the Philippine patangok, the khaen from South-East Asia, the Korean kayageum, the Chinese guzheng and tam-tam, Japanese meditation bells, bamboo brushes, the rosewood keyed marimba from Central America, the Peruvian bombo and box drum, and the Chilean rainstick. These sounds are mixed together to form chords whose complex resonances become more apparent when the sounds are stretched in time.

The title refers to the arrangement of trigrams in the I Ching known as the Inner-World Arrangement, through which the primal arrangement based on opposites, the Sequence of Earlier Heaven, shines. In the later arrangement, the trigrams are shown in a temporal progression that follows the seasons and times of day. In the musical work, this progression takes place in 8 sections, each a hundred seconds in length and contrasting in character.

The sequence opens with the Arousing, signifying spring and morning, energized by thunder and electrical energy, and is followed by the Gentle, which finds its image in wind and wood, symbolizing organic development. Midsummer, or high noon, is evoked by the trigram known as the Clinging, referring to the light toward which the ruler of society turns, as organic life gives way to human consciousness. This is followed by the Receptive, which refers to the earth and the season of harvest, and in turn leads to the Joyous, as the year produces fruition and happiness. An abrupt change focusses on the Creative, symbolizing heaven, where the stern judgment of a battle between the forces of light and darkness is being fought. Winter ensues with the trigram of the Abysmal, where everything seeks its lowest level and the fullest concentration. The sequence ends with the trigram Keeping Still, symbolized by the Mountain, where the seeds of the new year and the new day are born.

The composer is grateful to Sal Ferreras, Russell Hartenberger and Randy Raine-Reusch who provided the source material for this work, along with the Simon Fraser University gamelan, Kyai Madu Sari (The Venerable Essence of Honey). The work was commissioned with the assistance of the Canada Council by Al Mattes and the Music Gallery in Toronto, for the 1993 Canadian Electroacoustic Community's Radio Days, and is dedicated to the memory of Martin Bartlett.

*Sequence of Later Heaven* is available on the Cambridge Street Records CD *Song of Songs*.