Professor Curtis Roads

Media Arts and Technology
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CURRENT

2005: Vice chair, Media Arts and Technology Program, University of California, Santa Barbara.

2005: Composer and producer of *POINT LINE CLOUD,* a CD + DVD on the Asphodel label, San Francisco.

2004-: Researcher, Visualisation du son, Groupe de travail de l'Association Française d'Informatique Musicale (cicm.mshparisnord.org/gtv/members), Maison des Sciences de l'homme/Université Paris VIII, Paris

2003-: Professor and Graduate Advisor, Media Arts and Technology Program with a joint appointment in the Department of Music, University of California, Santa Barbara.

2001-: Associate Director, Center for Research in Electronic Art Technology (CREATE), Media Arts and Technology Program and Department of Music, University of California, Santa Barbara.

2003-: Member of the Editorial Board, *Musica/Tecnologia,* Pisa, Italy.

2002: Author of *Microsound.* 400-page book with audio compact disc. Published by the MIT Press, Cambridge, Massachusetts.

2002: Winner, Award of Distinction, Digital Musics category, Prix Ars Electronica, Linz, for *POINT LINE CLOUD: ELECTRONIC MUSIC 1998-2001.*

2000-: Member of the Advisory Council, The Walden School, San Francisco.

1996-: Member of the Board of Directors, Centre de Création Musicale «Iannis Xenakis,» CCMIX, Paris, France, Gérard Pape, Director.

1995–: Member of the Scientific Committee, Prometeo Laboratory for Electroacoustic Music, Parma, Italy, Claudio Abbado, President.

1994–: Member of the Académie Internationale de Musique Éléctroacoustique, Bourges, France.

PAST TEACHING, RESEARCH, AND EDITORIAL POSITIONS

2001–2003: Associate Professor and Director of Graduate Studies, Media Arts and Technology Program with a joint appointment in the Department of Music, University of California, Santa Barbara.

2000–2001: Assistant Professor and Graduate Advisor, Media Arts and Technology Program with a joint appointment in the Department of Music, University of California, Santa Barbara.

1996-2000: Visiting Associate Professor, Center for Research in Electronic Art Technology, Music Department, University of California, Santa Barbara. JoAnn Kuchera-Morin, Director. Also taught in the Media Arts and Technology (MAT) Program. Research director of Ynez notation project sponsored by Mr. Gordon Getty. Principal developer of the Creatophone sound spatialiser and the Creatovox, an instrument for the virtuoso performance of particle sound synthesis.

1993–1996: Professor and Director of Pedagogy, Les Ateliers UPIC, Centre Nationale de Création Musicale, Alfortville (Paris), France.

1994–1995: Chargé de cours, Université de Paris VIII. Taught course on techniques of computer music.

1991-1993: Instructor in the Pedagogy Department, Manager of the Documentation Service, Member of the Editorial Committee, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), Centre Pompidou, Paris, France.

1990: Visiting Associate Professor, Oberlin Conservatory, Oberlin, Ohio. Taught three courses: "Introduction to Computer Music," "Music Systems Programming," and "Studio Composition."

1989: Visiting Lecturer, Music Department, Harvard University, Cambridge, Massachusetts USA. Taught course "Advanced Composition in the Electronic Medium."

1988, Spring: Visiting Professor, Department of Physics, Università di Napoli «Federico II», Italy. Gave series of lectures on computer music techniques. Collaborated on research projects.

1980–1986: Research Associate, Experimental Music Studio, MIT Media Laboratory, Massachusetts Institute of Technology, Cambridge, Massachusetts.

1978-2000: Editor (1978-1989) and Associate Editor (1989-2000) of 88 issues of *Computer Music Journal,* published quarterly by the MIT Press, Cambridge, Massachusetts.

PAST SHORT COURSES

2006, May: Instructor, Techniques of computer music, CCMIX, Paris.

2005, May, Instructor, Master Class in composition of electronic music, Centro di Ricerche Musicali, Goethe Institute, Rome.

2004, May: Instructor, Techniques of computer music, CCMIX, Paris.

2002, April, July, November: Instructor, Techniques of electronic music, CCMIX, Paris.

2002, April, Journées d'études, Centre de Recherche en Informatique et Creation Musicale (CICM), University of Paris VIII

2001, September: Instructor, Techniques of electronic music, Universidade Católica Portuesa, Porto

2001, July: Instructor, Techniques of electronic music, CCMIX, Paris.

2000, July: Instructor, Techniques of electronic music, CCMIX, Paris.

1999, September: Instructor: master class in electronic music composition, Traiettorie Festival, Parma, Italy.

1999, August: Organizer and instructor, CREATE Summer Institute, University of California, Santa Barbara.

1999, July: Instructor, SuperCollider Night School, Center for New Music and Audio Technologies, Department of Music, University of California, Berkeley.

1998, August: Organizer and instructor, CREATE Summer Institute, University of California, Santa Barbara.

1998, May. Instructor: master classes in electronic music. Australian National Conservatory, Melbourne, Australia.

1997, September: Instructor: master class in electronic music composition, Traiettorie Festival, Parma, Italy.

1997, August: Organizer and instructor, CREATE Summer Institute, University of California, Santa Barbara.

1990: Professor and codirector (with Prof. Harold Abeles, Columbia University), Summer course in computer music and music education. Pace International Piano Teaching Foundation, Taipei, Taiwan.

PATENT CONSULTING

2002-: Expert witness. Music technology patent, Peterson, Weyand, Martin LLP, San Francisco. Case ongoing.

2001-2002: Expert witness. Digital audio software patent. Successful prosecution of willful infringement in jury trial for Fenwick & West LLP, Palo Alto, on behalf of client Macromedia, Inc.

1994: Consultant on French and English digital audio patents for Small Larkin LLP, Los Angeles, on behalf of client Digital Theater Systems, Inc. Case settled favorably.

PAST MISCELLANEOUS

2001, March: Referee. IEEE Conference on Web Delivery of Music, Florence, Italy.

2000. April.Organizer of the CREATE conference SOUND IN SPACE 2000, University of California, Santa Barbara.

2000, September: Invited speaker. Colloquium on Musical Informatics 2000. L'Aquila, Italy.

1999, November, awarded Docteur de l'Université de Paris VIII «Tres honorable avec félicitations du jury» Département Musique, Université de Paris VIII, Paris, France.

1999: Author of L'Audionumérique, a translation, with corrections, of selected chapters from The Computer Music Tutorial published by Dunod Éditions, Paris.

1997: Principal editor and contributing author to Musical Signal Processing, a 477-page hardcover book published by Swets & Zeitlinger, Lisse, Holland.

1996: Author of *The Computer Music Tutorial,* a 1234-page hardcover textbook from the MIT Press. Over 9500 copies sold as of December 2003. Now in its fifth printing.

1996: Coauthor of Cloud Generator, a publicly distributed MacOS program for granular synthesis and sound processing.

1995–1999: Doctoral candidate, Département Musique, Université de Paris VIII, Paris, France.

1994, May: Invited lecturer, Department of Physics, Università di Napoli «Federico II» (Naples, Italy).

1994, March-April: Visiting artist and lecturer, Center for Computer Music and Music Technology, Kunitachi College of Music, Tokyo.

1992, October: Co-organizer (with Aldo Piccialli and Giovanni De Poli) of the 1992 International Workshop on Musical Signal Processing, Capri, Italy.

1991, Spring: Visiting artist, Kunitachi College of Music (Kunitachi Ongaku Daigaku), Tokyo, Japan. Composed, presented lectures, and pursued research on a grant from the Japanese Ministry of Education and Culture (Bunka-cho).

1991: Producer of *Perspectives 29*, a compact disc (CD) distributed by *Perspectives of New Music,* University of Washington, Seattle, Washington.

1991, October: Co-organizer (with Bruno Spoerri) of a special session devoted to the history of electronic music. 1991 International Computer Music Conference, Montréal.

1990: Coeditor (with Giovanni DePoli and Aldo Piccialli) of *Representations of Musical Signals,* a 500-page hardcover book published May 1991 by the MIT Press.

1990: Producer of *Perspectives 28*, a CD distributed by *Perspectives of New Music,* University of Washington, Seattle, Washington.

1989: Consultant, Kunitachi Conservatory of Music, Tokyo, Japan. Consultation in curriculum and studio design for a new international center for electronic and computer music.

1989: Editor of *The Music Machine*, a 725-page hardcover book published by the MIT Press.

1989: Producer of *Perspectives 27*, a Compact Disc (CD) distributed by *Perspectives of New Music,* University of Washington, Seattle, Washington.

1988: Co-organizer (with Aldo Piccialli, Giovanni De Poli, and Alvise Vidolin) of the International Workshop on Representations of Musical Signals, Sorrento, Italy.

1988: Producer of *Perspectives 26*, a Compact Disc (CD) distributed by *Perspectives of New Music,* University of Washington, Seattle, Washington.

1987–1992: Member of the Advisory Board, Center for Electronic Music, New York, New York.

1987: Producer of *Morton Subotnick: Touch/Jacob's Room,* a Compact Disc (CD) released by the record company Wergo Schallplatten GmbH (Germany).

1987: Member of the jury of the composition competition, Ars Electronica Festival, sponsored by the ORF (Austrian Radio), Linz, Austria.

1987: Member of the organizing committee, Audio Engineering Society Conference on Music and Digital Technology, Los Angeles, California USA.

1987: Producer of and contributing composer to *New Computer Music*, a CD of computer music by six international composers released by Wergo Schallplatten GmbH (Germany).

1986: Visiting composer, CEMAMu, Paris, France.

1985–1988: Board member, New England Computer Arts Association (Newcomp), Boston.

1985: Editor of and contributor to *Composers and the Computer,* Published by William Kaufmann Inc., Los Altos, California. Now published by A-R Editions, Madison, Wisconsin.

1985: Editor of and contributor to *Foundations of Computer Music,* in collaboration with J. Strawn, Stanford University. Published by the MIT Press.

1984–1991: Director, Studio Strada, Boston

1983–1987: Chair, International Conference Committee, International Computer Music Association.

1983–1989: Proposal reviewer, National Science Foundation, Intelligent Systems Division and Interactive Systems Division.

1982: Member of the Conference Committee, 1982 International Computer Music Conference, Venice, Italy.

1982–1988: Senior Member of the Technical Staff, Symbolics Cambridge Research Center, Cambridge, Massachusetts.

1981–1985: Cofounder and Artistic Codirector, Newcomp, Boston, Massachusetts.

1981: Member of the Conference Committee, 1981 International Computer Music Conference, Texas.

1981: Visiting composer, IRCAM, Paris. Symposium on "Composer and the Computer."

1981–1988: Board member, International Computer Music Association, San Francisco.

1980: Member of Conference Committee, 1980 International Computer Music Conference, Queens College, New York.

1980: Compiled *Proceedings of the 1977 International Computer Music Conference* for the Computer Music Association, San Francisco.

1979: December: Cofounder and Vice-president, International Computer Music Association, San Francisco

1979: Visiting Scholar, Structured Sound Synthesis Project, Department of Computer Science, University of Toronto.

1979: Attended course in Programming Methodology, University of California, Santa Cruz, taught by N. Wirth, W. Turski, J. J. Horning, O.-J. Dahl.

1979: Compiled the *Proceedings of the 1978 International Computer Music Conference* for the Northwestern University Press, Evanston.

1979: Software consultant in the San Francisco area.

1978: Studied computer music with G. M. Koenig at the Institut voor Sonologie, Utrecht, the Netherlands; attended the UNESCO Workshop on Computer Music Composition at Aarhus, Denmark.

1977–1978: Software Specialist, Digital Equipment Corporation, San Francisco office; Real-time operating systems for DEC computers.

1977: Programmer, Office of Energy Conservation, University of California, San Diego, La Jolla.

1977: Elected Associate Fellow, Center for Music Experiment, University of California, San Diego (La Jolla). Computer music practice and research; participated in the CME Composing Language Project; designed the composing language CL.

1974–1976: Studied computer music composition at the University of California, San Diego (UCSD); classes in composition, computer science, mathematics, German, and French. Degree in computer music composition, B. A. Summa Cum Laude with Highest Departmental Honors.

1973: October-November in Paris. Worked at the electronic music studio of the Centre Americain, Paris.

1972–1974: Studied music composition at California Institute of the Arts, Los Angeles; composition classes with Morton Subotnick, notation with Gerhard Samuel, technical classes in programming and mathematics with Leonard Cottrell.

1972: Attended Iannis Xenakis' seminar in computer music at Indiana University, Bloomington.

1971–1972: Arranging and electronic music work at Full Compass recording studio in Madison, Wisconsin.

1970–1971: Realized studies at the Experimental Music Studio, University of Illinois, Urbana.

1966–1971: Professional musician

1961–1967: Studies in percussion with Mr. Lester Werntz

1951: Born, Cleveland, Ohio USA

Compositions

The form in which a piece is available is given in brackets []. Premiere performances are noted in angle brackets <>; timings are noted in braces {}.

1. *Wait* (1971) voice and electronic sound, with vocals by William Barnes; realized at the Experimental Music Studio, University of Illinois, Urbana. [concert tape] <March 1971, University of Illinois, Urbana, Illinois> {10:22}

2. *3-S* (1972) for string textures; strings of the Cal Arts Orchestra, Gerhard Samuel, conductor; realized at the Analog Studios, Cal Arts; remixed at ID studios, Hollywood. [concert tape, working score, documentation] <June 1973, 1750 Arch Street, Berkeley, California> {13:34}

3. *Colligation 1* (1973) electroacoustic tape music; score generated by a Nova 1200 computer program: MC-1; realized at the Analog Studios, Cal Arts; remixed at the Village Recorder, West Los Angeles. [concert tape, score, documentation] <January 1974, California Institute of the Arts, Valencia, California> {16:10}

4. *untitled* (1973) live concert event for three electronic synthesizers and four-channel tape; collaborative composition with J. P. Taylor and R. Cohen; scores generated by two Data General Nova 1200 computer programs (one by Taylor and one by Roads). [documentary tape] <May 1973> <California Institute of the Arts, Valencia, California> {20:05}

5. *Cirrus* (1973) for woodwinds and percussion; realized and mixed at WHA-FM radio Studio One (PBS), Madison, Wisconsin; commissioned. [documentary tape, score, documentation] <September 1973, WIBA-FM, Madison, Wisconsin>

6. *Colligation 2* (1974) electroacoustic tape music; score generated by a Nova 1200 computer program: MC-2; realized at the Analog Studios, Cal Arts; remixed at the Village Recorder, West Los Angeles. [concert tape, score, documentation] <March 1974, California Institute of the Arts, Valencia, California> {19:00}

7. *prototype* (1975) computer sound; samples computed on Burroughs B6700 computer system; digital-to-analog conversion at the Center for Music Experiment, UCSD, La Jolla; remixed at the Village Recorder, West Los Angeles. [concert tape, score, documentation] <May 1975, Mandeville Center for the Arts, UCSD, La Jolla> {8:00}

8. *Textwork* (1975-76) spoken text and computer sound; computer sound samples computed on the Burroughs B6700 computer system; realized at the Electronic Music Studios, Mandeville Center for the Arts, UCSD, La Jolla; remixed at the Center for Music Experiment, La Jolla. [concert tape] <October 1980, Artists Gallery, San Francisco> {11:27}

9. *3-Space* (1976) film (16 mm, color with sound) realized collectively with Joanna Kiernan and Sandra Tabori, Visual Arts Department, UCSD, La Jolla. [16 mm film] <June 1977, Mandeville Center for the Arts, UCSD, La Jolla, California> {25:00}

10. *Construction* (1976) electronic sound; realized at the Electronic Music Studios, Mandeville Center for the Arts, UCSD, La Jolla; remixed at the Village Recorder, West Los Angeles. [concert tape, mixing score, documentation] <May 1976, Center for Music Experiment, UCSD, La Jolla> {13:50}

11. *Objet* (1977) electronic and computer sound; computer sound samples computed on the Burroughs B6700 computer system; realized at the Electronic Music Studios, Mandeville Center for the Arts, UCSD, La Jolla; remixed at American Zoetrope Recording,

San Francisco. [concert tape, documentation] <September 1978, International Gaudeamus Musicweek, Bilthoven, The Netherlands> {14:00}

12. *nscor* (1980, revised 1986) computer sound; sounds produced at the Center for Music Experiment, La Jolla, Institut voor Sonologie, Utrecht, the Structured Sound Synthesis Project, Toronto, and the Experimental Music Studio, M.I.T.; realized at the Experimental Music Studio, M.I.T.; remixed at Suntreader Studios, Sharon, Vermont. [compact disc, concert tape, documentation] <October 1980, Musei Civici, Varese, Italy> {8:45}

13. *Nouvel Objet* (1981) electronic and computer sound; realized at the Experimental Music Studio, M.I.T., Cambridge, and at Century III Studio, Boston. [concert tape] <November 1981, Village Street Theater, Somerville, Massachusetts> {8:50}

14. *Field* (1981, revised 1985) computer sound; realized at the Experimental Music Studio, M.I.T., Cambridge, and at Century III Studio, Boston. Commissioned by the Council for the Arts at M.I.T. [concert tape, compact disc] <December 1981, Auditorium, University of Massachusetts at Boston, Park Square, Boston, Massachusetts> {5:00}

15. *Message* (1987) composition for saxophone, computer sound, and computer graphics projections. Images by David Em (Los Angeles). Commissioned by Mobius, Boston, in conjunction with the Massachusetts Council on the Arts and Humanities. [concert tape, score, video, documentation] <June 1987, Mobius, Boston>

16. Soundtrack to computer graphics film by David Em (1988), Los Angeles, using excerpts from *3-S*. [videotape]

17. *Clang-Tint* (1991-1994) composition for tape, based on sounds of ancient instruments and computer-generated sounds. Commissioned by the Japan Ministry of Culture. Realization at the Center for Computer Music, Kunitachi College of Music, Tokyo. [concert tape] <April 1994, Tokyo>

18. *Half-life* (1998-1999) composition for CD and DVD (video with Brian O'Reilly) based on computer-generated microsounds. Dedicated in memorium Ivan Tcherepnin. <May 1998, Australian National Academy of Music, Melbourne>

19. *Scala mobile* (1999-) composition for cello and CD.

20. *Still life* (1999-2003) composition on CD. Dedicated in memorium Stephan Kaske.

21. *Bubble chamber* (1999-2003) composition on CD, based on computer-generated microsounds.

22. *Epicurus* (1999-2003) composition on CD, based on computer-generated microsounds.

23. *Tenth vortex* (2000) composition on CD, based on computer-generated microsounds. <Premiere 24 February 2001, Engine 27, New York City>

24. *Eleventh vortex* (2000-2001) composition on CD, based on computer-generated microsounds. <Premiere 24 February 2001, Engine 27, New York City>

25. *IX 050201* (2001) composition on CD, dedicated in memorium Iannis Xenakis <Premiere 24 February 2001, Engine 27, New York City>

26. *Sculptor* (2001) composition on CD and DVD (video with Brian O'Reilly) based on computer-generated microsounds.

27. *Volt air* (2001-2003) composition in four movements on CD, based on computer-generated microsounds. <Individual movements were premiered: 19 May 2001, El Rey Theater, Los Angeles; 17 September 2002, Lodi, Italy; 2 November 2003, Paris Planetarium>

28. *Fluxon* (2003) composition on CD and DVD (video with Brian O'Reilly) based on computer-generated microsounds. <Premiered April 2003, All Tomorrow's Parties UK, Camber Sands, England>

29. *Pictor alpha* (2003) composition on CD and DVD (video with Brian O'Reilly) based on computer-generated microsounds. <Premiered April 2003, All Tomorrow's Parties UK, Camber Sands, England>

30. *Nanomorphosis* (2003) composition on CD and DVD (video with Brian O'Reilly) based on computer-generated microsounds. <Premiered 2 November 2003, Paris Planetarium>

31. *Now* (2003) composition on CD and DVD (video with Brian O'Reilly) based on computer-generated microsounds.

Selected Performances

Paris Planetarium, Paris, France
Venice Conservatory, Venice, Italy
All Tomorrow's Parties UK, Camber Sands, England
Paradiso, Amsterdam
Brucknerhaus, Linz, Austria
Engine 27, New York City USA
Mills College Concert Hall, Oakland, California
Salle Olivier Messaien, Maison de Radio France, Paris, France
Kunitachi College of Music, Tokyo, Japan
Munich Opera House, Munich, Germany
Ayisha Luna Hall, Tokyo, Japan
International New Music Summercourse, Darmstadt, Germany
Stadtgarten, Cologne, Germany
Espace de Projection, IRCAM, Paris, France
Paine Hall, Harvard University, Cambridge, Massachusetts USA
Australian National Academy of Music, Melbourne, Australia
IN/ARC, Palazzo Taverna, Rome, Italy
Teatro Farnese, Parma, Italy
Istituto Musica Sacra, Rome, Italy
RAI Napoli auditorium, Naples, Italy
Lotte Lehmann Concert Hall, University of California, Santa Barbara USA
Synthèse Festival Internationale de Musique Expérimentale, Bourges, France
Institute of Contemporary Art (ICA), London, England
Mandeville Hall, UCSD, La Jolla, California USA.
Chopin Conservatory, Warsaw, Poland
BIS Zentrum, Moenchengladbach, Germany
Open Space Gallery, Victoria, British Columbia, Canada
Accademia Musica Napoletana, Naples, Italy
Sweelinckhuis, 's-Hertogenbosch, The Netherlands.
1750 Arch Street, Berkeley, California USA
Conservatory at Padua, Italy
UNESCO Workshop on Computer Music, Aarhus, Denmark.
Recital Hall, California Institute of the Arts, Valencia, California USA.
Espace Jean Renaudie, Aubervilliers (Paris), France

Retrospettiva Internazionale Computer Music, Como, Italy.
Center for Music Experiment, UCSD, La Jolla, California USA.
New Music Days (Tage Neuer Musik), Bonn, Germany
International Gaudeamus Musicweek, Bilthoven, The Netherlands.
"La Macchina Sonora" concerts, Conservatory Orazio Vecchi, Modena, Italy
Institut voor Sonologie, Utrecht, The Netherlands.
Artists Gallery, California College of Arts and Crafts, Oakland, California USA.
Musei Civici, Concorso Internazionale "L. Russolo", Varese, Italy.
International Computer Music Conf., Queens College-CUNY, New York USA
Studio 200, Tokyo, Japan
Wellesley College, Wellesley, Massachusetts.
Brno, Czechoslovakia
Sommerkurse Neue Musik, Stuttgart, Germany.
Festival International de Musique Electronique et Computer Art, Brussels, Belgium
Huddersfield Contemporary Music Festival, Huddersfield, England
Choreo Dance Company, New England Life Hall, Boston, Massachusetts
Recital Hall, Tawes Fine Arts Center, University of Maryland, College Park
Clark University, Worcester, Massachusetts USA
International Computer Music Conference, Venice, Italy
Sala Polivalente, Ferrara, Italy
Musica Verticale, Rome, Italy
University of Massachusetts Auditorium, Boston, Massachusetts USA
Arts Center, Colgate University, Hamilton, New York USA
Whitworth Art Gallery, University of Manchester, England
Kresge Auditorium, MIT Cambridge, Mass. USA
Rhiz, Vienna, Austria

Books

Composition in the Electronic Medium. In progress. Written by Curtis Roads. Projected date of completion December 2006.

Microsound. 2002. Written by Curtis Roads. Cambridge, Massachusetts: The MIT Press. Hardcover edition. First paperback edition, August 2004.

Computer music - history, technology and art. (*Konpyu-ta ongaku - rekishi tekunoroji a-to.*) 2001. Written by Curtis Roads. Original title *The Computer Music Tutorial.* Translators and supervisors, Tatsuya Aoyagi, Naotoshi Osaka, Keiji Hirata, Yasuo Horiuchi Translators, Masataka Goto, Takafumi Hikichi, Saburo Hirano, Toshiaki Matsushima. Tokyo: Tokyo Denki University Press

L'Audionumérique. 1999. Written by Curtis Roads, translated by Jean de Reydellet. Paris: Dunod Éditions. Revised edition forthcoming.

Musical Signal Processing. 1997. Edited by Curtis Roads, Stephen Pope, Aldo Piccialli, and Giovanni De Poli. Amsterdam: Swets & Zeitlinger. Hardcover and paperback editions.

The Computer Music Tutorial. 1996. Written by Curtis Roads.
Cambridge, Massachusetts: The MIT Press. Hardcover and paperback editions. Fifth printing 1999. Revised edition forthcoming.

Representations of Musical Signals. Edited by Giovanni DePoli, Aldo Piccialli, and Curtis Roads. 1991. Cambridge, Massachusetts: The MIT Press.

The Music Machine. Edited by Curtis Roads. 1989.
Cambridge, Massachusetts: The MIT Press. First paperback edition 1992.

Composers and the Computer. Edited by Curtis Roads. 1985. Originally published by William Kaufmann, Inc., Los Altos. Now published by A-R Editions, Madison, Wisconsin.

Foundations of Computer Music. Edited by C. Roads and J. Strawn. 1985. Cambridge, Massachusetts: The MIT Press. First paperback edition, 1987.

Proceedings of the 1978 International Computer Music Conference. Edited by C. Roads. 1979. Evanston: Northwestern University Press.

Composing Grammars. Written by Curtis Roads. 1978. San Francisco: International Computer Music Association.

Proceedings of the 1977 International Computer Music Conference. Edited by C. Roads. 1978. San Francisco: International Computer Music Association.

Compact Discs and DVDs

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As composer and producer:

Curtis Roads: POINT LINE CLOUD. Asphodel Limited. San Francisco. solo CD + DVD. [2005]

nscor on ***New Computer Music***. Wergo Schallplatten GmbH. [1987]

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As composer:

Purity and *Sonal atoms* on ***CCMIX: New Electroacoustic Music from Paris*** Mode Records 98/99 [2001].

Sonal atoms on ***OR Some Computer Music*** [2001] www.touch.demon.co.uk/or.htm.

Sonal atoms on ***A Musical Crossing in Time and Space.*** West Deutscher Rundfunk production. [2001]

Field on ***Digital Rewind: Experimental Music Studio 25-year Retrospective.*** MIT Media Laboratory [1998]

Field on ***Music for Instruments and Computer-generated Sound.*** MIT Media Laboratory and Sony Corporation. Contains *Field*. [1985]

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As producer:

Computer Music Journal Sound Anthology, Volume 23. The MIT Press. [1999]

Computer Music Journal Sound Anthology, Volume 22. The MIT Press. [1998]

Computer Music Journal Sound Anthology, Volume 21. The MIT Press. [1997]

Computer Music Journal Sound Anthology, Volume 20. The MIT Press. [1996]

Computer Music Journal Sound Anthology, Volumes 15-19. The MIT Press [1995]

Touch/Jacob's Room. Morton Subotnick. Wergo Schallplatten GmbH. [1988]

Perspectives. PNM 26. Featuring works by Milton Babbitt, Charles Amirkhanian, Richard Swift, and Anthony Gnazzo. *Perspectives of New Music.* [1988]

Perspectives. PNM 27. Featuring Japanese traditional music, as well as works by Minezaki Koto, Charles Dodge and Joji Yuasa. *Perspectives of New Music.* [1989]

Perspectives. PNM 28. Featuring works by Iannis Xenakis, Brian Ferneyhough, William Schottstaedt, and Barry Truax. *Perspectives of New Music.* [1990]

Perspectives. PNM 29. Featuring works by Donald Martino and Chris Dench. *Perspectives of New Music.* [1991]

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As author of program notes:

Silver Apples of the Moon, The Wild Bull. Morton Subotnick. Wergo Schallplatten GmbH. [1992].

Sidewinder, Until Spring. Morton Subotnick. Mode Records [2004] DVD.

Selected Papers

"Sound visualization and transformation by means of matching pursuit." 2006. B. Sturm, G. Kling, and C. Roads. To be submitted to the *Journal of the Audio Engineering Society.*

"The path to *Half-life.*" 2005. DVD edition of *Curtis Roads: POINT LINE CLOUD.* San Francisco: Asphodel Limited.

"The perception of microsound and its musical implications." In G. Avanzini, et al., eds. 2003. *The Neurosciences and Music.* New York: New York Academy of Sciences.

"Reflections on electronic music today." In Anne Sedes, ed. 2003. *Espaces Sonores.* Paris: Maison des Sciences de l'Homme.

"The art of articulation: the electroacoustic music of Horacio Vaggione." 2005. In M. Solomis, ed. *Son, temps, représentation: la musique et la pensée musicale d'Horacio Vaggione.* Paris. L'Harmattan éditions.

"Material and form in electronic music." 2002. Presented at the CREATE conference "Beyond Noise," University of California, Santa Barbara

"Heterogeneity in technology and musical material." 2002. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"Sound composition with pulsars." 2001. *Journal of the Audio Engineering Society* 49(3): 134-147.

"Time scales of music." forthcoming. In G. Pape and Pierre-Albert Castanet. ed. 2001. *Le Continuum, un nouvel espace pour la composition musicale.* Paris: Éditions de Michel de Maule.

"The time domain." 2000. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"Time scales of musical structure." 1999. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"La storia del micro-suono." 1998. *Elettroshock: 50 Anni di Musical elettroacoustica.* Rome: Nuova Consonanza. pp. 7-16.

"Reflections and prospects: micro-sound and musical material." 1998. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"Musical space: virtual and physical." 1997. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"Sound Transformation via Convolution." 1997. In C. Roads, et al. *Musical Signal Processing.* Lisse: Swets & Zeitlinger.

"Early Electronic Music Instruments: Timeline 1899-1950." 1996. *Computer Music Journal* 20(3): 20-23.

"Sound and Montage in *Clang-tint.*" 1996. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"L'age d'or." 1995. *Proceedings of the International Academy of Electroacoustic Music.* Bourges: Institut Internationale de Musique Éléctroacoustique. English/French.

"Eterogeneità in Materiali Musicali," 1995. Centro di Ricerca Musicali, Rome, Italy.

"The Newcomp Experiment." 1995. In J. Tabor, ed. *Festschrift for Otto Laske.*

"Analog" Control of Digital Audio Signal Processing." 1995. With George Jaroslow. Preprint. New York. Audio Engineering Society.

"The Frontier of Physical Modeling." 1994. *Keyboard Magazine* 20(9): 89-94, 100-103.

"Musical Sound Transformation by Convolution." 1993. In S. Ohteru and S. Hashimoto, eds. *Proceedings of the 1993 International Computer Music Conference.* San Francisco: International Computer Music Association.

"Organization of *Clang-tint.*" 1993. In S. Ohteru and S. Hashimoto, eds. *Proceedings of the 1993 International Computer Music Conference.* San Francisco: International Computer Music Association.

"The Legend of Electronic Music." 1993. In B. Enders, ed. 1993. *Neue Musiktechnologie.* Mainz: Schott. pp. 35-58.

"Initiation à la Synthèse par Modèles Physiques." 1993. *Cahiers de l'IRCAM* 2. (Paris)

"Introduction to 'The Menace of Mechanical Music' by John Philip Sousa." 1993. *Computer Music Journal* 17(1) 12-13.

"Composition." In C. Yavelow. 1992. *Macworld Macintosh Music and Sound Bible.* San Mateo: IDG Books. pp. 600-602.

Review of *Matthias Becker: Synthesizer von gestern.* 1992. *Computer Music Journal* 16(2): 104.

"Musical applications of advanced signal representations." Presented at the International Workshop on Models and Representations of Musical Sound, Capri, Italy, October 1992.

"Des instruments pour un son organisé." 1992. *Cahiers de l'IRCAM* 1. (Paris)

"L'Amerique se cherche." 1992. *Résonance* 1. (Paris)

Postcript to "Music Representations" translated into Finnish in J. Luohivuori and A. Sormunen, eds. 1992. *Kognitivinen musiikitiede.* Jyväskylän Yliopiston musiikitieteen laitos ja kirjoittajat.

"Asynchronous Granular Synthesis." 1991. In G. DePoli, A. Piccialli, and C. Roads, eds. 1991. *Representations of Musical Signals.* Cambridge, Massachusetts: The MIT Press.

"Recherche musicale: mythe et realité." 1990. *Inharmoniques.* Paris: IRCAM.

Review of *Conversations with Cage* by Richard Kostelanetz and *A John Cage Reader* edited by Peter Gena and Jonathan Brendt. *Computer Music Journal* 12(4): 47-49, 1988.

"Composition with Machines." In *Companion to Contemporary Musical Thought*. London: Routledge.1992

"Introduction to Granular Synthesis." *Computer Music Journal* 12(2), 1988.

"Interview with Morton Subotnick." *Computer Music Journal* 12(1): 9-18.

Review of *Luigi Russolo: The Art of Noises*. *Computer Music Journal* 11(4): 54.

"Experiences with Computer-assisted Composition." Translated as "Esperienze di Composizione Assistata da Calculatore." In S. Tamburini and M. Bagella, eds. *I Profili del Suono*. Rome: Musica Verticale - Galzeramo. pp. 173-196. 1987.

"The Second STEIM Symposium on Interactive Composing in Live Electronic Music." *Computer Music Journal* 10(2):44-50, 1986.

"Musica e Tecnologia: Report on the Sixth Italian Computer Music Conference." *Computer Music Journal* 10(2):33-38, 1986.

"The Tsukuba Musical Robot." *Computer Music Journal* 10(2):39-43, 1986.

"Symposium on Computer Music Composition." *Computer Music Journal* 10(1):40-63, 1986.

"A History of Computer Music Journal" with John Snell, Curtis Abbott, and John Strawn. *Computer Music Journal* 10(1):13-16, 1986.

"Research in Music and Artificial Intelligence." 1985. *ACM Computing Surveys* 17(2): 163-190. Reprinted as "Richerche sulla musica e l'intelligenza artificiale" in A. Vidolin and R. Doati, eds. 1986. *Nuova Atlantide.* Venice: La Biennale di Venezia. pp. 121-147. Reprinted in the Japanese computer journal *bit* (Tokyo), 1987.

"The Realization of *nscor*." in C. Roads, ed. 1985. *Composers and the Computer.* Los Altos: William Kaufmann.

Review of *Music Analysis* edited by Jonathan Dunsby. *Computer Music Journal* 8(1):53, 1984.

Review of *144 Sounds, Electronic Music* by Zoltan Pongracz. *Computer Music Journal* 8(1):56-57, 1984.

"An Overview of Music Representations." In M. Baroni and L. Callegari, eds. 1984. *Musical Grammars and Computer Analysis*. Florence: Leo S. Olschki Editore. pp. 7-37.

Review of *Digital Audio Technology* written by H. Nakajima, T. Doi, J. Fukuda, and A. Iga. *Computer Music Journal* 8(1):52, 1984.

Review of *Music, Mind, and Brain* edited by Manfred Clynes. *Computer Music Journal* 7(2):75-76, 1983.

"A Report on SPIRE: An Interactive Audio Processing Environment." *Computer Music Journal* 7(2):70-74, 1983.

"Report on the International Conference on Musical Grammars and Computer Analysis." 1983. *Computer Music Journal* 7(2):36-42.

"Musik und Kunstliche Intelligenz: ein Uberblick." 1983. *Feedback Papers* (Cologne, Germany) Translated into German by Otto E. Laske.

Review of *Research Aspects on Singing* Edited by J. Sundberg. *Computer Music Journal* 6(4):45-46, 1982.

"Music and Artificial Intelligence." 1982. In *Proceedings of the Italian Computer Society*. Padua, Italy.

"Interactive Orchestration Based on Score Analysis." 1982. In J. Strawn and T. Blum, eds. *Proceedings of the 1982 International Computer Music Conference, Venice, Italy*. San Francisco: International Computer Music Association.

"A Conversation with James A. Moorer." 1982. *Computer Music Journal* 6(4):10-21.

Review of *LISP* by P. Winston and B. Horn. 1982. *Computer Music Journal*) 6(2).

Review of *The Handbook of Artificial Intelligence, Volume 1*, Edited by A. Barr and E. Feigenbaum. *Computer Music Journal*) 6(3):78.

Review of *Synthesized Voices* by Charles Dodge. 1982. *Computer Music Journal* 6(3):79-80.

Review of *Introduction to Electroacoustic Music* by Barry Schrader. *Computer Music Journal* 6(4):41-42, 1982.

"Report from the IRCAM Conference on The Composer and the Computer." 1981. IRCAM Report. Paris, France: IRCAM. Also in *Computer Music Journal* 5(3):7-27.

"A Note on Music Printing by Computer." 1981. *Computer Music Journal* 5(3):57-59.

"Artificial Intelligence and Music". 1980. *Computer Music Journal* 4(2):13-25.

"Introduction to Computer Music History and Fundamentals." 1980. *Recreational Computing* 8(6):4-7, 38-45.

"Interview with Marvin Minsky." 1980. *Computer Music Journal* 4(3):25-39.

Review of *Principles of Artificial Intelligence* by Nils Nilsson. 1980. *Computer Music Journal* 4(3):64-65.

"Interview with Max Mathews." 1980. *Computer Music Journal* 4(4):15-22.

"Le grammatiche come rappresentazioni della musica." 1980. translated by R. Delmonte. In *Musica e Elaboratore*. ed. A. Vidolin. Venice: La Biennale di Venezia. pp. 140-151.

"An Interview with Harold Cohen". 1979. *Computer Music Journal* 3(4):50-57.

"Advanced Directions for Computer Music". 1979 Lecture, Structured Sound Synthesis Project, University of Toronto. 17 pages.

"Using Compositional Procedures." 1979. Structured Sound Synthesis Project, University of Toronto. 7 pages.

"A Tutorial on Non-linear Distortion or Waveshaping." *Computer Music Journal* 3(2):29-34. Revised version in C. Roads and J. Strawn, eds. 1985. *Foundations of Computer Music*. Cambridge, Massachusetts: The MIT Press.

Review of *Keynotes*. 1979. *Computer Music Journal* 3(3):55-57,60.

Review of *Anthology of Dutch Electronic Music, Vol.1.* 1979. *Computer Music Journal* 3(3):55-57,60.

"Grammars as Representations for Music." 1979. *Computer Music Journal* 3(1):48-57. Revised version in C. Roads and J. Strawn, eds. 1985. *Foundations of Computer Music.* Cambridge, Massachusetts: The MIT Press.

"An Interview with Gottfried Michael Koenig." 1978. *Computer Music Journal* 2(3):11-15,29. Reprinted in C. Roads and J. Strawn, eds. 1985. *Foundations of Computer Music.* Cambridge, Massachusetts: The MIT Press.

"The UNESCO Workshop on Computer Music at Aarhus, Denmark." 1978. *Computer Music Journal* 2(3):30-33.

"A Report on the 1978 International Computer Music Conference." 1978. *Computer Music Journal* 2(4):21-27.

"Automated Granular Synthesis of Sound." 1978. *Computer Music Journal* 2(2):61-62. Revised and updated version published as "Granular Synthesis of Sound" in C. Roads and J. Strawn, editors, 1985. *Foundations of Computer Music*. Cambridge, Massachusetts: The MIT Press.

"Composing Grammars." 1978. In *Proceedings of the 1977 International Computer Music Conference.* San Francisco: International Computer Music Association. 130 pages + 4 graphs.

Review of *Faire* 4/5. 1978. *Computer Music Journal* 2(3):10.

"Preliminary Report on the CME Composing Language Project." 1977. Center for Music Experiment, University of California, San Diego (UCSD), La Jolla, 34 pages.

Software

EmissionControl (MacOS) 2004. David Thall and Curtis Roads. A generalized sound particle generator/processor with a matrix modulation control scheme.

Sweeping Granulator (MacOS) 2003. Curtis Roads. An interactive real-time sound processing program.

PulsarGenerator (MacOS) 2001. Alberto de Campo and Curtis Roads. Licensed by the University of California and distributed by CREATE. An interactive real-time sound synthesis program.

Creatovox synthesizer (MacOS) 2000, new version 2003. Alberto de Campo and Curtis Roads. An interactive music synthesizer for virtuoso performance integrating hardware controllers with custom software.

Constant-Q Granulator (MacOS) 1998, updated 2003. Curtis Roads.
An interactive real-time sound processing program.

Cloud Generator (MacOS) 1996. Curtis Roads and John Alexander.
A widely distributed interactive application for sound synthesis and sound processing.

Lectures and Panels

"Multiscale organization." Invited lecture, Center for Computer Research in Music and Acoustics, Stanford University. May 2006.

"Synthesis, analysis, and visualization of sound based on Gabor's atomic model." Invited lecture, Viterbi School of Engineering, University of Southern California, Los Angeles. January 2006.

"Microsound: past, present, future." Invited lecture. SIGGRAPH. Los Angeles Convention Center. August 2004.

"The path to *POINT LINE CLOUD.*" Invited lecture. Center for Computer Research in Music and Acoustics (CCRMA), Stanford University. June 2004.

"The path to *Half-life.*" Invited lecture. Music Department, New York University. May 2004.

"What is research in the arts?" Invited lecture. University of California, Riverside. February 2004.

"The path to *Half-life.*" Invited lecture. International Conference on Spectral Music. Istanbul Technical University, Istanbul, Turkey, November 2003.

"Microson : synthèse et transformation." Maison des Sciences de l'Homme. Saint Denis (Paris), France, November 2003.

"The perception of microsound and its musical implications." Invited lecture. Conference on the Neurosciences and Music, Venice, Italy. October 2002.

"Composition in the electronic medium." Invited lecture. Prix Ars Electronica Forum. Linz, Austria. September 2002.

"The evolution of graphic synthesis." Invited lecture. Conference "Gesturing the UPIC" at the University of California, Santa Cruz, August 2002.

"Le son visible" and "Du microson et générateur de pulsars." Espaces Sonores 2002, Espace Jean Renaudie, Aubervilliers (Paris), France, organized by the University of Paris VIII, April 2002.

"Introduction to pulsar synthesis." Invited lecture. Acoustical Society of America. Chicago, Illinois USA, June 2001.

"Sound composition with pulsars." Invited lecture, Colloquium on Musical Informatics, L'Aquila, Italy. September 2000.

"Composition in the electronic medium." Royal Conservatory, The Hague. April 2000.

"Frontiers of electronic music." With JoAnn Kuchera-Morin. Institute for Theoretical Physics, University of California, Santa Barbara. October 1999.

"Composition in the electronic medium." Invited lecture, Dartmouth College, Hanover, New Hampshire. May 1997.

"Composition in the electronic medium." Invited lecture, Bennington College, Bennington, Vermont. May 1997.

Inaugural lecture, Sala Aldo Piccialli, Audiolab, Università Populare di Caserta, Caserta, Italy. September 1995.

"Eterogeneità in materiali musicali." Festival Musica-Scienza. Sponsored by the Centro Ricerche Musicali and the Goethe Institute, Rome, Italy, May 1995.

"Materials and montage in *Clang-tint.*" Invited lecture. Music Department, Mills Collage, Oakland, California, April 1995.

"I paessaggi sonori della computer sonic." Mostre d'Oltremare, Naples, Italy, November 1994.

"Granular synthesis and transformation." La Musica/Centro Ricerche Musicali, Rome, Italy, March 1994.

"Musical sound transformation by convolution." International Computer Music Conference, Waseda University, Tokyo. September 1993.

"Expériences musicales avec la convolution." Ircam, Paris. January 1993.

"*Clang-tint* e *Field,*" RAI Napoli and the Accademia Musicale Napoletana, Naples, Italy, December 1992

"Musical applications of signal transformations." Invited lecture. International Workshop on Sonic Representation and Transforms, Trieste, Italy, October 1992.

Conference organizer and lecturer. "Musical applications of advanced signal representations." International Workshop on Models and Representations of Musical Signals, Capri, Italy, October 1992.

"La genèse de *Clang-tint.*" Seminar on Pedagogy and Computer Music, Conservatory of Bordeaux, Bordeaux, France.

Panelist. "Musica e Tecnologia." Accademia Italiana della Musica Contemporanea. XIII Rassegna. Palazzo dell'Esposizione, Rome, Italy. December 1991.

"Le rappresantazione dei signale musicale nella *Clang-tint.*" Invited lecture. Opera Daedelus, Istituto Musica Sacra, Rome, Italy, June 1991.

"Representations of Musical Signals in *Clang-tint.*" Invited lecture. International Festival of Contemporary Music, Teatro Farnese, Parma, Italy, May 1991.

"Evolution of Computer Music." Invited lecture. KlangArt Kongress, Osnabrück, Germany, May 1991.

"Evolution of Computer Music" + "*Clang-tint,*" Seminars. Kunitachi College of Music, Tokyo, Japan. March 1991.

"Composition with Machines." Invited lecture. National Chiao Tung University, Hsinchu, Taiwan. July 1990.

"Computer Music and Interactive Media." Invited lecture. Washington Project for the Arts, Washington, D. C. May 1990.

"History of Digital Audio and Computer Music." Invited lecture. Boston chapter of the Audio Engineering Society, Cambridge, Massachusetts USA, March 1989.

"Experiences with Computer-assisted Composition." Invited lecture. School of Music. University of Washington, Seattle, Washington USA, April 1988.

"Experiences with Computer-assisted Composition." Invited lecture. Department of Music, Princeton University, Princeton, New Jersey USA, October 1987.

"Experiences with Computer-assisted Composition." Invited lecture. Boston Computer Society, Boston, Massachusetts USA, September 1987.

"The Evolution of Computer Music." Invited lecture. Symbolics Technical Forum, Symbolics Cambridge Research Center, Cambridge, Massachusetts USA, September 1987.

"The Realization of *Message* for saxophone, computer sound, and computer graphics." Workshop at Mobius, Boston, Massachusetts USA, June 1987.

"The Evolution of Digital Music-making." Invited lecture. Audio Engineering Society Conference on Digital Music Technology, Biltmore Hotel, Los Angeles, California USA. May 1987.

"Applications of Artificial Intelligence to Music." Invited lecture. School of Music, University of Michigan, Ann Arbor, Michigan USA. April 1987.

"The Agenda for Music and Artificial Intelligence." Invited lecture. Department of Computer Science. State University of New York at Albany, Albany, New York USA . March 1987.

"History of Computer Music." Invited lecture, Newcomp meeting, Museum School, Museum of Fine Arts, Boston, December 1986.

Panelist "Computer Music in America," Kresge Auditorium, M.I.T., Cambridge, Massachusetts USA. November 1985.

Invited participant, STEIM Symposium on Interactive Composing in Live Electronic Music, Amsterdam, The Netherlands, November 1985.

Panelist "Musica e scienza: un rapporto conflittuale?" Istituto per gli Studi per Filosofica, Palazzo Serra di Cassano, Naples, Italy, October 1985.

"Granular Synthesis of Sound: Past Research and Future Prospects." Invited lecture at the Sixth Italian Computer Music Conference, Naples, Italy, October 1985.

"Evolution of Computer Music." Invited lecture at the Symposium on Small Computers and the Arts, Philadelphia, October 1983.

"Interactive Orchestration." Newcomp Summer Course, Digital Music Systems, Boston, Massachusetts, August 1983.

"Current Trends in Computer Music." Invited lecture at Colgate University Summer Course in Computer Music. July 1983.

Panelist "Art and Media Technology." TRANS/MIT conference, sponsored by the Visible Language Workshop at M.I.T. January 1983.

Panelist, Annual Conference, Connecticut Composers Inc., Connecticut, November 1982.

"Composition at M.I.T. and Newcomp." Invited lecture at Padua Conservatory, Padua, Italy; at Sala Polivalente, Ferrara, Italy; and at Modena Conservatory, Modena, Italy, October 1982.

"Music and Artificial Intelligence: A Research Overview." Invited lecture, Annual Meeting of the Italian Computer Society, Padua, Italy, October 1982. Also presented at the Institute of Experimental Physics, University of Naples, Naples, Italy, and at Sala Casella, Roma, Italy, October 1982.

"An Overview of Music Representations." Keynote lecture, International Conference on Musical Grammars and Computer Analysis, Modena, Italy, October 1982.

"Interactive Orchestration Based on Score Analysis." 1982 International Computer Music Conference, Venice, Italy, October 1982

"History of Computer Music." Invited lecture, Course in Digital Sound Synthesis, Digital Music Systems, Boston, Massachusetts, August 1981.

"Evolution of Computer Music." Invited lecture, Course in Techniques of Computer Sound Synthesis, Massachusetts Institute of Technology, Cambridge, Massachusetts, June 1981.

"Advanced Directions for Computer Music." Invited lecture, Structured Sound Synthesis Project, University of Toronto, Canada, October 1979.

"An Introduction to Computer Music and Musical Applications of the Pascal Programming Language." Invited lecture, presented at the DECUS Symposium, Hilton Hotel, San Francisco, California, November 1978.

"Composing Grammars." presented at the 1977 International Computer Music Conference, UCSD, La Jolla, California, November 1977.

"Experiments with Granular Synthesis of Sound." presented at the Conference on Musical Applications of Digital Signal Processing, Center for Music Experiment, UCSD, La Jolla, California, April 1975.

Radio and Television Interviews and Broadcasts

ABC - Australian Broadcasting Company
BBC Radio 3 - London
WBAI-FM - New York, New York
KPFK-FM - Los Angeles, California
KPFA-FM - Berkeley, California
WERS-FM - Boston, Massachusetts
WBUR-FM - Boston, Massachusetts
WIBA-FM - Madison, Wisconsin
KPBS-FM - San Diego, California
WOSU-FM - Columbus, Ohio
WMFO-FM - Tufts University, Medford, Massachusetts
West Deutscher Rundfunk (WDR) - Cologne, Germany
Hessischer Rundfunk - Frankfurt, Germany
Bayerischer Rundfunk -- Munich, Germany
SWR, Baden-Baden, Germany
ORF Television, Linz, Austria
RAI Television -- Rome, Italy
RAI Television -- Naples, Italy
LSI Radio Municipalidad -- Buenos Aires, Argentina

Professional Memberships and Collaborations

Honorary Lifetime Member, Audio Engineering Society, New York
Member (and co-founder), International Computer Music Association, San Francisco
Member, Acoustical Society of America
Member, Editorial Board, *Musica/Tecnologia,* Pisa, Italy
Member, Advisory Council, The Walden School, San Francisco
Member, Board of Directors, Centre de Création Musicale «Iannis Xenakis,» CCMIX, Paris, France
Member, Scientific Committee, Prometeo Laboratory for Electroacoustic Music, Parma, Italy
Member, Académie Internationale de Musique Éléctroacoustique, Bourges, France
Researcher, Visualisation du son, Groupe de travail de l'Association Française d'Informatique Musicale (cicm.mshparisnord.org/gtv/members), Paris