Curriculum Vitae of Tom Ray

Personal Information:

Department of Biology, University of Oklahoma, Norman, Oklahoma 73019
Tel: (405) 203-0703, Fax: (405) 325-7560, tray@ou.edu, tomray000@gmail.com, http://life.ou.edu/

Born: September 21, 1954, Norman, Oklahoma, USA

Education:

Florida State University (FSU) 1971 – 1976. BS Magna Cum Laude in Biology and Chemistry 1976

Harvard University Biology Department, 1976 – 1981. Ph.D. 1981, in Biology

Languages

Fluency in English, Spanish, Perl, C, C++, and Visual C++; Intermediate Japanese

Grants

National Science Foundation (NSF): CI TEAM Demonstration: Scalable Cyberinfrastructure for Bioinformatics and Beyond, 2006, $249,974

National Institute on Drug Abuse Drug Supply Program: Multi-receptor structure activity relationships of hallucinogens, 2004, drugs transferred directly to National Institute of Mental Health, Psychoactive Drug Screening Program (NIMH-PDSP)

ATR (Advanced Telecommunications Research Institute International) Human Information Sciences Labs, Kyoto, Japan: Post-Genomic Approaches to the Human Mind, 2003–2004, $18,340.21

Oklahoma Biomedical Research Infrastructure Network: Bioinformatics Core, 2003, three flow-through grants: 2003 $7,535, 2004 $15,169, 2005 $4,384

College of Arts and Sciences Instructional Computing Grants: Teaching Facility for Bioinformatics Degree Program, 2003, $29,228.55

ATR Human Information Sciences Labs: Post-Genomic Approaches to the Human Mind, 2002–2003, $41,031

National Institute on Drug Abuse Drug Supply Program: Multi-receptor structure activity relationships of hallucinogens, 2002, drugs supplied directly to NIMH-PDSP

National Institute of Mental Health, Psychoactive Drug Screening Program (NIMH-PDSP): Multi-receptor structure activity relationships of hallucinogens, 2002

ATR Human Information Sciences Labs: Bioinformatic Approach to the Human Mind, 2001–2002, $37,322

Greenview Fund: Bioinformatic Study of the Evolution of Gene Families, 2001, $170,000

Nippon Telegraph and Telephone Corporation: Evolved Virtual Creatures, 2000, $72,104.55

Nippon Telegraph and Telephone Corporation: Evolved Virtual Creatures, 1999, $91,954.02

Santa Fe Institute: support for Evolvability Working Group, April 2000, $10,100

Silicon Graphics Inc.: Vanguards of Visual Computing equipment grant, 1998, grant of two SGI workstations

Santa Fe Institute: support for Tierra Workshop, 1996

Microsoft: support for Tierra Workshop, 1996

NASA Ames Research Center: support for Tierra Workshop, 1996

Sun Microsystems: support for Tierra Workshop, 1995, 1996

Santa Fe Institute: support for Tierra Workshop, 1995

The Rex Foundation (Grateful Dead): Network-wide Biodiversity Reserve for Digital Organisms, 1994, $10,000

National Fish and Wildlife Foundation: rain forest conservation project, 1994, $125,000

The John D. and Catherine T. MacArthur Foundation: rain forest conservation project, 1994, $250,000

Thinking Machines Corporation, 1993

NSF Computational Biology Program: Evolution of Digital Organisms, 1993

NSF Computer Systems Architectures & Computational Biology Programs: Computer Architectures for the Natural Evolution of Machine Code, 1992

Digital Equipment Corporation, Semiconductor Engineering Group, 1992

Thinking Machines Corporation, 1992

IBM, T. J. Watson Research Center, 1992

Hughes Aircraft, 1992

University of Delaware Center for Teaching Effectiveness, to develop new course, Computers in Biological Research, 1989

National Center for Supercomputing Applications (NSF funded) support for computers in Biological Research, 1989, 1991

NSF Systematic Biology Program: Morphometric and phylogenetic studies of shoot development in the Araceae, 1989

NSF support for participation in the Morphometrics in Systematic Biology workshop, 1988

Botanical Society of America travel grant to International Botanical Congress, 1987

University of Delaware Research Foundation grant, 1984

Atkins Fund of Harvard, 1979

Barbour Fund of the Harvard Museum of Comparative Zoology, 1978

Sigma Xi, 1978

RIAS grant from the Organization for Tropical Studies, 1977

Anderson Fund of Harvard, 1977

Atkins Fund of Harvard, 1977

Fellowships

Michigan Society of Fellows, July 1981 to June 1982, http://societyoffellows.umich.edu/

Jessie Smith Noyes Fellowship, 1981

National Institute of Health Training Grant, 1 year starting September 1980

National Science Foundation 3 year Predoctoral Fellowship, starting October 1976

Informal fellowship from Florida State University Chemistry Dept. for tuition in fifth year at FSU, 1975 – 1976

Awards

ATR Distinguished Research & Development Award, 1997

Japan Inter-Design Forum 1995 Grand Prix

Digital Vanguard Award, Arc Awards at the 1995 Interactive Media Festival

Winner of 1990 IBM Supercomputing Competition, $15,000 prize, 1991

Bowdoin Prize for Essays in the Natural Sciences, Harvard, 1978

Merck Award in Chemistry, FSU, 1976

Chosen outstanding senior at FSU by Phi Beta Kappa, 1975

Honors

Elected American Association for the Advancement of Science (AAAS) Fellow 2002

A species of plant, *Syngonium rayi*, named in honor of, 1997
(http://life.ou.edu/pubs/Srayi/Syngonium_rayi.jpg,
http://life.ou.edu/pubs/Srayi/Syngonium_rayi.pdf)

Phi Eta Sigma 1972; Phi Beta Kappa 1974; Phi Kappa Phi 1974; Omicron Delta Kappa 1975; Honors in Biology

Positions Held

Professor, Department of Zoology (now Biology), University of Oklahoma, August 1998 to present.

Adjunct Professor of Computer Science, University of Oklahoma, 2000 to 2008.

Supervisor (Invited Researcher), ATR (Advanced Telecommunications Research Institute International) Human Information Processing Research Laboratories, January 4, 1999 to February 28, 2001.

Member of the External Faculty of the Santa Fe Institute, November 1993 to 2003.

Invited Researcher, ATR Human Information Processing Research Laboratories, August 1993 to August 1998.

Associate Professor, University of Delaware, Computer and Information Sciences, January 1993 to August 1998.

Visiting professor at Department D'Informatique, Ecole Polytechnique Federale de Lausanne, Switzerland, October 1, 1996 to November 13, 1996.

Consultant, Inter-American Development Bank, January – July 1993.

Visiting Professor, Santa Fe Institute, July 199l; February – August 1992;

Associate Professor, University of Delaware, Biology Department, September 1990 to August 1998.

Assistant Professor, University of Delaware, Biology Department, September 1981 to August 1990.

Owner and operator, Finca El Bejuco Ecological Reserve, Costa Rica, 1982 to present.

Director of University of Delaware's Semester in Costa Rica Program, Spring 1988.

Michigan Society of Fellows, July 1981 to June 1982, http://societyoffellows.umich.edu/

Field Assistant to Dr. E. O. Wilson, 8/1978 – 8/1979, 12/1979 – 1/1980 and 12/1980 – 1/1981

Station Manager for Finca La Selva, Organization for Tropical Studies field station in Costa Rica, August 1978 to August 1979

Organizer and Host of the weekly "Society for Expeditionary Biology" seminar series, held in the Harvard Biological Laboratories spring 1978, 1979 – 1980, & 1980 – 1981

Visiting Scientist on summer of 1977 Organization for Tropical Studies graduate course

Research Assistant to Dr. Donald Strong at Finca La Selva, summers of 1974 – 1976

Assistant to Dr. Daniel Simberloff, Florida State University 1973 – 1975

Environmental Consultant to Florida State University Department of Physical Planning 1972

License

Oklahoma State Bureau of Narcotics and Dangerous Drugs Control (30733)

Past Research Lectures

"Mental Mechanisms". Alexander Shulgin Research Institute. Lafayette, CA. November 11, 2017. Conference

"Mental Organs and the Breadth & Depth of Consciousness". Breaking Convention, London, England. June 30 – July 2, 2017. Conference. http://www.breakingconvention.co.uk/

"Mental Organs and the Breadth & Depth of Consciousness". Exploring Psychedelics 2017, Southern Oregon University, Ashland, OR. May 2017. Conference. http://www.exploring-psychedelics.org/_2017.html

"Clinical Studies of Mental Organs", Pharmacological Approaches to the Human Mind – Looking Forward. University of Oklahoma, Biology, August 25, 2016. Symposium.

"Mental Organs". Norman Naturalism group, June 26, 2016. http://www.meetup.com/naturalism-6/events/231875973/

"The Human Mind," Speaker Series, Secular Sooners, David L. Boren Hall, OU. November 18, 2015. Lecture, Seminar.

Forum on Adaptable Systems, Center for the Philosophy of Freedom, Biosphere 2, Oracle, AZ. October 15, 2015. Oral Presentation, Workshop.

"Chemical Architecture of the Human Mind," Steve Reynolds Talk Show, Opolis, Norman. January 31, 2015. Oral Presentation, Talk Show.

"Reason and Other Ways of Knowing: Our Evolutionary Heritage". Norman Naturalism group, September 17, 2011. http://www.normannaturalism.org/events/31332502/t/ea1.2_grp/?rv=ea1.2

"Reason and Other Ways of Knowing: Our Evolutionary Heritage". Transcultural Tendencies Transmedial Transactions, Shanghai Institute of Visual Art (by skype). August 26–27, 2011. http://tttt.artlinkart.com/en/

"Reason and Other Ways of Knowing: Our Evolutionary Heritage". Second Dynasty Foundation Popular Science Festival, Moscow, March 23 – April 30, 2011. http://www.dynastyfdn.ru, http://elementy.ru/festival2011

"Family Size". Animal Volunteer Alliance. University of Oklahoma, September 22, 2010. http://www.ou.edu/ava/, http://www.facebook.com/ouava

"Ways of Knowing". Ashtanga Yoga Studio. Norman Oklahoma, September 1, 2010. http://www.ashtangayogastudio.com/

"Evolution of the Human Mind". Darwinathon. University of Oklahoma. November 2, 2009. http://www.ou.edu/darwin/Site/Darwinathon.html

"Duality, Nonduality, and Neurotransmitter Receptor Systems" (plenary lecture). Science and Nonduality Conference, October 21–25, 2009. San Rafael, California. http://www.scienceandnonduality.com/

"The Human Mind" (workshop). Science and Nonduality Conference, October 21–25, 2009. San Rafael, California. http://www.scienceandnonduality.com/

"The Human Mind". J. Craig Venter Institute, http://www.jcvi.org/. September 30, 2009. Rockville, MD.

"The Human Mind". ALife 2009. IEEE Symposium Series on Computational Intelligence 2009. Nashville, Tennessee, March 30 – April 2, 2009. http://www.ieee-ssci.org/index.php?q=node/11, http://homepages.feis.herts.ac.uk/~comqcln/IEEE_ALIFE_2009.html

"Evolution of the Mind". Ecomunch, University of Oklahoma. November 2008.

"The Chemical Architecture of the Mind". Toward a Science of Consciousness 2008. April 2008, Tucson Arizona. http://www.consciousness.arizona.edu/tucson2008.htm

"The Chemical Architecture of the Mind". Neuromunch, University of Oklahoma. April 4, 2008.

Biomimetics International Conference, Doshisha University, Kyoto Japan, December 2, 2006, contact: kkano@mail.doshisha.ac.jp, http://www1.doshisha.ac.jp/~kkano/BMRC/index4.htm

The Chemical Architecture of the Human Mind: Probing Receptor Space with Psychedelics. Toward a Science of Consciousness 2004, April 7–11, 2004, Tucson Arizona. http://life.ou.edu/pubs/Tucson04/

The Chemical Architecture of the Human Mind. Neuromunch, University of Oklahoma. April, 2004.

Approaching the Human Mind Through the Genome. Technology Transfer Institute Vanguard Conference, "Rearranging the Atoms", April 23–24, 2002, Toronto Canada.

Evolution in the Digital Medium. George Lynn Cross Lecture in Biology, The Department of Botany and Microbiology, University of Oklahoma, November 27, 2000, Norman, Oklahoma.

A Wildlife Reserve in Cyberspace. Future Screen 00 Artificial Life: Hardware, Software, Wetware October 27–29, 2000, Sydney, Australia. At the Powerhouse Museum. Presentation by telepresence. http://www.dlux.org.au/events/

Honors Faculty Forum, "New Approaches to Complex Adaptive Systems in Biology, Economics, and Philosophy", University of Oklahoma, October 11, 2000, Norman Oklahoma, presented together with Mark Bedau.

Seminar on Emulation September 1–3, 2000, Amsterdam, Netherlands. Sponsored by Mediamatic Magazine and Amsterdam Summer University. Presentation by telepresence. https://www.mediamatic.net/magazine/9_4/emulatie_folder/emulatie.html, https://www.mediamatic.net/,

Artificial Life VII, The Seventh International Conference on the Simulation and Synthesis of Living Systems, August 1-6, 2000. Reed College, Portland Oregon Contact: alife7@alife.org. At this conference, I had several activities: I was a co-organizer of two workshops: "Evolvability" and "Coevolution of Brains and Bodies". I presented a "Tierra Tutorial". I presented a lecture on "Aesthetically Evolved Virtual Pets" in two workshops: "Artificial Life in Art, Design, and Entertainment" and "Coevolution of Brains and Bodies". I presented a lecture on "Evolution of Differentiation in Multi-threaded Digital Organisms" in a regular session on "Development and differentiation". I chaired a regular session on "History and methodology". I participated in a roundtable discussion: "Artificial Life: The Big Questions" on the last day. http://alife7.alife.org/

Aesthetically Evolved Virtual Creatures. Sony CSL. July 28, 2000. Tokyo, Japan

Measures of Evolvability in Tierra. Working Group on Evolvability, Santa Fe Institute, April 6–9, 2000.

Measures of Evolvability in Tierra. Artificial Life and Robotics, http://arob.cc.oita-u.ac.jp/, January 26–28, 2000. Oita, Japan. Measures of Evolvability in Tierra. Contact: AROB Secretariat arobsecr@cc.oita-u.ac.jp)

Evolution in the Digital Medium. Santa Fe Institute “Tutorial on Complexity”, January 24–25, 2000. Tokyo, Japan. Evolution in the Digital Medium. Contact: Suzanne Dulle (suzanne@santafe.edu)

Digital Biota 3/OWorld Open Source Virtual Worlds Conference, http://oworld.hitl.washington.edu/, Sun Microsystems, Palo Alto, CA, November 6–7, 1999. Contact: Bruce Damer (bdamer@ccon.org)

1999 Beckman Symposium, Beckman Research Institute of the City of Hope, November 6, 1999. Contact: Steven Smith (ssmith@coh.org)

’99 IROS (Intelligent Robot and Systems), http://iros99.kaist.ac.kr, in Kyongju, Korea, October 17 through 21, 1999. Contact: Ju-Jang Lee, Program Chair, IEEE, IROS’99 (jjlee@ee.kaist.ac.kr)

Department of Biology and Biochemistry, University of Houston, October 6, 1999. Contact: Anne Delcour (ADelcour@uh.edu)

Oklahoma School of Science and Math, Oklahoma City, September 23, 1999. Contact: Judy Markley (jmarkley@ossm.edu)

Physics Department, Washington University, St. Louis Missouri, September 15, 1999. Contact: Carl Bender (cmb@howdy.wustl.edu)

Navigating Intelligence, The Banff New Media Institute, http://www.banffcentre.ab.ca/nmi, The Banff Centre for the Arts, Banff Canada, September 9–12, 1999. Contact: Susan Kennard (susan@banff.org)

GECCO (Genetic and Evolutionary Computation COnference), http://www.illigal.ge.uiuc.edu/gecco/, Orlando, Florida, July 13–17, 1999.

Evolvability, ATR Human Information Processing Research Laboratories, Kyoto, Japan, August 12, 1999. Contact: Keiko Murakami (keiko@hip.atr.co.jp)

Nichols Hills Methodist Church, Oklahoma City, May 1, 1999. Contact: Russ Walker (rjwalker@walkerandwalker.com)

Chaos in Manufacturing, Radisson Hotel, Santa Fe, New Mexico, April 13–16, 1999. Contact: Bob DeSimone (BobD45@aol.com)

Electrical & Computer Engineering, University of Oklahoma, Norman, Oklahoma, March 25, 1999. Contact: Hazem Hejjo (Hazem@ou.edu)

Microsoft, Seattle, Washington, March 10, 1999. No lecture. Contact: Cathee Kneeling (catheek@microsoft.com)

TED9 (Technology, Entertainment, Design), Monterey, California, February 17-20, 1999. No lecture. http://www.ted.com/

Health Science Center, Pathology Department, University of Oklahoma, February 12, 1999. Contact: Fred Silva (405) 271-2422

Physics Colloquium, University of Oklahoma, January 28, 1999. Contact: Kieran Mullen (kieran@phyast.nhn.ou.edu)
NTT, Keihanna, Kyoto, January 22, 1999. No lecture. Contact: Yoh'ichi Tohkura (tohkura@will.brl.ntt.co.jp)

AROB (Artificial Life and Robotics) IV ’99, http://AROB.cc.oita-u.ac.jp/, January 19–21, 1999. B-Con Plaza, Beppu. Contact: Masanori Sugisaka msugi@cc.oita-u.ac.jp)

Symposium on Complexity, Complexity Group for Medical Science, January 18, 1999, KAST Main Hall, Seoul KOREA. Contact: Prof Hongkyu Lee & Self, Alexander D. Shin, MD, corresponding manager, CGMS (minddr@medicine.snu.ac.kr)

KAIST (Korea Advanced Institute of Science and Technology), Taejoun, Korea. 10:00, January 17, 1999. Contact: Prof Soo-Young Kim (sykim@sensor.kaist.ac.kr)

Dept. of Computer Science, Yonsei University, 134 Shinchon-dong, Sudaemoon-ku, Seoul 120-749, Korea, January 16, 1999 Contact: Prof Sung-Bae Cho (sbcho@csai.yonsei.ac.kr)

Launch of the NT/IA Workstations (Visual PC) from Silicon Graphics. Capitol Club, San Jose, California, January 11, 1999. Contact: Beth Rogozinski (bethr@esd.sgi.com)

Silicon Graphics, no lecture, December 8, 1998, Mountain View, CA. Contact: Beth Rogozinski (bethr@sgi.com).

Phi Beta Kappa, University of Oklahoma, November 23, 1998. Contact: Pat Gilman 405-364-6974.

The Age of Spiritual Machines, at the Gilder/Forbes Telecosm conference, http://www.forbes.com/conf/telecosm/ September 15–17, 1998 in Lake Tahoe, USA.

Digital Biota 2, http://www.cyberbiology.org/ The Second Annual Conference on Cyberbiology, September 10–13, 1998, Cambridge, UK.

British Telecom, http://www.labs.bt.com/ September 9, 1998.

ALife VI, Sixth International Conference on Artificial Life, Life and Computation: the Boundaries are Changing, http://alife6.alife.org/, University of California, Los Angeles June 26–29, 1998. Contact: alife6@alife.org

Summer School on Environmental Dynamics, Istituto Veneto di Scienze, Lettere ed Arti, http://www.ivsla.unive.it, Venice Italy, June 16–26, 1998. Contact: Prof. Andrea Rinaldo (rinaldo@idra.unipd.it)

Bogazici University, http://www.boun.edu.tr/, Istanbul Turkey, June 9–15, 1998. Contact: Umur Ozkul (Umur@WriteMe.com, UOzkul@iltekmedia.com)

Institute of Systems Science, Chinese Academy of Sciences, Beijing, China, April 6–11, 1998. Contact: Yongguang Zhang (yzhang@iss01.iss.ac.cn, ygzhang@china.kw.com.cn)

AROB (Artificial Life and Robotics) III '98, January 19–21, 1998. B-Con Plaza, Beppu. Contact: Masanori Sugisaka (msugi@cc.oita-u.ac.jp) http://AROB.cc.oita-u.ac.jp/

National Center for High Speed Computation, Taiwan, December 18, 1997. Contact: Su Zheng-yao (c00zsu00@nchc.gov.tw)

National Taiwan University, Taiwan, December 19, 1997. Contacts: YC Chen (ycchen@phys.nthu.edu.tw), Chang Da-Wen (chang@phys.nthu.edu.tw)

Academia Sinica, Institute of Medical Biology, Taiwan, December 19, 1997. Contact: Lan-Yang Chang (lychang@ibms.sinica.edu.tw)

Physics Department and Center for Complex Systems, National Central University, Chungli, Taiwan, December 21, 1997. Contact: H. C. Lee (hclee@sansan.phy.ncu.edu.tw)

What can Theoretical Physicists do in Biology, Center for Complex Systems, National Central University, Chungli, Taiwan, December 22–23, 1997. Contact: H. C. Lee (hclee@sansan.phy.ncu.edu.tw)

British Telecom, http://www.labs.bt.com/, December 1–2, 1997. Contact: Peter Cochrane (peter.cochrane@bt-sys.bt.co.uk)

The Institute for Futures Studies, Would-Be Worlds, Stockholm, Sweden, November 27, 1997. Contact: Joanna Rose (jr@fof.se)

Mathematical & Computational Biology Workshop, http://www.u-aizu.ac.jp/MCB/, University of Aizu, Japan, October 21–25, 1997. Contact: Chrystopher Nehaniv (nehaniv@u-aizu.ac.jp)

Zoology Department, University of Oklahoma, Norman, Oklahoma, September 29–30, 1997.

International Conference on Complex Systems, http://necsi.org/html/iccs.html, New England Complex Systems Institute, Nashua, New Hampshire, September 21–26, 1997.

Workshop: The Burgess Shale and the Digital Cambrian, http://www.biota.org, Banff, Alberta, Canada, August 29 – September 1, 1997.

Genetic Programming 1997 (GP97), http://www-cs-faculty.stanford.edu/~koza/gp97.html, Stanford University, July 13–16, 1997.

Zoology Department, University of Oklahoma, Norman, Oklahoma, July 9–12, 1997.

Opening Symposium – Towards the Museum of the Future – "Artificial Life and Artificial Intelligence / The Thinking Machine", NTT/ICC - Intercommunication Center, http://www.ntticc.or.jp/, Tokyo Opera City Tower 4F, 3-20-2 Nishishinjuku, Shinjuku-ku, Tokyo 163-14, Japan, April 20, 1997.

Humankind – The Human Being, German Hygiene Museum (http://www.dhmd.de) Projekt EXPO 2000 (http://www.expo2000.de) Dresden, April 9–10, 1997.

AROB (Artificial Life and Robotics) '97, February 18–20, 1997. B-Con Plaza, Beppu. http://seigyo1.cc.oita-u.ac.jp/AROB/AROBHome.html

The Form Behind the Form. Interdisciplinary Workshop at Danmarks Designskole. Copenhagen, Denmark. January 9, 1997.

Brain, Computer, Evolution. Ministry of Posts & Telecommunications. Kobe, Japan. December 9–10, 1996.

Mathematical Modeling and Problem Solving Study Group (MPS) of the Information Processing Society of Japan, "Alife Methodology and its Applications." http://isw3.aist-nara.ac.jp/Misc/wide-area-map-ja.html Nara Advanced Institute of Science & Technolgy (NAIST) November 26, 1996.

Kansai Section of the Information Processing Society of Japan, Seminar: “ALife and Evolutionary Systems”, Chuo Denki Club, room 513 (Osaka), November 25, 1996,

Centre Suisse d’Electronique et de Microtechnique SA, Neuchatel, Switzerland. November 12, 1996.

Doors of Perception 4 ‘Speed’ (http://www.design-inst.nl/doors4/), Netherlands Design Institute (http://www.design-inst.nl/), Amsterdam, Netherlands, November 7–8, 1996.

Department D’Informatique, Ecole Polytechnique Federale de Lausanne, Switzerland, November 5, 1996.

Cognitive Science “Brown Bags”, AI Lab, Computer Science Department, University of Zurich, Switzerland, October 29, 1996.

School of Cognitive and Computing Sciences, University of Sussex, U.K., October 23–24, 1996.

Life in the Infosphere, Munich, Germany, October 16, 1996.

Complex System Seminar, Osaka City University, Osaka, Japan, August 2, 1996.

Kyoto Conference on Mathematical Biology ’96, June 9–13, 1996, Kyoto, Japan.

Artificial Life V, Nara, Japan, May 16–18, 1996

Public Lecture, Nara, Japan, May 15, 1996

Lectures on ALife, organized by IEEE Tokyo Section, Tokyo, Japan, May 10, 1996

International Workshop on Soft Computing in Industry (IWSCI'96), Muroran Institute of Technology, Muroran, Japan, April 27–28, 1996

Mind over Matter: Immaterial Design in the Age of Material Limits. A one-day event about the future of immaterial design. Louisiana Museum of Modern Art, Humlebaek, Denmark. April 19, 1996

Novo Nordisk, Copenhagen, Denmark, April 17, 1996

Aizu University, Aizu, Japan, April 3–4, 1996

Imagina: Intelligent Interaction, Monte-Carlo, Monaco, February 21–23, 1966

Artificial Life and Robotics, Oita, Japan, February 18–20, 1996

Santa Fe Institute, Tierra Workshop, February 2–4, 1996

Microsoft, Redmond, Washington, January 18, 1996

Santa Fe Institute, Ecomachines and Spatial Modeling in Ecology and Biology, January 13–16, 1996

Doors of Perception, Amsterdam, November 6–12, 1995

DEAF, Dutch Electronic Arts Festival, Rotterdam, November 24–26, 1995

Interactive Media Festival, Los Angeles, June 4–8, 1995

International Institute for Advanced Studies, Kyoto, Japan, May 28–30, 1995

Mainichi Symposia and Scientific Meeting 1995, Tokyo, May 12, 1995

Sony Computer Science Lab, Tokyo, May 11, 1995

Santa Fe Institute, March 24, 1995

Sun Microsystems, California, February 27, 1995

TED6 (Technology, Entertainment, Design), Monterey, CA, February 22–25, 1995

Princeton Plasma Physics Laboratory, Princeton, NJ, February 20, 1995

Haverford College, February 16–17, 1995

BIO Japan, Osaka, December 1, 1994

Honda Wako Research Center, Wako-city, Japan, November 16, 1994

Oracle, Redwood Shores, CA, October 25, 1994

Broderbund, Novato, CA, October 24, 1994

Bionomics Conference, San Francisco, October 21–22, 1994

Complex Systems Workshop, Research Institute for Fundamental Physics, University of Kyoto, October 5-7, 1994

Seminar on Neural Networks, Genetic Algorithms and Artificial Life; Systems Control and Information Society, Tokyo, Japan, October 4–5, 1994

Seminar on Neural Networks, Genetic Algorithms and Artificial Life; Systems Control and Information Society, Osaka, Japan, September 29–30, 1994

Osaka Education University, Osaka, Japan, September 26, 1994

Techno-park Festa, Sapporo, Japan, September 15, 1994

University of Hokkaido, Sapporo, Japan, September 14, 1994

From Perception to Action, Lausanne, Switzerland, September 5–9, 1994

InterCommunications Center, New School, Tokyo, Japan, September 3, 1994

International Institute for Advanced Study, Kansai Science City, August 22–24, 1994

RO-MAN ’94, 3rd IEEE International Workshop on Robot and Human Communication, Nagoya, Japan, July 18–19, 1994

Sun Microsystems, Palo Alto, CA, July 12, 1994

AT&T Bell Labs, Murray Hill, NJ, July 11, 1994

Learning about Evolution, MIT Media Labs, Cambridge, MA, July 9, 1994

Artificial Life Conference, MIT, Cambridge, Massachusetts, July 6–8, 1994

Nanotechnology study group, MIT, Cambridge, MA July 5, 1994

Computer Aided Materials and Molecular Design, by Business Research Institute Inc., Shizuoka, Japan, July 1, 1994

Electrical Engineering Department, Oita University, Oita, Japan, June 23, 1994

Japan Society of Artificial Intelligence, June 22, 1994

NEC Symposium on Natural and Artificial Parallel Computation, Princeton, NJ, May 3–4, 1994

Physics Department, Stony Brook, April 12, 1994

Goldman, Sachs & Co., New York, April 11, 1994

Institute for Advanced Study, Around the Dyson Sphere, Princeton, NJ, April 8–9, 1994

Information Processing Society of Japan, Committee on Artificial Intelligence, Kogakuin University, Tokyo, Japan, March 8, 1994

University of Oklahoma, February 23, 1994

Santa Fe Institute, Computational and Molecular Approaches to Evolution, February 18–20, 1994

UCLA Center for Evolution and the Origin of Life, February 16, 1994

Interval Research Corp., Palo Alto, CA, February 14, 1994

Society of Instrument and Control Engineers, Osaka, Japan, January 27, 1994

Ministry of Science and Technology, Japan, January 19–21, 1994

Symbus Technology, Self-Determination of Developing and Evolving Systems, Cambridge, MA, January 6–9, 1994

Caltech, Electrical Engineering, January 4, 1994

Synaptics, San Jose, California, January 3, 1994

Japan Management Association, Tokyo, Japan, December 7, 1993

Japan Technology Transfer Association, Committee on Artificial Reality and Tele-Existence, Tokyo, Japan, November 4, 1993

Bionomics Institute, The Next Economy: An Evolving Information Ecosystem, San Francisco, October 8–9, 1993

ATR Science & Technology Seminar, Kyoto, Japan, September 29, 1993

XV International Botanical Congress, Yokahama, Japan, September 1993

SIAM (Society of Industrial and Applied Mathematics), San Francisco, August 4–6, 1993

Escuela de Biologia, Universidad de Costa Rica, San Jose, Costa Rica, July 6, 1993

ARS Electronica, Linz Austria, June 14–16, 1993

Cognitive Revolution, Denmark, June 12–13, 1993

European Conference on Artificial Life, Brussells Belgium, May 24–26, 1993

From Complex Dynamical Systems to Sciences of Artificial Reality, Numazu, Japan, April 5–9, 1993

GLOCOM, Tokyo, Japan, March 30, 1993

Mitsubishi, Artificial Life Conference, Tokyo, Japan, March 24–25, 1993

Omar Dengo Foundation, San Jose, Costa Rica, March 3, 1993

Platforms for Computing Forum, Phoenix, February 21–24, 1993

University of Southern California, Electrical Engineering Systems, February 19, 1993

California Institute of Technology, Physics Colloquium, La Jolla, CA, February 18, 1993

AAAS (American Association for the Advancement of Science), Boston, February 13, 1993

Harvard University, Biology, Lewontin's Lab, February 11, 1993

DARPA (Defense Advanced Research Projects Agency), Self-replicating Nano-systems Workshop, Santa Fe, October 19, 1992

IBM T. J. Watson Research Center, Physical Science Colloquium, October 6, 1992

Digital Equipment Corporation, Hudson, MA, September 29, 1992

Yale University, Computational Ecology Seminar, September 28, 1992

National Science Foundation, Molecular Evolution Meeting, Washington D.C. September 15–16, 1992

St. Johns College, Public Lecture, Santa Fe, NM, August 19, 1992

Microsoft, Seattle, WA, August 10, 1992

Stanford University, Adaptive Computation Symposium, July 17, 1992

Autodesk, Tech Forum, Sausalito, CA, July 16, 1992

Santa Fe Institute, Integrative Themes Meeting, July 8–15, 1992

Santa Fe Institute, Artificial Life Workshop, June 15–19, 1992

Gordon Conference on Theoretical Biology, New Hampshire, June 8–12, 1992

Summer School on Environmental Dynamics, Istituto Veneto, Venice, Italy, June 1–7, 1992

General Motors, Sigma Xi, May 15, 1992

Kent State Univ., Biology, May 14, 1992

Case Western Reserve University, Biology, May 13, 1992

Cornell University, Mathematical Sciences Inst., CA Workshop, May 10–12, 1992

University of Arizona, Ecology & Evolutionary Biology, March 24, 1992

Santa Fe Institute, Workshop on Adaptive Computation, March 10–15, 1992

Apple Computers, February 28, 1992

University of California at Berkeley, February 27, 1992

Stanford University, February 26, 1992

University of Oklahoma, Zoology, February 7, 1992

Roland Institute, Cambridge, MA, December 6, 1991

University of Massachusetts Boston, Biology, December 5, 1991

Bolt Beranek and Newman Inc. (BBN), Cambridge, MA, December 5, 1991

MIT Nanotechnology Study Group, December 3, 1991

Boston University, Computational Sciences Center, December 3, 1991

Texas Instruments, Dallas, November 21, 1991

American Society of Information Science, New Jersey, November 19, 1991

Digital Equipment Corp., Hudson, MA, November 15, 1991

Thinking Machines Corp., Cambridge, November 14, 1991

IBM T. J. Watson Research Center, Yorktown Heights, NY, November 13, 1991

The University of the Arts, Philadelphia, Design in Cyberspace lectures, November 12, 1991

Drexel University, Electrical Engineering, November 8, 1991

Stony Brook, Department of Ecology and Evolution, November 6, 1991

University of Delaware, Entomology, November 5, 1991

University of Kentucky, Lexington, Biology, October 31, 1991

University of Maryland, Zoology, October 29, 1991

University of Illinois, Complex Systems Colloquia, October 25, 1991

University of Rochester, Biology, October 18, 1991

National Science Foundation, Washington, September 20, 1991

European Society for Evolutionary Biology, Debrecen, Hungary, Sept. 1991

Santa Fe Institute, July 1991

International Conference on Genetic Algorithms, San Diego, July 1991

Large Scale Computing Analysis and Modeling Conference, Park City Utah, April 1991

University of Utah, Anthropology Department, April 1991

Bellcore, Morristown, NJ, April 1991

Princeton University, Ecology & Evolutionary Biology, April 1991

Villanova University, Biology Department, February 1991

SUNY Binghamton, Biology Department, December 1990

University of Sussex, School of Cognitive & Computing Sciences, England, November 1990

Cambridge University, Computer Laboratory, England, November 1990

Oxford University, Zoology Department, England, November 1990

Queen's Medical Center, Nottingham England, Dept. of Genetics, November 1990

Ecole Normale Superieure, Biocomputing Group, CNRS, Paris, France, November 1990

CNRS, Center for Evolutionary Studies, Montpellier, France, November 1990

University of Basel, Zoology Institute, Switzerland, November 1990

Technical University of Denmark, Physics Laboratory, Copenhagen, November 1990

University of Aarhus, Institute of Genetics and Ecology, Denmark, October 1990

University of Aarhus, Botanical Institute, Denmark, October 1990

International Congress of Systematic and Evolutionary Biology, College Park, MD, July 1990

Artificial Life Conference, Santa Fe, February 1990

Los Alamos National Laboratory, Center for Nonlinear Studies, October 1989

Santa Fe Institute, October 1989

Numerical Taxonomy Meetings, Toronto, October 1989

Towson State University, Biology, 1988

BSA Symposium: The Role of Plant Development in Plant Population Biology, Davis, 1988

International Botanical Congress (poster), Berlin, 1987

American Institute of Biological Sciences, Amherst, 1986

Smithsonian Institution, 1986

Carnegie Museum of Natural History, 1986

New York Botanical Garden, 1986

University of Delaware, School of Agriculture, 1986

Symposium: Biology of Tropical Epiphytes, Marie Selby Botanical Garden, 1985

Workshop on Aroid Systematics, Harvard Forest, 1984

University of Southern California, 1982

University of California Los Angeles, 1982

University of California Berkeley, 1982

Symposium: Biology and Taxonomy of the Araceae, Marie Selby Botanical Garden, 1980

University of Delaware, 1980

Princeton University, 1980

Brown University, 1980

University of Iowa, 1979

University of Oklahoma, Botany Department, 1979

Duke University, 1978

Brown University, 1977

Professional Activities

Member of Founding Board of the International Society for Artificial Life, http://www.alife.org/.

Editorial Board of the journal *Artificial Life* published by MIT Press, April 1993 to present, http://www.mitpressjournals.org/loi/artl

Associate Editor, International Journal for Artificial Life and Robotics, 1996 to present, http://www.springer.com/computer/artificial/journal/10015

Invited nominator for Kyoto Prize from 1996, http://www.kyotoprize.org/

Member of Knowledge Advisory Board, Planetary Collegium, https://www.plymouth.ac.uk/research/planetary-collegium, 2005 to present

Scientific Advisory Board, Lifeboat Foundation, http://lifeboat.com/

Faculty Sponsor for the OU student group: "Secular Sooners" July 2011 to present

Programme Committee of the "GP – Genetic Programming" Track of the Genetic and Evolutionary Computation Conference (GECCO-2019) Prague. July 13–17, 2019. https://gecco-2019.sigevo.org/
Technical Program Committee for the 2019 IEEE Congress on Evolutionary Computation (IEEE CEC 2019) Wellington, New Zealand, June 10–13, 2019. http://www.cec2019.org

Scientific Committee and Program Committee of The 21st International Consciousness Reframed Conference (2019). Universidade Católica Portuguesa - Porto, June 6–8, 2019. http://artes.porto.ucp.pt/en/consciousnessreframed

Programme Committee member, 22nd European Conference on Genetic Programming EuroGP 2019. Leipzig, Germany, 24–26 April 2019. http://www.evostar.org/2019/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 24th 2019), Oita, Japan, January 23–25, 2019. https://isarob.org/symposium/

Reviewer for the 2018 IEEE Symposium Series on Computational Intelligence (SSCI 2018) Bengaluru, India, November 18–21, 2018. http://ieee-ssci2018.org

Program Committee Member, Artificial Life 2018, the 2018 Conference on Artificial Life. July 23–27 in Tokyo, Japan. http://2018.alife.org

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 23th 2018), Oita, Japan, January 18–20, 2018. https://isarob.org/symposium/

Reviewer for the 2018 IEEE Congress on Evolutionary Computation (IEEE CEC 2018) Rio de Janeiro, Brazil, July 8-13, 2018. http://www.ecomp.poli.br/~wcci2018/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 22nd 2017), Oita, Japan, January 19–21, 2017. https://isarob.org/symposium/

Reviewer, 2017 IEEE Congress on Evolutionary Computation (IEEE CEC 2017) Donostia / San Sebastian, Spain, June 5–8, 2017 (http://www.cec2017.org/)

Programme Committee member, 20th European Conference on Genetic Programming EuroGP 2017. Amsterdam, April 19–21, 2017 http://www.evostar.org/2017/cfp_eurogp.php

Programme Committee member, Genetic and Evolutionary Computation Conference, GECCO 2017, Berlin, July 15–19, 2017 http://gecco-2017.sigevo.org/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 21st 2016), Oita, Japan, January 20–22, 2016. https://isarob.org/symposium/

Symposium Organizer: "Pharmacological Approaches to the Human Mind – Looking Forward". University of Oklahoma, Norman, OK. August 25, 2016.

Program Committee Member, 19th European Conference on Genetic Programming, EuroGP 2016. http://www.evostar.org/2016/cfp_eurogp.php.

Reviewer, Conference Paper, 2016 IEEE Congress on Evolutionary Computation, IEEE CEC 2016. http://www.wcci2016.org.

Program Committee Member, Artificial Life XV. The Fifteenth Conference on the Synthesis and Simulation of Living Systems. http://alife.org/conference/alife-xv-2016, http://turing.iimas.unam.mx/alifeXV/.

Program Committee Member, Genetic and Evolutionary Computation Conference, GECCO–2016. http://gecco-2016.sigevo.org/index.html/HomePage.

Program Committee Member, The Eleventh International Multi–Conference on Computing in the Global Information Technology, ICCGI 2016.
http://www.iaria.org/conferences2016/ICCGI16.html.

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 20th 2015), Oita, Japan, January 21–23, 2015. https://isarob.org/symposium/

Program Committee Member, 2015 IEEE Symposium Series on Computational Intelligence: IEEE Symposium on Artificial Life. http://ieee-ssci.org.za:8080/IEEEALIFE/. (August 2015).

Judge of virtual creatures competition, Genetic and Evolutionary Computation Conference (GECCO–2015). http://www.cs.utexas.edu/~joel/virtual_creatures_contest2015/. (June 2015).

Program Committee member, 18th European Conference on Genetic Programming (EuroGP 2015), Copenhagen, Denmark, 8–10 April 2015, http://www.evostar.org/2015/cfp_eurogp.php

Program Committee member, The Tenth International Multi-Conference on Computing in the Global Information Technology (ICCGI 2015), October 11–16, 2015 – St. Julians, Malta, http://www.iaria.org/conferences2015/ICCGI15.html

Program Committee member, Genetic and Evolutionary Computation Conference (GECCO–2015), July 11–15, 2015, Madrid, Spain, http://www.sigevo.org/gecco-2015/

Program Committee of ECAL 2015, 13th European Conference on Artificial Life, York, United Kingdom, 20–24 July 2015, http://www.cs.york.ac.uk/nature/ecal2015/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 19th 2014), Oita, Japan, January 22–24, 2014. https://isarob.org/symposium/

ALIFE 14 Program Committee, ALIFE 14: The Fourteenth International Conference on the Synthesis and Simulation of Living Systems, July 31st – August 2nd, 2014, Javits Center, Manhattan, New York, NY, USA, http://alife14.org

ALIFE Program Committee Member, Genetic and Evolutionary Computation Conference, GECCO-2014, July 12–16, 2014, Vancouver, BC, Canada http://www.sigevo.org/gecco-2014

Programme Committee of EuroGP 2014, 17th European Conference on Genetic Programming, Granada, Spain, April 23–25, 2014, http://www.evostar.org/flyer/EuroGP2014Flyer.pdf

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 18th 2013), Daejeon, Korea, January 30 – Feb 1, 2013. https://isarob.org/symposium/

Programme Committee of the 12th European Conference on Artificial Life (ECAL 2013), Taormina, Italy, September 2–6, 2013. http://www.dmi.unict.it/ecal2013/

ALIFE PC Member on the Genetic and Evolutionary Computation Conference (GECCO-2013), Amsterdam, The Netherlands, July 6–10, 2013, http://www.sigevo.org/gecco-2013/

Program Committee of IEEE ALIFE 2013, The 2013 IEEE Symposium on Artificial Life, April 16–17, 2013, Grand Copthorne Waterfront Hotel, Singapore, http://bingweb.binghamton.edu/~sayama/ieee-alife2013/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 17th 2012), Oita, Japan, January 19–21, 2012. https://isarob.org/symposium/

Program Committee Member, Alife 13, The 13th International Conference on the Synthesis and Simulation of Living Systems, July 19–22, 2012, Michigan State University East Lansing, Michigan, USA, http://alife13.org/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 16th 2011), Oita, Japan, January 27–29, 2011. https://isarob.org/symposium/

Program Committee Member, GECCO-2011, July 12–16, 2011, Dublin, Ireland. http://www.sigevo.org/gecco-2011/

Member of the program committee of EvoIntelligence 2011, in conjunction with EvoStar, Torino Italy, 2011. http://www.evostar.org

Program Committee member for the Third IEEE Symposium on Artificial Life, to be held in Paris, France, as part of the 2011 IEEE Symposium Series on Computational Intelligence (SSCI) on April 11–15, 2011. http://www.ieee-ssci.org/2011/ieee-alife-2011

Programme Committee for EuroGP 2011, April 27–29, 2011, Torino, Italy (http://evostar.dei.uc.pt/call-for-contributions/eurogp/)

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 15th 2010), Oita, Japan, February 4–6, 2010. https://isarob.org/symposium/

Member of the program committee of the ALife 12 Conference on the Synthesis and Simulation of Artificial Living Systems at the University of Southern Denmark, Odense, August 19–23, 2010, http://alifexii.org/

Member of the program committee of EvoIntelligence 2010, in conjunction with EvoStar, Istanbul Turkey, 2010. http://www.evostar.org

Programme Committee of the 13th European Conference on Genetic Programming, April 7–9, 2010, Istanbul. (http://www.evostar.org/).

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 14th 2009), Oita, Japan, February 5–7, 2009. https://isarob.org/symposium/

Program Committee for Genetic Programming track of GECCO 2009, Montréal, Canada, July 8–12, 2009 (http://www.sigevo.org/gecco-2009/).

Program Committee for EuroGP 2009, Tübingen, Germany, April 15–17, 2009 (http://evostar.na.icar.cnr.it/EuroGP/EuroGP.html).

Program Committee for the Toward a Science of Consciousness Conference, Hong Kong, June 11–14, 2009 (http://www.consciousness.arizona.edu/hongkong.htm)

Programme Committee, IEEE CEC 2009 Special Session on "Evolutionary Robotics," Trondheim, Norway, May 18–21, 2009, (http://www.cec-2009.org/sessions.shtml, http://lis.epfl.ch/specialsessions/CEC09/)

Program Committee, 2009 IEEE Symposium on Artificial Life, March 30 – April 2, 2009 Sheraton Music City Hotel, Nashville, TN, USA, at the IEEE Symposium Series on Computational Intelligence 2009, (http://homepages.feis.herts.ac.uk/~nehaniv/IEEE_ALIFE_2009.html)

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 13th 2008), Oita, Japan, January 31 – February 2, 2008. https://isarob.org/symposium/

GECCO–2008 (Genetic and Evolutionary Computation Conference) Program Committee Member

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 12th 2007), Oita, Japan, January 25–27, 2007. https://isarob.org/symposium/

GECCO–2007 (Genetic and Evolutionary Computation Conference) Program Committee Member

Program Committee for EuroGP 2007, April 2007, Valencia, Spain, http://www.evostar.org/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 11th 2006), Oita, Japan, January 23–25, 2006. https://isarob.org/symposium/

Organizing Committee and Scientific Committee for the Workshop on "Evolution of Complexity", in conjunction with the ALife X conference, June, 2006, Indiana University

GECCO–2006 (Genetic and Evolutionary Computation Conference) Program Committee Member

Program Committee for the Evolution of Complexity special issue of the journal, Artificial Life

Program Committee for the Workshop on "Machine Self-Replication", in conjunction with the ALife X conference, June, 2006, Indiana University

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 10th 2005), Oita, Japan, February 4–6, 2005. https://isarob.org/symposium/

GECCO–2005 (Genetic and Evolutionary Computation Conference) Program Committee Member

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 9th 2004), Oita, Japan, January 28–30, 2004. https://isarob.org/symposium/

GECCO–2004 (Genetic and Evolutionary Computation Conference) Program Committee Member

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 8th 2003), Oita, Japan, January 24–26, 2003. https://isarob.org/symposium/

GECCO–2003 (Genetic and Evolutionary Computation Conference) Program Committee Member

ECAL–2003 (European Conference on Artificial life) Program Committee Member

Chairman of the OU Arts and Sciences Support of Teaching and Research Committee, 2003–2004

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 7th 2002), Oita, Japan, January 16–18, 2002. https://isarob.org/symposium/

Member of Board of Directors of the Norman Society of International Affairs, 2002

Co-chairman of the Norman-Seika Friendship Committee of the Norman Society of International Affairs, 2002–2004

Member of faculty search committee, OU Health Sciences Center Department of Immunology and Microbiology

Co-chairman of the Common Computing Needs Sub-committee of the Information Technology Council, 2002–2004

Member of the OU Arts and Sciences Support of Teaching and Research Committee, 2002–2004

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 6th 2001), U-Port, Gotanda, Tokyo, Japan, January 15–17, 2001. https://isarob.org/symposium/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 5th 2000), Oita, Japan, January 26–28, 2000. https://isarob.org/symposium/

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 4th 1999), Oita, Japan, January 19–22, 1999. https://isarob.org/symposium/

Member of the OU Information Technology Council, from 1999

Member of Silicon Graphics Vanguards of Visual Computing Program, http://www.sgi.com/newsroom/press_releases/1999/january/vanguards.html,from November 1998.

Scientific Committee member, The 5th European Conference on Artificial Life (ECAL99), http://www.epfl.ch/ecal99, EPFL in Lausanne, Switzerland, 13–17 September 1999.

Senior Program Committee member, 1999 Genetic and Evolutionary Computation Conference (GECCO–99). July 1999.

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 3rd 1998), Oita, Japan, January 19–21, 1998. https://isarob.org/symposium/

Program Committee, 4th International Conference on Virtual Systems and MultiMedia 1998, http://www.vsmm.vsl.gifu-u.ac.jp/vsmm98, The International Society on Virtual Systems and MultiMedia, Softopia, Gifu/Ogaki Japan, November, 18–20, 1998.

Program Committee, First International Conference on Virtual Worlds (ICVW+98), http://www.devinci.fr/home/iim/vw98/vw98.htm, International Institute of Multimedia, Paris, France, July 1–3, 1998.

Program Committee, Computation for Metaphors, Analogy and Agents: An International Workshop, http://www.u-aizu.ac.jp/CMAA/welcome.html, University of Aizu, Aizu-Wakamatsu City, Japan, April 6–10, 1998.

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 2nd 1997), Oita, Japan, February 18–20, 1997. https://isarob.org/symposium/

Program Committee, Bio-Computing and Emergent Computation (BCEC97), http://www.ida.his.se/ida/~bcec/cfp1.html Skovde, Sweden, 1–2 September 1997.

Program Committee, The 4th European Conference on Artificial Life (ECAL'97), Brighton, UK, 28–31 July 1997. http://www.cogs.susx.ac.uk/ecal97/

Program Committee member, Semigroups & Algebraic Engineering Conference, Aizu Japan, March 24–28, 1997. http://www.u-aizu.ac.jp/~nehaniv/AE97.html

Member of the International Steering Group of the University of Sussex School of Cognitive and Computing Sciences Evolutionary and Adaptive Systems program. http://www.cogs.susx.ac.uk/lab/adapt/easy_msc.html

International Organizing Committee, International Symposium on Artificial Life and Robotics (AROB 1st 1996), Oita, Japan, February 18–20, 1996. https://isarob.org/symposium/

Member of the Program Committee, Artificial Life V Conference, Nara Japan, May 16–18, 1996. http://www.hip.atr.co.jp/departments/Dept6/ALife5.html

Member of the Science Advisory Board of the Bionomics Institute, from 1994.

Program Committee for the IEEE Conference on Evolutionary Computation, December 1995, Perth, Australia.

Program Committee for the IEEE Conference on Evolutionary Computation, June 29 – July 1, 1994, Orlando, Florida.

International Programme Committee for ECAL '93 (European Conference on Artificial Life), Brussels, Belgium, May 24–26, 1993.

Scientific Committee, Istituto Veneto Di Scienze, Lettere Ed Arti, Venice, Italy, from 1992.

Research Priorities Committee, Tropical Biology section of the American Botanical Society, 1993.

Program Committee for the 1993 IEEE International Conference on Neural Networks.

Reviewer for SuperQuest 1992, a best-paper competition for work done on super-computers by high school students.

Publications

Strong, D. R. and T. S. Ray. 1975. Host tree location behavior of a tropical vine (*Monstera gigantea*) by skototropism. Science, 190: 804–06. http://life.ou.edu/pubs/botany/StrongRay1975Skototropism.pdf

Ray, T. S. 1976. Skototropism and the Natural History of Some Tropical Vines. Honors thesis in Biology, Florida State University.

Ray, T. S., A. Bien, G. Griswold, D. Lorence, E. Oddo, M. Noble. 1977. Vertical distribution of epiphytes at Monte Verde. *In* Tropical Biology: An Ecological Approach, #77.3. pp. 279–84. Organization for Tropical Studies, Durham, North Carolina.

Ray, T. S., and B. Brown. 1977. Vine community structure. *In* Tropical Biology: An Ecological Approach, #77.3. pp. 201–12. Organization for Tropical Studies, Durham, North Carolina.

Griswold, G., and T. S. Ray. 1977. Life history and strange mode of germination of a thistle. *In* Tropical Biology: An Ecological Approach, #77.3. pp.249–52. Organization for Tropical Studies, Durham, North Carolina.

Ray, T. S. 1978. Behavior of Tropical Vines. Winner of the 1978 Bowdoin Prize for Essays in the Natural Sciences. Harvard University Archives.

Ray, T. S. 1979. Slow-motion world of plant 'behavior' visible in rainforest. Smithsonian 9(12): 121–30. http://life.ou.edu/pubs/botany/Ray1979Smithsonian.pdf

Oberbauer, S., L. Boring, K. Herman, D. Lodge, T. Ray, S. Trombulak. 1980. Leaf morphology of *Monstera tenuis. In* Tropical Biology: An Ecological Approach, #79.1. pp.24–28. Organization for Tropical Studies, Durham, North Carolina.

Ray, T. S., and C. C. Andrews. 1980. Antbutterflies: Butterflies that follow army ants to feed on antbird droppings. Science 210: 1147–1148. http://life.ou.edu/pubs/botany/RayAndrews1980Antbutterflies.pdf

Ray, T. S. 1980. *Syngonium oduberi* (Araceae): A new species from the Osa Peninsula of Costa Rica. Aroideana 3(4): 128–129. http://life.ou.edu/pubs/botany/Ray1980Syngonium_oduberi.pdf

Ray, T. S. 1981. Growth and heterophylly in an herbaceous tropical vine, *Syngonium*, (Araceae). Ph.D. Thesis, Harvard University. Pp.104. http://life.ou.edu/pubs/botany/Ray1981HarvardDoctoralThesis.pdf

Ray, T. S. 1983. *Monstera tenuis. In* D. Janzen [ed.], Costa Rican natural history, 278–80. University of Chicago Press. http://life.ou.edu/pubs/botany/Ray1983Monstera_tenuis.pdf

Ray, T. S. 1983. *Syngonium triphyllum. In* D. Janzen [ed.], Costa Rican natural history, 333–35. University of Chicago Press. http://life.ou.edu/pubs/botany/Ray1983Syngonium_triphyllum.pdf

Ray, T. S. 1985. The host plant, *Erythroxylum* (Erythroxylaceae), of *Agrias* (Nymphalidae). J. Lep. Soc. 39(4):266–267. http://life.ou.edu/pubs/botany/Ray1985ErythroxylumAgrias.pdf

Ray, T. S. 1986. Growth correlations within the segment in the Araceae. Amer.J. Bot.73(7): 993–1001. http://life.ou.edu/pubs/botany/Ray1986GrowthCorrelationWithinSegmentAraceae.pdf

Ray, T. S. 1987. Cyclic heterophylly in *Syngonium* (Araceae). Amer. J. Bot. 74(1): 16–26. http://life.ou.edu/pubs/botany/Ray1987CyclicHeterophyllySyngonium.pdf

Ray, T. S. 1987. Leaf types in the Araceae. Amer. J. Bot. 74(9): 1359–1372. http://life.ou.edu/pubs/botany/Ray1987LeafTypesAraceae.pdf

Ray, T. S. 1987. Diversity of shoot organization in the Araceae. Amer. J. Bot.74(9): 1373–1387. http://life.ou.edu/pubs/botany/Ray1987DiversityShootOrganizationAraceae.pdf

Ray, T. S. 1988. Survey of shoot organization in the Araceae. Amer. J. Bot. 75(1): 56–84. http://life.ou.edu/pubs/botany/Ray1988SurveyOfShootOrganizationAraceae.pdf

Ray, T. S. 1988. Diversification of growth habits in the Araceae. Amer. J. Bot.76(Suppl.): 276.

Ray, T. S., and S. Renner. 1990. Comparative studies on the morphology of the Araceae. A. Engler, 1877. Translation with an introduction, updated nomenclature, and a glossary. Englera 12. Pp.140.

Ray, T. S. 1990. Application of "eigenshape" analysis to second order leaf shape ontogeny in *Syngonium podophyllum* (Araceae). *In*: Rohlf, F. J., and F. Bookstein [eds.], Proceedings of the Michigan Morphometrics Workshop, 201–213. University of Michigan Museum of Zoology.

Ray, T. S. 1990. Metamorphosis in the Araceae. Amer. J. Bot. 77(12): 1599–1609. http://life.ou.edu/pubs/botany/Ray1990MetamorphosisInTheAraceae.pdf

Ray, T. S. 1991. Is it alive, or is it GA? *In*: Belew, R. K., and L. B. Booker [eds.], Proceedings of the 1991 International Conference on Genetic Algorithms, 527–534. San Mateo, CA: Morgan Kaufmann.

Ray, T. S. 1991. Evolution and optimization of digital organisms. *In*: Billingsley K. R., E. Derohanes, H. Brown, III [eds.], Scientific Excellence in Supercomputing: The IBM 1990 Contest Prize Papers, Athens, GA, 30602: The Baldwin Press, The University of Georgia. Publication date: December 1991, Pp. 489–531.

Ray, T. S. 1991. Population dynamics of digital organisms. *In* : Langton, C. G. [ed.], Artificial Life II Video Proceedings. Redwood City, CA: Addison Wesley.

Ray, T. S. 1991. An approach to the synthesis of life. *In* : Langton, C., C. Taylor, J. D. Farmer, & S. Rasmussen [eds], Artificial Life II, Santa Fe Institute Studies in the Sciences of Complexity, vol. XI, 371–408. Redwood City, CA: Addison-Wesley. http://life.ou.edu/pubs/alife2/tierra.tex, http://life.ou.edu/pubs/alife2/Ray1991AnApproachToTheSynthesisOfLife.pdf, https://www.youtube.com/watch?v=Wl5rRGVD0QI

Ray, T. S. 1992. Evolution, ecology and optimization of digital organisms. Santa Fe Institute working paper 92-08-042. http://life.ou.edu/pubs/tierra/, http://life.ou.edu/pubs/tierra/tierra.tex

Ray, T. S. 1992. Landmark eigenshape analysis: homologous contours; leaf shape in *Syngonium* (Araceae). Amer. J. Bot. 79(1): 69–76. http://life.ou.edu/pubs/botany/Ray1992LandmarkEigenshapeAnalysis.pdf

Ray, T. S. 1992. Foraging behaviour in tropical herbaceous climbers (Araceae). Journal of Ecology 80: 189–203. http://life.ou.edu/pubs/botany/Ray1992ForagingBehaviour.pdf

Ray, T. S. 1992. J'ai joué á Dieu et créé la vie dans mon ordinateur. Le Temps stratégique 47: 68–81. http://life.ou.edu/pubs/nathist/Ray1992LeTempsStrategique.pdf

Ray, T. S. 1993. Quando giocavo a essere Dio. Virtual (Italian magazine), December 1993, 1(4): 40–46.

Ray, T. S. 1993. How I created life in a virtual universe. Not published in English, but published in French, Spanish and Italian. http://life.ou.edu/pubs/nathist/, http://life.ou.edu/pubs/nathist/nathist.tex

Ray, T. S. 1993. Artificial Life: creatures in the computer. 1993 PC Forum Transcript, Pp. 119–126. EDventure Holdings Inc., New York.

Ray, T. S. 1994. An evolutionary approach to synthetic biology: Zen and the art of creating life. Artificial Life 1(1/2): 195–226. Reprinted *In*: Langton, C. G. [ed.], Artificial Life, an overview. The MIT Press, 1995. http://life.ou.edu/pubs/zen/, http://life.ou.edu/pubs/zen/zen.tex, http://life.ou.edu/pubs/zen/Ray1994Zen&TheArtOfCreatingLife.pdf

Ray, T. S. 1994. Artificial life and real computation. IPSJ-SIGAI Notes (Artificial Intelligence committee of the Information Processing Society of Japan) 94-AI-93 94(20): 31–38.

Ray, T. S. 1994. Jugué a ser Dios y creé la vida en mi computadora. *In*: Claudio Gutiérrez [ed], Epistemología e Informática, 257–267. San José, Costa Rica: UNED, 1993. http://life.ou.edu/pubs/spanish/, http://life.ou.edu/pubs/spanish/spanish.tex

Ray, T. S. 1994. Using artificial life to create parallel and networked processes through natural evolution. Japanese Society of Artificial Intelligence, NCJSAI '94.

Ray, T. S. 1994. Evolution and complexity. *In*: Cowan, George A., David Pines and David Metzger [eds.], Complexity: Metaphors, Models, and Reality, Pp. 161–173. Addison-Wesley Publishing Co.

Ray, T. S. 1994. Evolving autonomous software agents. Proceedings of the 3rd IEEE International Workshop on Robot and Human Communication, Pp. 7–11. July 18–20, 1994, Nagoya. IEEE Press, 1994.

Ray, T. S. 1994. Evolution, complexity, entropy, and artificial reality. Physica D 75: 239–263. http://life.ou.edu/pubs/oji/, http://life.ou.edu/pubs/oji/ojihtml.tex

Ray, T. S. 1994. Neural networks, genetic algorithms and artificial life: adaptive computation. Proceedings of the 1994 ALife, Genetic Algorithm and Neural Networks Seminar; Institute of Systems, Control and Information Engineers. Pp. 1–14.

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