

Curriculum Vitae

Tatsuo UNEMI

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Personality

Birth date: January 26th, 1956, **Birth place:** Kanazawa, Ishikawa pref., Japan, **Sex:** Male.

Nationality: Japan, **Religion:** Buddhism.

Employment

Department of Information Systems Science, Soka University

Associate Professor (Jokyōju/Junkyōju), 1995–Present

Assistant Professor (Kōshi), 1992–1995

Teach students on Programming languages including Lisp, Prolog, Java and Objective-C, Cognitive Science, and Artificial Intelligence, and work with students on Artificial Life by software approaches including combinations among evolution, development, learning and collective behavior.

Tokyo Institute of Technology

Part-Time Lecturer, 1996–1999

Make two hours lecture for undergraduate students twice per year on Artificial Life as a part of the course “Human and Society in Multi-media age” arranged by Dr. Kyōichi Kijima.

Laboratory for International Fuzzy Engineering Research

Visiting Scholar and Project Leader of ROB Group, 1992–1995

Lead a group of four researchers from private companies in ROB (Robotics) Group to build a prototype of autonomous distributed robot system that works cooperatively with human.

Shinanogawa Techno-Academy

Part-Time Lecturer, 1989–1991

Teach students on Introduction to Computer Software and Data Structure.

Department of Planning and Management Science, Nagaoka University of Technology

Assistant Professor (Kōshi), 1987–1992

Teach students on Statistics, Programming in OPS5 and Prolog, and Cognitive Science, and work with students and faculty on Reinforcement Learning Method, Applications of Genetic Algorithms, and Design of Graphical User Interface.

Department of System Sciences, Tokyo Institute of Technology

Research Associate (Joshu), 1981–1987

Work with students and faculty on Knowledge Engineering, Machine Learning, Human Interface, and Programming Tools for Artificial Intelligence.

Education

Doctor of Engineering 1994, Tokyo Institute of Technology

Dissertation: An Instance-based Reinforcement Learning Method and Its Applications to Control and Artificial Life Researches. (*in Japanese*)

Advisor: Prof. Shigenobu Kobayashi

Master of Engineering 1980, Department of System Sciences, Tokyo Institute of Technology

Master Thesis: Extension of Extended-LINGOL to N-ary Tree. (*in Japanese*)

Advisor: Prof. Atsunobu Ichikawa and Dr. Hozumi Tanaka

Bachelor of Engineering 1978, Department of Control Engineering, Tokyo Institute of Technology

Undergraduate Thesis: A Model of Roamer with Self-learning Function. (*in Japanese*)

Advisor: Prof. Atsunobu Ichikawa

Professional Activities

Committee member of Information Center of Soka University

Chairman 2004–Present

Vice-chairman 2002–2004

Chief of Industrial Application Council Society for Instrument and Control Engineers, 2003

The Council includes four divisions, Fluid Instrument and Control, Instrumentation Technologies, Industrial Systems, and Network Technologies for Instrument and Control.

Steering committee member of Society for Instrument and Control Engineers Chairman of the councils' conference. 2001–2002.

Visiting Professor AI Laboratory, Institute for Informatics, University of Zurich, April – September, 2000.

Administrator of Computers and Network

Computer Center of Faculty of Engineering, Soka University 1994–2002

Information Processing Centre, Nagaoka University of Technology, 1987–1992

Programming Consultant Information Processing Center at Nagatsuda Campus, Tokyo Institute of Technology, 1990–1992

Chief of System and Information Council Society for Instrument and Control Engineers, 1997–2000

The Society includes five councils and the Council includes seven divisions, System Engineering, Human Interface, Intelligent Engineering, Neural Networks, Bio-Engineering, Decentralized Autonomous Systems, and Discrete Events Systems.

Chief of Intelligent Engineering Division Society for Instrument and Control Engineers, 1995–1997

Working Group Member of Institute for New Generation Computer Technology

Distributed and Cooperative Problem Solving WG, 1987–1988

Foundations of Artificial Intelligence WG, 1986–1990

Application System WG1-2, 1986–1987

Consultation System WG, 1982–1986

Research Committee Member of Japanese Society for Mechanical Engineers

RC-223 Co-Creative Industrial Processes in Knowledge Economical Society, 2005-2007

RC-211 Highly Skilled System Technologies for Manufacturing utilizing Human Aspects, 2003-2005

RC-194 Application of Information Technologies for Intelligent Industrial Processes in the Globalized Society, 2001-2003

RC-175 Intelligent System Technologies for Human/Society Environmental Symbiosis in Distributed Artifacts System, 1999–2001

RC-155 Intelligent System Technologies for Human-Machine Cooperative Plant in Uncertain Environment, 1997–1999

RC-139 Intelligent Human-Machine Systems, 1995–1997

RC-123 Development of Human Friendly Systems by Amalgamation of Intelligent Technologies, 1993–1995

RC-106 Intelligent System Integration Technology for Plant Engineering, 1991–1993

Editorial Board Member Of:

Keisoku to Seigyo (Communications for Society of Instrument and Control), 2004–2005
Journal of Information Processing Society in Japan, 1999–2001
Journal of Advanced Computational Intelligence, 1996–Present
Journal of Japanese Society for Artificial Intelligence, 1997–1998

Program Committee Member Of:

IEEE Symposium on Artificial Life (IEEE ALIFE 2011)
7th European Evolutionary Computing Workshops (EvoMUSART, 2004)
6th European Evolutionary Computing Workshops, (EvoMUSART, 2003)
International Conference on Intelligent Robots and Systems (IROS, 1996)
International Workshop on the Synthesis and Simulation of Living System (A-Life V, 1996)

Reviewed Journal Submissions For:

Computer Software (published by Japanese Society of Software Sciences)
IEEE Transactions on Evolutionary Computation
IEEE Transactions on Knowledge and Data Engineering
IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences
Journal of Information Processing Society in Japan
Journal of Japanese Society for Artificial Intelligence
Journal of Japanese Society for Mechanical Engineers
Journal of Society for Instrument and Control Engineers
Journal of Advanced Computational Intelligence
Machine Learning

Reviewed Conference Submissions For:

IEEE Symposium on Artificial Life (IEEE ALIFE 2011)
International Conference on Knowledge-based Intelligent Information Engineering Systems (KES, 1999)
International Conference on Intelligent Robots and Systems (IROS, 1996)
International Workshop on the Synthesis and Simulation of Living System (A-Life V, 1996)
Pacific Rim International Conference on Artificial Intelligence (PRICAI, 1990)
International Conference on Fifth Generation Computer Systems (FGCS, 1988)

Public Domain Software Development

ZugVoegel 2009-Present, Soka University and University of Zurich. Flocking birds simulator originally developed for a theater effect for contemporary ballet *Zugvögel*, that runs on MacOS X.

DT4 Identity SA 2007-Present, Soka University and University of Zurich. Generative and interactive artwork running on MacOS X with live camera.

DT1 Flocking Orchestra 2004-Present, Soka University and University of Zurich. Generative and interactive artwork running on MacOS X with live camera.

VideoSummary 2002-Present, Cubit Co., (shareware). Video utility that summarize a movie file into a collection of extracted frame images running on MacOS X.

SBEAT 2001–2003, Soka University

A composition support tool to create short musical phrases and rhythms based on artificial selection. This is an application of Simulated Breeding, a type of Interactive Evolutionary Computing Technique. This software runs on MacOS 9 and X, and has been widely distributed through the world wide web.

Sample Programs for Complex Systems and Artificial Life 1998, Soka University

Collection of sample programs written in C language that work on Unix with X Window System. The collection includes Logistic map, Langton's self replicator, TSP solver by Genetic Algorithm, a simplified version of BOID and Tierra, and so on.

SBART 1994–Present, Soka University

A support tool to draw 2D CG images and movies using Simulated Breeding method. It works on Unix with X Window System including Linux, FreeBSD, SunOS, Solaris, HP-UX and IRIX, and MacOS 7.6 or upper. The

source code of all of versions are written in C language, and Motif for Unix and Toolbox for MacOS. This software has been widely distributed through the world wide web.

TEW on PC-9801 1983, Tokyo Institute of Technology

A terminal emulation software with window system working on the MS-DOS-based personal computer, NEC PC-9801 series, which was written in the assembly language.

Co-PS 1982, Tokyo Institute of Technology

An interpreter of concurrent production system designed for building expert systems written in LISP 1.9.

LISP 1.9 on MELCOM COSMO 1981, Tokyo Institute of Technology

An interpreter and compiler of a type of LISP programming language, written in the assembly language for Mitsubishi MELCOM-COSMO series super-mini computer system. This system was installed more than ten machines in universities and laboratories including Educational Computer Center in Tokyo University, Computer Center of Kyushu Institute of Design, and KDD Research Laboratory.

N-ary Extended LINGOL 1980, Electrotechnical Laboratory, MITI

A parser for Japanese language text written in LISP 2.0 on Toshiba TOSBAC-5600.

Award

- [1] Bisig, D. and Unemi, T. (2011) *Cycles*, *Audience Prize*, Media Art Biennale WRO 2011 Alternative Now, WRO Center, Wrocław, Poland.
- [2] Bisig, D. and Unemi, T. (2007) *MediaFlies*, *Excellent Award*, *10th Japan Media Arts Festival*, Agency for Cultural Affairs, Japan.
- [3] Unemi, T. and Bisig, D. (2006) *Flocking Messengers*, *Honorary Mention*, *VIDA 9.0 Concurso Internacional sobre Arte y Vida Artificial*, Fundación Telefónica, Spain.
- [4] Unemi, T. (2001) *For the First Graduation in 21st Century*. (CG poster), *The Winner of the Competition on Evolutionary Art and Design*, in IEEE Congress on Evolutionary Computation, Seoul, Korea.

Exhibition

- [5] Bisig, D. and Unemi, T. (2011) *Cycles*, *Media Art Biennale WRO 2011 Alternative Now*, Pasaż Pokochof, Wrocław, Poland, May 10 – June 19.
- [6] Bisig, D. and Unemi, T. (2010) *Cycles*, *lab 30 Augsburger Kunstlabor*, Kulturthaus Abraxas, Augsburg, Germany, November 4–6.
- [7] Bisig, D. and Unemi, T. (2010) *Cycles*, *ISEA Ruhr 2010 Exhibition*, Museum für Kunst und Kulturgeschichte Dortmund, Germany, August 20 – September 5.
- [8] Unemi, T. and Bisig, D. (2007) *Identity SA*, *The Tenth Generative Art Conference*, Politecnico di Milano University, Milan, Italy, December 12–14.
- [9] Unemi, T. and Bisig, D. (2007) *Flocking Orchestra*, *Velocity Festival of Digital Culture*, Lanternhouse, Ulverston, UK, October 11 – November 3.
- [10] Bisig, D. and Unemi, T. (2007) *MediaFlies*, *ArtEscapes*, Universidad Politécnica de Valencia, Valencia, Spain, April 11 – May 18.
- [11] Unemi, T. and Bisig, D. (2007) *Flocking Messengers*, —.
- [12] Unemi, T. and Bisig, D. (2007) *Flocking Messengers*, *Telefónica booth in ARCO 2007*, IFEMA, Madrid, Spain, February 14–19.
- [13] Bisig, D. and Unemi, T. (2007) *MediaFlies*, *Japan Media Art Festival*, Tokyo Metropolitan Museum of Photography, Tokyo, Japan, February 24 – March 4.

- [14] Unemi, T. and Bisig, D. (2006) Flocking Messengers, *The Ninth Generative Art Conference*, Politecnico di Milano University, Milan, Italy, December 13–15.
- [15] Bisig, D. and Unemi, T. (2006) MediaFlies, —.
- [16] Unemi, T. and Bisig, D. (2006) Flocking Orchestra, *Leonardo II Art Show*, in International Conference on Advances in Computer Entertainment, Bel Age Hotel, West Hollywood, CA, USA, June 14–16.
- [17] Bisig, D. and Unemi, T. (2006) MediaFlies, —.
- [18] Unemi, T. and Bisig, D. (2005) Flocking Orchestra, *The Eighth Generative Art Conference*, Politecnico di Milano University, Milan, Italy, December 15–17.
- [19] Unemi, T. (2000) Works at Gerhardstrasse 5 in a rainy day of May (Computer-generated film), *Pitture Digitali*, Museo Civico di piazza del Santo, Padua, Italy, July 7 – August 27.
- [20] Unemi, T. (1993) Evolution of a Simple Growth System in 2-D Euclidean Space, *A-Life World*, Tokyo International Art Museum, T-Brain Club, June 23 – August 30.

Live performance and demonstration

- [21] Unemi, T. (2011) SBArt4 breeding on site, *14th Generative Art Conference*, Istituto Cervantes di Roma, Piazza Navona, Rome, Italy, December 7.
- [22] Unemi, T. and Bisig, D. (2009) Identity SA, *SIGGRAPH 2009 Computer Animation Festival, Real-Time Rendering Live demonstration*, Ernest N. Morial Convention Center, New Orleans, LA, USA, August 3–6.

Collaborations

- [23] Unemi, T. and Bisig, D. (2009) Computer-based projection for a stage effect, *Mémoires d'Oubliettes*, Contemporary Ballet, Choreographed by Jiří Kylián, Netherlands Dance Theatre I, World-premiered in Lucent Dance Theatre, The Hague, Netherlands.
- [24] Unemi, T. and Bisig, D. (2009) Computer-based projection for a theater effect, *Zugvögel*, Contemporary Ballet, Choreographed by Jiří Kylián, Bavarian State Ballet, World-premiered in Bavarian State Opera, Munich, Germany.
- [25] Unemi, T. and Bisig, D. (2008) Computer-based projection for a stage effect, *Gods and Dogs*, Contemporary Ballet, Choreographed by Jiří Kylián, Netherlands Dance Theatre II, World-premiered in Lucent Dance Theatre, The Hague, Netherlands.
- [26] Unemi, T. and Bisig, D. (2008) Computer-based projection for a stage effect, *Vanishing Twin – Unfinished Works*, Contemporary Ballet, Choreographed by Jiří Kylián, Netherlands Dance Theatre I, —.

Publications

Doctor's Thesis

- [27] Unemi, T. (1994) An Instance-based Reinforcement Learning Method and Its Applications to Control and Artificial Life Researches (in Japanese). Tokyo Institute of Technology.

Journal Publications

- [28] Sasaki, T., Unemi, T. (2011) Replicator dynamics in public goods games with reward funds, *Journal of Theoretical Biology*, Vol. 287, pp. 109–114.
- [29] Minoya, K., Unemi, T., Suzuki, R., Arita, T. (2011) A Constructive Approach to the Evolution of the Planning Ability, *International Journal of Artificial Life Research*, Vol. 2, No. 3, pp. 22–35.
- [30] Sasaki, T., Okada, I., Unemi, T. (2007) Probabilistic participation in public goods games, *Proceedings of the Royal Society – Biological Sciences*, Vol. 274, No. 1625, pp. 2639–2642.

- [31] Unemi, T. (2003) Simulated Breeding – a Framework of Breeding Artifacts on the Computer, *Kybernetes*, Vol. 32, No. 1/2, pp. 203–220.
- [32] Unemi, T. (2002) SBART 2.4: an IEC Tool for Creating 2D Images, Movies, and Collage, *Leonardo*, Vol. 35, No. 2, pp. 171, 189–191, MIT Press.
- [33] Unemi, T. (1999) A Simple Evolvable Development System in Euclidean Space, *Lectures on Mathematics in the Life Science*, American Mathematical Society, Vol. 26, pp. 103–110.
- [34] Unemi, T. (1992) An Instance-based Reinforcement Learning Method for Control not to Fail, *Journal of Japanese Society for Artificial Intelligence*, Vol. 7, No. 6, pp. 1001–1008 (in Japanese)
- [35] Unemi, T. (1992) An Instance-based Reinforcement Learning Method, *Journal of Japanese Society for Artificial Intelligence*, Vol. 7, No. 4, pp. 697–707 (in Japanese)

Co-authoring Book

- [36] Ueda, K. *et al* (1995) *Methods in Artificial Life*, Kougyou-chousa-kai (in Japanese)
- [37] Kobayashi, S. *et al* (1990) *Intelligent Systems Handbook*, Ohm-sha (in Japanese)

Book Chapters

- [38] Simulated Breeding — a Framework of Breeding Artifacts on the Computer, in A. Adamazky and M. Komosinski eds. (2005) *Artificial Life Models In Software*, and 2nd edition (2009), Springer.
- [39] Artificial Life, in K. Hirota *et al* (1996) *Introduction to Intelligent Engineering*, Shōkōdō (in Japanese)
- [40] Phenomena of Life in the Computer – Artificial Life, in H. Takagi, *et al* (1995) *Human and Society in the Multi-media Age*, Nikka-giren Shuppan (in Japanese)
- [41] Development and Ecological Systems on Two Dimensional Euclidean Space, in I. Aizu, O. Sakura, K. Wada, T. Ikegami, T. Hoshino, H. de Garis, H. Kitano, Y. Kawaguchi, T. Unemi, and H. Iwata (1994) *Artificial Life – Crossing among Information, Life and CG*, Kyouritsu Shuppan (in Japanese)
- [42] The World of Art that A-Life Creates, in T. Shibata, *et al* (1994) *Near Future of Artificial Life – The Technology to Create a New Life*, Jiji-tsūshin-sha (in Japanese)
- [43] Design of User Interface (1) Multi-window systems, in F. Mizoguchi, *et al* (1987) *Science of Interface*, Kyouritsu Shuppan, pp. 111–130 (in Japanese)
- [44] Introduction to Prolog, in H. Yoshino (ed) (1986) *Foundation of Law Expert Systems*, Gyousei, pp. 228–251 (in Japanese)
- [45] Applications to Natural Language Processing, in F. Mizoguchi, M. Takeda, T. Unemi, and R. Mizoguchi (1985) *Prolog and the applications 2*, Souken Shuppan, pp. 185–246 (in Japanese)

Handbook/Encyclopedia Items

- [46] Search and Problem Solving, in R. Suzuki *et al* (1994) *Fuzzy, Neuro, and AI Systems Handbook*, Ohm-sha (in Japanese)
- [47] AI Programming, in K. Hirose *et al* (1990) *Encyclopedia of Computer Software*, Maruzen (in Japanese)
- [48] Learning System, in S. Ura *et al* (1989) *Information Systems Handbook*, Baifu-kan (in Japanese)

Translations

- [49] Modification of Rules, in Ichikawa, S. *et al* (1991) *Induction – Toward an Integrated Theory of Inference, Learning, and Discovery*, Shin-yō-sha, pp. 81–118. (Holland, J. H. *et al* (1986) *Induction*.)

- [50] Shift of Bias for Inductive Concept Learning, in Asoh, H. *et al* (1988) *Learning Concepts and Rules*, Kyouritsu Shuppan, pp. 71–117. (Michalski, R. S. *et al* eds. (1986) *Machine Learning: An Artificial Intelligence Approach, Vol. II.*)

Refereed Conference Papers

- [51] Unemi, T. (2011) SBArt4 as Automatic Art and Live Performance Tool, *Proceedings of the 14th Generative Art Conference*, Rome, Italy, pp. 436–447.
- [52] Bisig, D. and Unemi, T. (2011) From Shared Presence to Hybrid Identity, in Ascott, R. and Girão, L. M. eds. *Consciousness Reframed 12*, Lisbon, Portugal, pp. 48–53.
- [53] Unemi, T. (2010) A Breeding Tool for Abstract Animations and Its Applications, *Proceedings of the 13th Generative Art Conference*, Milan, Italy, pp. 452–458.
- [54] Bisig, D. and Unemi, T. (2010) Cycles – Blending Natural and Artificial Properties in a Generative Artwork, *Proceedings of the 13th Generative Art Conference*, Milan, Italy, pp. 140–154.
- [55] Unemi, T. (2010) SBArt4 – Breeding Abstract Animations in Realtime, *Proceedings of the IEEE World Congress on Computational Intelligence (WCCI 2010 – IEEE CEC 2010)*, July 18–23, Barcelona, Spain, pp. 4004–4009.
- [56] Bisig, D. and Unemi, T. (2009) Swarms on Stage – Swarm Simulations for Dance Performance, *Proceedings of the 12th Generative Art Conference*, Milan, Italy, pp. 105–114.
- [57] Minoya, K., Unemi, T., Suzuki, R. and Arita, T. (2009) A Constructive Approach to the Evolution of the Planning Ability, *Proceedings of 13th Asia Pacific Symposium on Intelligent and Evolutionary Systems*, Fukuoka, Japan.
- [58] Unemi, T. and Bisig, D. (2008) A generative remixing of music tracks based on an interactive swarm, *Proceedings of the 11th Generative Art Conference*, Milan, Italy, pp. 388–392.
- [59] Unemi, T., Matsui, Y. and Bisig, D. (2008) Identity SA 1.6 – An artistic software that produces a deformed audiovisual reflection based on a visually interactive swarm, *Proceedings of the ACE 2008 International Conference on Advances in Computer Entertainment Technology*, Yokohama, Japan, pp. 297–300.
- [60] Unemi, T. and Bisig, D. (2007) Identity SA – an Interactive Swarm-based Animation with a Deformed Reflection, *Proceedings of the Tenth Generative Art Conference*, Milan, Italy, pp. 269–279.
- [61] Bisig, D. and Unemi, T. (2006) MediaFlies – An Interactive Flocking Based Tool for the Remixing of Media, *Proceedings of the 19th International FLAIRS Conference*, Melbourne, FL, USA.
- [62] Bisig, D. and Unemi, T. (2006) MediaFlies – A Video and Audio Remixing Multi Agent System, *Proceedings of the Ninth Generative Art Conference*, Milan, Italy, pp. 63–74.
- [63] Unemi, T. and Bisig, D. (2006) Flocking Messengers, —, pp. 272–280.
- [64] Unemi, T. and Bisig, D. (2005) Music by Interaction among Two Flocking Species and Human. *Proceedings of the Third International Conference on Generative Systems in Electronic Arts*, Melbourne, Australia, CEMA, Monash Univ., pp. 171–179.
- [65] Unemi, T. and Bisig, D. (2005) Flocking Orchestra – to play a type of generative music by interaction between human and flocking agents, *Proceedings of the Eighth Generative Art Conference*, Milan, Italy, pp. 19–21.
- [66] Unemi, T. and Bisig, D. (2004) Playing Music by Conducting BOID Agents - A Style of Interaction in the Life with A-Life, *Proceedings of the Ninth International Conference on the Simulation and Synthesis of Living Systems (ALIFE9)*, Boston, MA, USA, MIT Press., pp. 546–550.
- [67] Unemi, T. (2004) Embedding Movie into SBART – Breeding deformed movies, *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Den Haag, Netherlands, pp. 5760–5764.
- [68] Unemi, T. and Soda, M. (2003) An IEC-based Support System for Font Design, *Proceedings of the 2003 IEEE International Conference on Systems Man and Cybernetics*, Arlington, VA, USA, pp. 968–973.

- [69] Unemi, T., Kaneko, Y., and Takahashi, I. (2003) War and Peace among Artificial Nations - a model and simulation based on a two-layered multi-agent system, *Advances in Artificial Life - 7th European Conference (ECAL 2003)*, Dortmund, Germany, Springer Verlag, pp. 146–153.
- [70] Unemi, T. (2002) A tool for multi-part music composition by simulated breeding, *Proceedings of the Eighth International Conference on Artificial Life (A-Life VIII)*, Sydney, Australia, pp. 410–413.
- [71] Unemi, T. (2002) Partial breeding — a method of IEC for well-structured large scale target domains, *Proceedings of the 2002 IEEE International Conference on Systems Man and Cybernetics*, Hammamet, Tunisia, CD-ROM, TP1D4.
- [72] Unemi, T. and Senda, M. (2001) A New Musical Tool for Composition and Play Based on Simulated Breeding, *The Second International Conference on Generative Systems in the Electronic Arts*, pp. 100–109, Melbourne, Australia.
- [73] Unemi, T. and Nakada, E. (2001) A Tool for Composing Short Music Pieces by Means of Breeding, *Proceedings of the 2001 IEEE International Conference on Systems, Man and Cybernetics*, Tucson, AZ, USA, pp. 3458–3463.
- [74] Unemi, T. (2000) Scaling up reinforcement learning with human Knowledge as an intrinsic behavior, *Proceedings of the Sixth International Conference on Intelligent Autonomous Systems (IAS-6)*, pp. 511–518, Venice, Italy, IOS Press.
- [75] Unemi, T. (2000) Should seeds fly or not? *Proceedings of the Seventh International Conference on Artificial Life (A-Life VII)*, pp. 253–259, Portland, OR, USA, MIT Press.
- [76] Unemi, T. and Saitoh, H. (1999) Episode-based Reinforcement Learning – an instance-based approach for perceptual aliasing, *Proceedings of the 1999 IEEE International Conference on Systems, Man and Cybernetics*, pp. V-435–440, Tokyo, Japan.
- [77] Unemi, T. (1999) SBART 2.4: Breeding 2D CG Images and Movies and Creating a Type of Collage, *Proceedings of the Third International Conference on Knowledge-based Intelligent Information Engineering Systems*, pp. 288–291, Adelaide, SA, Australia.
- [78] Unemi, T. and Koike, T. (1998) Evolution of a Botanical Development System in 3D Euclidean Space, *Proceedings of A-Life VI*, MIT Press. pp. 467–471, Los Angeles, CA, USA.
- [79] Unemi, T. (1998) A Design of Multi-Field User Interface for Simulated Breeding, *Proceedings of the third Asian Fuzzy Systems Symposium*, Korean Fuzzy Logic and Intelligent Systems Society, pp. 489–494, Masan, Korea.
- [80] Inagaki, Y. and Unemi, T. (1995) The Human-robot Cooperating System Using Behavior-based Intention Inference, *Proceedings of the International Joint Conference of CFSA/IFIS/SOFT'95 on Fuzzy Theory and Applications*, pp. 549–554, Taipei, China.
- [81] Sugie, H., Inagaki, Y., Ono, S., Aisu, H., and Unemi, T. (1995) Placing Objects with Multiple Mobile Robots – Mutual Help Using Intention Inference, *Proceedings of the IEEE International Conference on Robotics and Automation*, pp. 2181–2186, Nagoya, Japan.
- [82] Unemi, T., Inagaki, Y., Ono, S., Aisu, H., and Sugie, H. (1995) On the Relation between Human and Robots in the future – a perspective from Fuzzy Engineering and Artificial Life, *Proceedings of the International Joint Conference of the Fourth International Conference on Fuzzy Systems and the Second International Fuzzy Engineering Symposium*, pp. 1689–1694, Yokohama, Japan.
- [83] Inagaki, Y., Ono, S., Aisu, H., Sugie, H., and Unemi, T. (1995) Behavior-based Intention Inference for Intelligent Robots Cooperating with Human, —, pp. 1695–1700.
- [84] Aisu, H., Inagaki, Y., Ono, S., Sugie, H., and Unemi, T. (1995) A Robust Planning and Control System Handling Fuzziness, —, pp. 1701–1704.
- [85] Sugie, H., Inagaki, Y., Ono, S., Aisu, H., and Unemi, T. (1995) Cooperation among Multiple Mobile Robots Using Intention Inference, —, pp. 1707–1712.
- [86] Ono, S., Inagaki, Y., Aisu, H., Sugie, H., and Unemi, T. (1995) Fast and Feasible Reinforcement Learning Algorithm, —, pp. 1713–1718.

- [87] Unemi, T., Nagayoshi, M., Hirayama, N., Nade, T., Yano, K., and Masujima, Y. (1994) Evolutionary Differentiation of Learning Abilities – a case study on optimizing parameter values in Q-learning by a genetic algorithm, *Proceedings of the Forth International Workshop on the Synthesis and Simulation of Living Systems*, pp. 331–336, Cambridge, MA, USA.
- [88] Sugie, H., Inagaki, Y., Ono, S., Y., Aisu, and Unemi, T. (1994) Pushing an Object by Cooperative Mobile Robots, *Proceedings of the Third International Workshop on Advanced Motion Control*, Berkeley, CA, USA.
- [89] Inagaki, Y., Aisu, H., Sugie, H., and Unemi, T. (1993) A Study of a Method for Intention Inference from Human's Behavior, *Proceedings of the IEEE International Workshop on Robot and Human Communication*, Tokyo, Japan.
- [90] Aisu, H., Sugie, H., Inagaki, Y., and Unemi, T. (1993) A Planning Architecture for Intelligent Robot: Fuzzy Memory-Based Reasoning for Real-time Planning/Control, *Proceedings of the International Conference on Industrial Electronics, Control and Instrumentation*, Lahaina, HI, USA.
- [91] Unemi, T. (1993) Collective Behavior of Reinforcement Learning Agents, *Proceedings of the 1993 IEEE/Nagoya University World Wide men/women Workshop on Learning and Adaptive System*, pp. 92–97, Nagoya, Japan.
- [92] Unemi, T. (1990) On Inductive Learning of Three Kinds of Data Structures, *Proceedings of the First International Workshop on Algorithmic Learning Theory*, pp. 120–133, Tokyo, Japan.

Journal Articles

- [93] Unemi, T. (2010) Interactive Media using Artificial Life, *Science Forum*, Tokyo Science University, pp. 15–20 (in Japanese)
- [94] Unemi, T. (2005) Applications of Simulated Breeding to CG and Music, and their User Interface Design, *Journal of the Society of Instrument and Control Engineers*, Vol. 44, No. 1, pp. 58–63 (in Japanese)
- [95] Unemi, T., Inagaki, Y., Ono, S., Aisu, H., and Sugie, H. (1999) A Design of Autonomous Mobile Robot Team That Works Together with Human – The Case at Laboratory for International Fuzzy Engineering Research, *Journal of the Society of Instrument and Control Engineers*, Vol. 38, No. 6, pp. 385–389 (in Japanese).
- [96] Takagi, H., Unemi, T., and Terano, T. (1998) Perspective on Interactive Evolutionary Computing, *Journal of Japanese Society for Artificial Intelligence*, Vol. 13, No. 5, pp. 692–703 (in Japanese).
- [97] Unemi, T. (1997) Researches on Artificial Life from a View Point of Polyagent, *Operations Research*, Vol. 42, No. 9, pp. 604–609 (in Japanese).
- [98] Unemi, T. (1995) A Distributed Robot System That Works Cooperatively with Human, *Journal of Japanese Society for Fuzzy Theory and Systems*, Vol. 7, No. 4, pp. 747–752 (in Japanese).
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