

DESIGN AS RESEARCH II: COMPUTATIONAL SPACE READING LIST 2011/12

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Some items may be shared with other programmes or located in other parts of the library. For location details please consult the online library catalogue.

Session 1 Computational Space

Simulation & information modelling

Essential Readings

Murray Gell-Mann, 'Information & Crude Complexity', in *The Quark and the Jaguar* (London: 1994), pp. 23-41

Gary William Flake, 'Postscript: Adaptation', *The Computational Beauty of Nature* (Cambridge, Mass.: 1998), pp. 415-424 **[ON DRL SPYROPOULOS SHELF]**

Recommended Readings

Stefan Hildebrandt & Anthony Tromba, 'On Form and Shape' and 'Optimal Design', in *The Parsimonious Universe: Shape and Form in the Natural World* (New York: 1996), pp. 1-17 and 213-267

Rudy Rucker, 'A new golden age of calculation', *Seek!* (New York, 1999), pp. 122-30.
Percy Bridgeman, 'The operational character of scientific concepts', in *The Philosophy of Science*, Richard Boyd, Philip Gasper, and J.D. Trout (eds.) (Cambridge, Mass.: 1991), pp. 58-69

Session 2 Statistics

Design parametrics & statistical space

Essential Readings

Edward Tufte, 'Graphical Excellence' & 'Graphical Integrity', *Envisioning Information and The Visual Display of Quantitative Information*, (New Haven, 1983), pp. 13-77

RA Fischer, *Statistical Methods: Experimental Design and Scientific Inference*, (Oxford, 1990), pp. 1-34.

Recommended Readings

Arthur Lockwood, *Diagrams: A Visual Survey of Graphs, Maps, Charts and Diagrams for the Graphic Designer*, (London: Studio Vista), 1969, (excerpts)

Matthew B. Miles and A. Michael Huberman, *Qualitative Data Analysis: An Expanded Sourcebook*, (London: Thousand Oaks), 1994, (excerpts)

Joachim Krausse, 'Information at a glance: On the history of the diagram', *OASE* No. 48 (1998), pp. 3-28

Session 3 Emergence

Self-organisation & complexity as a design tool

Essential Readings

Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities and Software* (London: 2001), pp. 11-23; 227-234

John H. Holland, 'Maps, Game Theory and Computer-based Modelling', *Emergence: from chaos to order* (Oxford: 1998), pp. 28-52

Sanford Kwinter, 'Soft Systems', *Culture Lab 1*, Brian Boigon ed., (Princeton, 1993), pp. 208-227 **[ON DESIGN AS RESEARCH I SHELF]**

Recommended Readings

John Frazer, 'A Natural Model for Architecture' and 'New Tools', *An Evolutionary Architecture* (London: 1995), pp. 9-64

Brian Goodwin, *A science of Qualities, A summary of the Argument, How the Leopard Changed its Spots: The Evolution of Complexity*, pp. IX-XIV, 182-220

Stuart Kaufmann, 'In Search of Excellence', *At Home in the Universe* (Oxford: 1995), pp. 245-271

M. Mitchell Waldrop, 'Work in Progress', *Complexity* (New York, 1992), pp. 324-59

Session 4 Networks

Connective space

Essential Readings:

Kevin Kelly, 'No Harmony, All Flux', *New Rules for the New Economy*, (MIT, 1997), pp. 108-117, 161

Manuel Castells, 'The Rise of the Network Society', (Oxford, :1996), pp. 500-509

Albert-Laszlo Barabasi, 'Rich get Richer', *Linked: The New Science of Networks* (Cambridge, Mass.: 2002), pp. 79-92

Recommended Readings:

Mark C. Taylor, 'Emerging Complexity' in *The Moment of Complexity: Emerging Network Culture* (Chicago: University of Chicago Press, 2001), pp. 125-94.

Eric Bonabeau, Marco Dorigo, Guy Theraulaz, *Swarm Intelligence: From Natural to Artificial Systems* (New York: 1999)

Felix Guattari, 'Regimes, Pathways, Subjects, transl. Brian Massumi, *Zone 1* (New York, Urzone, 1992), pp. 16-37

Mark. C. Taylor, 'Network Architecture', *Hunch: the Berlage Institute report No. 6/7* (Rotterdam: 2003), pp. 443-445

William j. Mitchell, 'Soft Cities', *City of Bits: Space, Place and the Infobahn*, (MIT, 1994), pp. 107-131

Session 5 Cybernetics and Non-Organic Life

command, control, and communicate

Essential Readings:

Jordan Crandall, *Operational Media, C-Theory: Theory, Technical, Culture 32* (1/6/2005). URL: <http://www.ctheory.net/articles.aspx?id=441#bio>

Manuel Delanda, *Non-organic Life, Incorporations: Zone:6*, eds. Jonathon Crary & Sanford Kwinter (New York: urzone, Inc., 1992) pp.129-166

Heinz von Foerster, (1972) *Perception of the Future and the Future of Perception* *Instructional Science 1* (1):pp. 31–43 **[PRINT OUT ON SHELF]**

Recommended Readings:

Manuel Delanda, 'Introduction', *War in the Age of Intelligent Machines* (New York: Swerve Editions., 1991), pp.1-10

Donna J. Harroway, 'A Cyborg Manifesto: Science, Technology, and Socialist Feminism in the Late Twentieth Century', in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), pp.149-181

Stephen Pfohl, *The Cybernetic Delirium of Norbert Wiener*, *C-Theory: Theory, Technical, Culture 32* (1/30/1997). URL: <http://www.ctheory.net/articles.aspx?id=86>

Georges Canguilhem, 'Machine and Organism', transl. Mark Cohen and Randall Cherry, *Zone1* (New York: Urzone), pp. 44-69

Session 6 Ambience

Sampling and stochastic techniques

Essential Readings:

Steve Reich, 'Early Works (1965-68)', 'Music as a Gradual Process', 'The Phase Shifting Pulse Gate', *Writings on Music 1965-2000*, ed. With an introduction by Paul Hillier (New York: Oxford University Press, 2002), pp. 19-31, 34-36

Brian Eno & Kevin Kelly, 'Eno Philosophy', *Wired*, May 1995, pp. 147-51, 204-9 **[PRINT OUT ON SHELF]**

Marc Treib, *Space Calculated in Seconds: The Philips Pavilion by Le Corbusier and Edgard Varese* (New York: Princeton University Press, 1996)

Recommended Readings:

Mark Prendergast, 'Foreword', 'Minimalism, Eno and the New Simplicity', *The Ambient Century: From Mahler to Trance—the Evolution of Sound in the Electronic Age*, foreword by Brian Eno (London: Bloomsbury, 2000), pp. xi-ii & 91-177

Aaron M. Shatzman, 'The Sound of Minimalism: Philip Glass in Concert and on Record', in Richard Kostelanetz, ed. *And intro., Writings on Glass: Essays, Interviews Criticism* (New York: Schirmer Books, 1997), pp. 279-86

Session 7 Fractals

Self-similarity v. typology

Essential Readings:

Benoit Mandelbrot, 'Theme' and 'The Irregular and Fragmented in Nature', *The Fractal Geometry of Nature* (New York, 1977), pp. 1-13.

Gilles Deleuze & Felix Guattari, '1440: The Smooth and the Striated', *A Thousand Plateaus* (London: 1987), pp. 474-500

Recommended Readings:

Cecil Balmond, 'Fractile', in *Informal*, Cecil Balmond and Januzzi Smith, Christian Brensing (ed.), (Munich, 2002), pp. 243-64

Session 8 Algorithms Evolutionary design & programming

Essential Readings:

Manuel de Landa, 'Deleuze and the Use of the Genetic Algorithm', *Contemporary Techniques in Architecture*, Ali Rahim, ed., (London, 2002), pp. 9-12

Karl Chu, 'The Unconscious Destiny of Capital (Architecture in Vitro / Machinic in Vitro)', in Neil Leach (ed.), *Designing for a Digital World* (Chichester, 2002), pp. 127-133.

Brian Goodwin, 'The Evolution of Generic Forms', *How the Leopard Changed its Spots* (New York, 1994), pp. 115-168

Recommended Readings:

John Maeda, 'Commands' and 'Line', *Design by Numbers* (Cambridge, Mass., 1999), pp. 23-33 and John Maeda, 'Begin', in *Maeda and Media* (London, 2000), pp. 17-64.

Joshua Davis, *Macromedia Flash to the Core* (Indianapolis, 2002), pp. 64-66

Manuel de Landa, 'The Case of Modelling Software', in ed. Jaime Salazar et al, *Verb Processing: Architecture Boogazine* (Barcelona, 2002), pp. 131-42

Karl Chu, 'The cone of immanescence. . .', *Any*. No. 23: *Diagram Work* (New York: 1998), pp. 39-42

Karl Chu, 'De Landa', *Verb: architecture boogazine* (Barcelona: 2001), p. 143

Daniel Kohanski, 'Is there an aesthetic of programming', *The Philosophical Programmer* (New York, 1998), pp. 10-18.

Friedrich Kittler, 'There is no software', David Berlinski, 'Preface: The digital bureaucrat', 'The intelligent artifact' and 'The algorithm takes command', *The Advent of the Algorithm* (San Diego: 2000), pp. xi-xiv, 255-65, 322-25.

Martin Davis, 'Beyond Leibniz's Dream', *Engines of Logic: Mathematics and the origin of the computer* (New York, 2000), pp. 199-207