

Seminario tematico. Prof. Giuseppe Ridolfi

EXPLORING **AI** ENVIRONMENTAL DESIGN

A critical architectural investigation upon eco-disaster & digital dreams

Lingua d'insegnamento

Inglese

Docenti

Proff.: Giuseppe Ridolfi, Laura Andreini, Giulio Giovanoni.

Assistenti e lettori: Andrea Benelli, Arber Marra, Chiara Mezzabotta, Arman Saberi

Inquadramento

Il seminario tematico indaga il rapporto tra condizione ambientale e prospettive progettuali aperte dall'avvento dell'intelligenza artificiale attraverso metodologie di ricerca radicale basate sulla fabulazione speculativa applicate a figurazioni architettoniche capaci di porsi come oggetti esperienziali di riflessione critica oltre il dualismo uomo/ambiente e techne/natura.

Articolazione e crediti formativi

Il seminario si svolge in due moduli didattici con assegnazione di corrispondenti crediti formativi come di seguito elencati:

Primo Modulo: Critical Research, Story Telling & Design Visioning (4 CFU)

Secondo Modulo: Design Development, Project Communication & Exhibition (6 CFU)

L'articolazione dei temi e degli impegni previsti per ogni modulo didattico è specificata nell'allegato Calendario delle lezioni.

Ammissione

La partecipazione è consentita agli studenti regolarmente iscritti al terzo anno o superiori dei corsi di Laurea dell'Università degli Studi di Firenze, previa selezione d'idoneità su curriculum e comunque in un numero minimo di 8 studenti il cui raggiungimento è requisito indispensabile per l'attivazione del seminario.

È consentita l'iscrizione anche a un solo modulo.

Risultati

Il seminario prevede una formazione generale indirizzata:

- all'apprendimento delle principali tematiche del dibattito ambientalista
- alla conoscenza dei fondamenti teorici delle tecnologie di generazione visuale basate sull'intelligenza artificiale con particolare riferimento alla progettazione architettonica e visiva

e in relazione ai due moduli didattici le seguenti capacità:

primo modulo:

- scrittura narrativa e uso di strumenti di generazione di testi basati su algoritmi di intelligenza artificiale
- generazione di immagini e concept architettonici basati su algoritmi di intelligenza artificiale
- grafica editoriale
- elaborazione di saggi teorici

secondo modulo

- generazione video e animazioni architettoniche basate su algoritmi di intelligenza artificiale
- modellazione tridimensionale e rendering
- animazione in computer grafica
- video editing non lineare
- grafica editoriale
- allestimento

Tema

Il seminario ha come tema di progetto: *The Great Vortex Exodus* in cui si propone la colonizzazione della più grande isola oceanica prodotta dall'ammasso di rifiuti plastici denominata *The Great Pacific Garbage Patch* o altrimenti nota come *The Pacific Trash Vortex* sita tra la California e l'arcipelago delle Hawaii.

Attività

Il seminario prevede le seguenti attività:

- letture critico-teoriche
- analisi quali-quantitative con rappresentazioni info-grafiche e ideogrammatiche
- workshop collettivi e tavoli tematici di discussione
- scrittura narrativa
- generazione artificiale di figurazioni architettoniche
- modellazione tridimensionale e rendering
- animazione in computer grafica e/o fabbricazione digitale
- video editing non lineare
- elaborazione di saggi teorici
- grafica editoriale
- allestimento

Modalità di verifica

La verifica si svolge mediante valutazioni intermedie finalizzate a valutare i seguenti risultati conseguiti nei differenti moduli didattici:

- capacità individuali di ricerca, analisi critica, ed elaborazione teorica
- attitudini collaborative e capacità di confronto pubblico

- padronanza degli strumenti di rappresentazione grafica di dati e concetti
- originalità ed efficacia della comunicazione narrativa
- padronanza degli strumenti di generazione artificiale di contenuti testuali e visivi
- capacità di interpretazione digitale tridimensionale di manufatti e luoghi architettonici
- padronanza delle tecnologie di video animazione ed editing non lineare
- padronanza delle tecnologie di post-produzione delle immagini
- eventuale capacità avanzate di fabbricazione digitale
- capacità curatoriali e maturità estetica
- attitudini collaborative

La valutazione di profitto finale avviene in maniera sintetica attraverso votazione espressa in trentesimi per ogni singolo modulo didattico.

Collaborazioni

Il seminario è svolto in collaborazione con lo spazio espositivo *Rifugio Digitale* che ospiterà l'allestimento finale e comunicazioni di esperti. Le attività computazionali saranno svolte con il supporto delle risorse del Laboratorio di Ateneo MAILAB | *Multimedia Architecture Interaction*.

Bibliografia

- Agamben G. 2008, *Che cos'è il contemporaneo?*, Nottetempo, Roma. Baumgarten A. G., 2002, *Estetica, Aesthetica*, Palermo (orig. ed. 1750).
- Auge M. 2007, *Un mondo mobile e illeggibile*, in Augé M., *Tra i confini*, Bruno Mondadori, Milano.
- Austin J., 2017, *Senso e sensibilia*, Casa Editrice Marietti, 2017, Bologna (orig. ed. 1962).
- Badiou A. 2011, *Il concetto di modello. Introduzione ad una epistemologia materialista della matematica*, Asterios Editore, Trieste, (orig. ed. 1969).
- Barad K. 2007, *Meeting the Universe Halfway. Quantum Physics and the Entanglement of Matter and Meaning*, Duke University Press, Durham & London.
- Baumgarten, A. G., 2002, *Estetica, Aesthetica*, Palermo (orig. ed. 1750).
- Berger A. 2006, 'Drosscape', in Waldheim C. (editor), *The Landscape Urbanism Reader*, Princeton Univ. Press, pgg. 197-217.
- Bernstein P. 2022, *Machine Learning Architecture in the Age of Artificial Intelligence*, Riba, London
- Brady E. 2013, *The Sublime in the Modern Philosophy. Aesthetics, Ethics, and Nature*, Cambridge University Press, Cambridge.
- Burke E. 1990, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beauty*, , Oxford University Press, Oxford (1st ed. 1757).
- Burtynsky E., Baichwal J., De Pencier N., 2019, *Anthropocene*, Art Gallery of Ontario, Toronto.
- Calvino I. 1974, *Le città invisibili*, Giulio Einaudi, Torino.
- Chaillou . (2019), *AI+Architecture. Towards a New Approach*, Harvard, Cambridge Massachusetts
- Clark R. H., Pause M. 1996, *Precedents in Architecture. Analytic Diagrams, Formative Ideas, and Parts*, John Wiley & Sons, Inc, 2012 Hoboken, New Jersey. (1st ed. 1985).
- Dardot P. 2016, *Senso comune e senso «del» comune. Le pratiche istituenti dell'Aisthesis*. <<https://operavivamagazine.org/senso-comune-e-senso-del-comune/>>.
- Dehaene M., De Cauter L. 2008, *Heterotopia and the City. Public Space in a postcivil society*, Routledge, Oxon-NYC.

- de Solà-Morales I. 1995, 'Terrain Vague', in Davidson, C. (editor), *Anyplace*, MIT Press, Cambridge, pp. 118-123.
- Eisenmann P. 2010, 'Diagram. An original Scene of Writing'. in Garcia M., (editor) *The Diagrams of Architecture*, John Wiley & Sons Ltd, Chichester, West Sussex, pp. 92-103.
- Fargione D. 2016, *Oltre l'antropocentrismo. Il sublime ecologico nel contesto anglo-americano* <<https://iris.unito.it/retrieve/handle/2318/1556908/161501/FARGIONE.Sublime.pdf>>.
- Finn E. 2018, *Cosa vogliono gli algoritmi. L'immaginazione nell'era dei computer*, Giulio Einaudi Editore, Torino (orig. ed. 2017)
- Foucault M. 2016, *Le parole e le cose*, Rizzoli, Milano, (orig. ed. 1966).
- Foucault M. 2011, *Spazi Altri*, Mimesis Edizioni, Milano (orig. ed. 1967).
- Frazer, J. 1995, *An Evolutionary Architecture*, Architectural Association Press, London.
- Garcia M. 2010, 'Introduction: History and Theory of the Diagrams of Architecture', in Garcia M., (editor) *The Diagrams of Architecture*, John Wiley & Sons Ltd, Chichester, West Sussex, pp. 18-45.
- Gero, J.S. 1990, 'Design Prototypes: A Knowledge Representation Schema for Design', in *AI Magazine* 11 (4), pp. 26-36.
- Guala F. 2002, 'Models-Based Reasoning', in Magnani L., Nersessian N.J. (editors), *Model-Based Reasoning*, Springer, Cham, pp. 59-74.
- Harman G. 2017, *Object Oriented Ontology: A New Theory of Everything*, Pelican Books, London.
- Hartmann S. 1996, 'The world as a process: simulations in the natural and social sciences', in R. Hegselmann, U. Mueller, and K. Troitzsch (editors), *Modelling and Simulation in the Social Sciences from the Philosophy of Science Point of View*, Kluwer, Dordrecht, pp. 77-100.
- Haraway D. 2020, *Chthulucene. Sopravvivere in un pianeta infetto*, Nero, Roma (ed. orig. 2016).
- Heidegger M. 1971, 'Building Dwelling Thinking' in Heidegger M. *Poetry, Language, Thought*, Harper Colophon Books, New York, (ed. orig. 1957). <<http://faculty.arch.utah.edu/miller/4270heidegger.pdf>>
- Hitt C. 1999, 'Toward an Ecological Sublime'. In *New Literary History* 30/3: 603-23 <<http://www.jstor.org/stable/20057557>>
- Heterington K. 1997, *The Badlands of Modernity: Heterotopia and Social Ordering*, Routledge, London.
- Johnston, W. A. 2005, 'Third Nature: The co-Evolution of Human Behaviour, Culture, and Technology', in *Non linear Dynamics, Psychology, and Life Science*, vol. 9 n°3, July, 2005, Society for Chaos Theory in Psychology & Life Sciences, pp. 235-280.
- Kaplan, J. 2018 *Intelligenza artificiale. Guida al futuro prossimo*, Luiss University Press, Roma (1st ed. 2017)
- Kipling R. J. 2015, 'The bridge-builders' in Kipling R. J., *Stories and Poems*, OUP, Oxford (1st ed. 1893).
- Koohlaas R. 2006, *Junkspace*, Quolibet, Macerata (orig. ed. 1995).
- Lana S., 2016, *Ipotesi per una comunità estetica. Di alcuni motivi dentro e oltre la Critica del Giudizio di Kant*. <http://www.eticapubblica.it/wp-content/uploads/2016/11/1_2016_Lana.pdf>
- Latour B. 1993, *We Have Never Been Modern*, Harvard University Press, Cambridge.
- Latour B. 2017, *Il culto moderno dei fattici*, Meltemi editore, Milano (orig. ed. 1996).
- Latour B. 2017, *Facing Gaia. Eight Lectures on the New Climatic Regime*, Polity Press, Cambridge (orig. ed. 2015).
- Leach N. 2022, *Architecture in the Age of Artificial Intelligence. An Introduction to AI for Architects*, Bloomsbury, London-New York
- Lovelock, J. 2000, *Gaia – A new look at the life on Earth*, Oxford University Press, Oxford (1st ed. 1979).
- Liotard J. F. 1994, *Lessons on the Analytic of the Sublime*, Stanford University Press, Stanford (CA) (orig. ed. 1991).
- Liotard, J. F. 1995, *Anima Minima. Sul bello e il sublime*, Pratiche Editrice (1st ed. 2011).
- Meadows, D. et alii (1972), *The Limits to Growth*, Universe Book, New York.
- Montani P. 2010, *L'immaginazione intermediale. Perlustrare, rifigurare, testimoniare il mondo visibile*, Edizioni Laterza, Bari.
- Morton T. 2016, *Dark ecology: for a logic of future coexistence*, Columbia University Press, New York.
- Morton T. 2018, *Being Ecological*, Pelican Random House, London.

- Morton T. 2019, *Come un'ombra dal futuro*, Aboca, Sansepolcro. (ed. orig. 2010)
- Muir R. 1999, *Approaches to Landscape*, Mac Millian Press Ltd, London.
- Naabarro, R., Richards, D., Chapman, H. 1980, 'Foreword', in *Wasteland: A Thames Television Report*, London, Thames Television, London.
- Naess, A. (1989), *Ecology, community and lifestyle*, Cambridge University Press, Cambridge. (ed. orig. 1976).
- Olwig, K. 2002, *Landscape, Nature and the Body Politic*, University of Wisconsin Press, Madison
- Oppenlaender, J. 2022, *The Creativity of Text-to-Image Generation* <<https://arxiv.org/abs/2206.02904>>
- Patriarca S. 2018, *Il digitale quotidiano. Così si trasforma l'essere umano*, Castelvechi, Roma
- Ridolfi G. 2018, 'Rethorical figures of an Alpine hut'. in Kane R. , *A landscape of contradiction*, Didapress, Firenze.
- Ridolfi G. 2019 , 'La condizione contemporanea del progetto. Rapporto sul Matema Digitale', in Mussinelli E., Lauria M., Tucci F.(editors) , *La PROduzione del PROgetto*, Maggioli Editore, Santarcangelo di Romagna
- Ridolfi G, Traumnovelle 2019, *Isolation and Reconnection. Ten Bridges at La Maddalena*, Didapress, Firenze.
- Ridolfi G. 2022, 'Landscape and ecological practice when the flood has drowned everything', in: Gensini V.. *Progetto RIVA. Suoni, immagini Racconti sul fiume*, pp. 44-51, Cinesello Balsamo: Silvana Editoriale.
- Serres M. 1995, *The Natural Contract*, , The University of Michigan Press, Ann Arbors (orig. ed. 1992).
- Severino E.1992, *Oltre il linguaggio*, Adelphi, Milano
- Soja E. 1989, *Postmodern Geographies: the reassertion of space in critical social theory*, Verso, London.
- Sonvilla-Weiss S. 2008, *(IN)VISIBLE Learning to Act in the Metaverse*, Springer, Wien-New York
- Steiner F.2008, *The Living Landscape*, Island Press, Washington (1st ed. 2000).
- Tsing A. L.2015, *The Mushroom at the End of the World. On the Possibility of Life in Capitalism Ruins*, Princeton University Press, Princeton & Oxford.
- Vaihinger H. 1935, *The Philosophy of 'As if'. A System of the Theoretical, Practical and Religious Fictions of Mankind*, Harcourt, Brace & Company, New York. (1 ed. 1911).
- Wallis B et alii 2006, *Ecotopia: The Second ICP Triennial of Photography and Video*, Steidl, Gottinga.
- Wisenberg E.B. 2010, *Science in the Age of Computer Simulation*, University of Chicago Press, Chicago-London
- Wylie J. 2007, *Landscape*, Routledge, London & New York.
- Zuboff, S.(2019), *Il capitalismo della sorveglianza. Il futuro dell'umanità nell'era dei nuovi poteri digitali*, Luiss University Press, Roma (orig. ed. 2019)

CLASS SCHEDULE

	1st MODULE: CRITICAL RESEARCH AND DESIGN VISIONING	
UNIT. 1	Seminar Overview & Theoretical Foundation	
	Splash Screening Welcoming	30'
	Seminar Overview. Contents, Program & Enrollment Procedures	30'
	The Post-Environmental Condition. A critical reading on Ecology	30'
	The Great Pacific Garbage Patch. <i>Living Colony on the Great Pacific Garbage Patch</i> by GPGP Utopia	30'
	AI. A new inspirational tool based on Generative Adversal Network algorithms	30'
	Individual Work: Research on The Post Environmental Condition	90'
	Individual Work: Research on The Great Pacific Garbage Patch (GPGP)	120'
UNIT 2	Als Ob. Different and critical approaches to model Reality and Designing	
	Fictions and Metaphors. Sublime Experience to grab the World	30'
	Radical Architecture defining new inhabit paradigms and other Architectural Exoduses	30'
	Story Telling. <i>Ten Bridges at La Maddalena</i> by G.Ridolfi & Traumnovelle	30'
	Other spaces. Sprawl and Drosscape experiencing the world peripheries	60'
	How to build a City based on Roman Operating System by R. Koohlaas	30'
	Individual Work: Which place could I imagine for the GPGP's territory?	60'
	Interactive Workshop: Defining the GPGP landscape identity and places articulation	60'
UNIT 3	Design Inception	
	Morning Briefing and Introduction to GPTChat	30'
	<i>La casa di...</i> A fictional approach and videomapping installation for architectural design	30'
	Individual Work: Looking for Characters and his story's fabrication	90'
	Midterm Briefing: Story Telling and Collective Discussion	90'
	Group Work: Refining the story and how to present it	60'
	Final Briefing: Final stories reading and comments	60'
UNIT 4	Design Development	
	Morning Briefing and introduction to AI image generation	30'
	How to work with text to image online software	60'
	Individual Work: image generation	90'
	Midterm Review: Generated Image screening and Critique	90'
	Group Work: Image versioning	90'
UNIT 5	Finals	
	Morning Briefing	30'
	Finals installation	90'
	Screening & Exhibition View	120'
	Conclusory Round Table	120'
UNIT 6	Finissage for Exhibition	
	Exhibition installation	120'

	2nd MODULE: PROJECT DEVELOPMENT	
UNIT 1	Seminar Overview, & AI animation	
	Splash Screening Welcoming	30'
	Seminar Overview. Contents, Program & Enrollment Procedures	90'
	Artificial Intelligence Animation	60'
	Individual Work: on AI Animation	120'
	Animation Review	60'
UNIT 2	Architectural Video Animation	
	Morning Briefing	30'
	From 2D to 3D Video animation	60'
	Individual Work: Path and strategies setting for video animation	90'
	Midterm Briefing: Proposals review	60'
	Individual Work: Video animation tests	120'
UNIT 3	Film Making Techniques	
	Morning Briefing	30'
	Film making. Non linear editing, Post production, Visual and motion graphic effects.	120'
	Individual Work: Film making tests	150'
	Class screening & Critique	60'
UNIT 4	Proposal Development	
	Morning Briefing	30'
	Individual work and review	240'
	Class screening & Critique	90'
UNIT 5	Finissage	
	Morning Briefing	30'
	Individual work and review	240'
	Presentation rehearsal	90'
UNIT 6	Finals & Exhibition	
	Exhibition installation	120'
UNIT 7	Exhibition & conference preparation	
	Exhibition installation and dismanteling	

EXPLORING **AI** ENVIRONMENTAL DESIGN

An architectural investigation upon eco-disaster & digital dreams

Language

English

Teachers

Proff. Giuseppe Ridolfi, Laura Andreini, Giulio Giovanoni,

Assistants and Adjunct Lecturers: Andrea Benelli, Arber Marra, Chiara Mezzabotta, Arman Saberi

Contents

The thematic seminar investigates the relationship between environmental conditions and design perspectives opened by the advent of artificial intelligence through radical research methodologies based on speculative fabulation applied to architectural figurations capable of acting as experiential objects for a critical reflection beyond the dualism man/environment and techne /nature .

Articulation and Credits

The seminar takes place in two teaching modules with the assignment of corresponding training credits as listed below:

First Module: Critical Research, Story Telling & Design Visioning (4 CFU)

Second Module: Design Development, Project Communication & Exhibition (6 CFU)

The contents of each module is specified in the CLASS CALENDAR.

Admission

This seminar is open to students regularly enrolled in the third year of the degree courses of the University of Florence. The enrollment is based on a preliminary students' curriculum evaluation.

The activation requires a minimum of 8 students.

Enrollment is also allowed for single modules in order to get the relative credits.

Results

The seminar includes general training aimed at:

- learning the main themes of the environmental debate
- knowledge of the theoretical foundations of visual generation technologies based on artificial intelligence with particular reference to architectural and visual design

and in relation to the two teaching modules the following skills:

first module:

- narrative writing and use of text generation tools based on artificial intelligence algorithms
- generation of images and architectural concepts based on artificial intelligence algorithms
- editorial graphics
- development of theoretical essays

second module

- video generation and architectural animations based on artificial intelligence algorithms

- three-dimensional modeling and rendering
- computer graphics animation
- non-linear video editing
- editorial graphics
- installation setup

Methods of verification and expected

The verification takes place through intermediate evaluations aimed at evaluating the following results achieved in the different teaching modules:

- individual skills in research, critical analysis, and theoretical elaboration
- collaborative attitudes and public presentation
- skills in data and concepts graphical presentation
- originality and effectiveness of narrative communication
- skills in artificial generation of textual and visual contents
- ability in architectural sites and artifacts 3D digital modeling
- mastery of video animation and non-linear editing technologies
- mastery of image post-production technologies
- advanced digital manufacturing capabilities
- curatorial skills and aesthetic maturity
- collaborative attitudes

The evaluation of the final profit takes place in a synthetic way through a grade expressed out of thirty for each single teaching module.

Theme

The design theme of the seminar is ***The Great Vortex Exodus*** for the colonization of the largest oceanic island produced by the mass of plastic waste called *The Great Pacific Garbage Patch* or otherwise known as *The Pacific Trash Vortex* located between California and the Hawaiian archipelago.

Activities

The seminar includes the following activities:

- critical-theoretical readings
- qualitative-quantitative analyzes with info-graphic and ideogrammatic representations
- collective workshops and thematic discussion tables
- narrative writing
- artificial intelligence generation of architectural images
- three-dimensional modeling and rendering
- computer graphic animations and/or digital fabrication
- non-linear video editing
- elaboration of theoretical essays
- editorial graphics
- exhibition installation

Collaborations

The seminar is held in collaboration with the exhibition space *Rifugio Digitale* which will host the final installation and communications from experts. The computational activities will be carried out with the support of the resources of the University Laboratory MAILAB | *Multimedia Architecture Interaction*.

