



Spring, 2026, Fridays 11:00 – 12:50 PM | Room 322

Revised 12 November 2025

1 - Abstract: Architecture is not immune to the opportunities and threats of artificial intelligence, a technology that will change the nature of design and practice in myriad ways. Unlike predecessor tools like CAD or BIM, this new class of tools acts with independence, challenging the roles, responsibilities, processes and fundamental agency of architects and the systems in which they operate. Through direct experimentation, reading and discussion, and lectures from experts in the field, this course will develop an understanding of the trajectories of AI technology, interrogate the process implications of autonomous generative algorithms, and explore larger socio-economic and ethical questions as machines fill larger roles in the discipline and the society it serves. This course may, at the student's discretion, fulfill area study requirements in Visualization, History/Theory, or Technology and Practice.

2 – Course Objectives: The course is designed to achieve the following learning objectives:

1. Understand and use current AI tools relevant to architectural design and practice.
2. Understand and critique the landscape of platform and emergent AI solutions in the AEC marketplace.
3. Examine, evaluate, and analyze the implications of AI technology for the discipline of architecture
4. Analyze potential implications for the role of the architect if and when machines begin to operate autonomously.
5. Critique the broader social implications of AI through the lens of the built environment.
6. Develop a project that establishes a critical stance on the use and implications of artificial intelligence in the profession.

3 – Students/Prerequisites: None

4- Class design, schedule: The class will progress from a narrow to broad focus in the following segments:

DIRECT USE – exposure to current tools and their approach and their relationship to architectural services.

DISCIPLINARY IMPACT – exploration of the implications of AI to design practice systems and networks.

SOCIETAL and ENVIRONMENTAL IMPACT – investigations into the cultural, social, and ethical implications of the widespread implementation of AI.

Class meetings are Fridays, from 11:00 to 12:50 AM Fridays in Room 322 and will be comprised of lectures, workshops, and/or section meetings.

5 - Requirements: Requirements include participation in weekly discussions and completion of a sequence of exercises that culminate in a final project or paper. Grades will be awarded based on total points accumulated on these assignments on the following scale:

90-100	High Pass
75 – 89	Pass
74-70	Low Pass
69 or below	Fail

Grading will be computed as follows: class participation comprises 15% of this grade, reading responses/class exercises and presentations 15%, semester assignments/exercises comprise 30%, and the final project 40% (5% for the preliminary submission and 50% for the final submission). Final projects will be presented in jury format during Final Exam period (see IMPORTANT NOTE below).

As participation is a critical component of the success of this class, only one unexcused absence will be permitted per student during the semester to pass this course.

Assignments are due at 11:00 PM on the day of submission (usually Thursday), so we have time to compile them and prepare things for Friday morning. **Late submissions will be penalized** 1 point for each day late but must be completed irrespective of submission date to pass the course. Late submissions may not be available for presentation during Friday classes, so please take these deadlines seriously.

6 - Instructor contact information:

Instructors:

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(203) 675 - 7065 Course Assistant:

7 – Course structure, class schedule and outcomes:

PART 1 – DIRECT USE

Class 1 - 1/16/26: Course hypothesis (lecture): Artificial intelligence as we know it today is the result of decades of theoretical and technical development. This lecture will outline that history and present three possible hypotheses for an architectural future catalyzed by AI.

Class 2 – 1/23/26: Current AEC models (lecture): Developments in AI technology evolve almost weekly. This discussion will outline the recent “micro-history” of the technology in the past two years, and then focus on developments unfolding in late 2025.

Class 3 – 1/30/26: Reading discussion 1, Assignment 1 (desk crits)

Reading:

1. Vishnoi, Nisheeth K. 2024. “How Machines Learn to Write.” Various Things I Think About (Substack), May 30, 2024. <https://nisheethvishnoi.substack.com/p/how-machines-learn-to-write>.

2. Anderson, Stanford. 1966. "Problem Solving and Problem Worrying." Lecture, Architectural Association and Cranbrook Academy of Art. http://web.mit.edu/soa/www/downloads/1963-69/TH_AA Lond-Lect_66.pdf.
3. Assigned Technical Article from last 5-10 years (read with the help of an LLM). List Provided

Class 4 – 2/6/26: PINUP of Assignment 1

(2/9 – 2/13 – Advanced studio travel week)

PART 2 – DISCIPLINARY IMPACT

Class 5 – 2/16/26 (Monday seminar make-up day): Design and practice (lecture): What are the structural and economic implications of automated labor and computation on the structure and approach to architectural practice—it's obligations, organization, risk/reward strategies, and future demands?

READING:

1. Ashcraft, Howard W. 2010. "The Integrated Form of Agreement." *Construction Lawyer* 30 (3): 1–8.
2. Susskind, Richard, and Daniel Susskind. 2015. "Change." In *The Future of the Professions: How Technology Will Transform the Work of Human Experts*, 9–43. Oxford: Oxford University Press.

Class 6 – 2/20/26: Assignment 2 (desk crits)

Class 7 – 2/27/26: Delivery networks (lecture): Architecture operates in networks of delivery players, relationships, and exchanges of information, value, and risk. This talk will explore the impact of AI across delivery models, with particular focus on the relationship between architects and builders.

READING:

1. Bernstein, Phillip G. 2018. "Designing Design: Optimizing, Solving, Selecting." In *Architecture, Design, Data : Practice Competency in the Era of Computation*. Basel, Birkhauser. 102-113."
2. Chaillou, Stanislas. "Structures." In *Artificial Intelligence and Architecture: From Practice to Research*. 2025. (2nd Edition). Basel: Birkhauser.
3. Bernstein, Phil. 2025. "Delivery, Means and Methods." *Machine Learning: Architecture in the Era of Artificial Intelligence*. Basel: Birkhauser. 68-78

(3/2 – 3/9, Midterm reviews; 3/7 – 3/22, Spring break)

PART 3 – SOCIETAL AND ENVIRONMENTAL IMPACT

Class 8 – 3/27/26: Assignment 2 interim reviews (pinup)

Class 9 – 4/3/26: Cultural, social, economics impacts (lecture): In addition to changes to workflow, disciplinary knowledge, and project delivery methods, architecture and architects will confront changes to culture more broadly: the capacity of imagery and visual representation to convey truth, the status of design expertise and role of the architect, our relation to other cultural fields, and clients' sensibility and patterns of consumption. AI technologies will put pressure on the

structuring of knowledge we privilege in the profession and the order of operations by which we define and solve design problems.

READING:

Busta, Caroline. 2019. "Playing the Algorithm: Art, Instagram, and the Attention Economy." New Models. <https://newmodels.io/posts/playing-the-algorithm>

Class 10 – 4/10/26: Ethical implications: environment and labor (lecture and reading discussions): How might AI contribute (for greater or worse) to one of the most pressing collective action problems facing society today, climate change? What might it mean for labor and economics? Scientific advancement and existential risk? AI suggests the promise to help evolve solutions but also exacerbate each of these problems. This session will be a debate on key issues and recommendations.

READING:

1. Crawford, Kate. 2021. "Earth." In *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*, 1–32. New Haven, CT: Yale University Press.
2. Strubell, Emma, Ananya Ganesh, and Andrew McCallum. 2019. "Energy and Policy Considerations for Deep Learning in NLP." *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, 3645–3650. <https://arxiv.org/abs/1906.02243>

Class 11 – 4/17/26: Assignment 2 progress review (pinup)

PART 4 – FUTURE OF THE PROFESSION

Class 12 – 4/24/26: Speculations on the future (lectures and discussion): This class will feature several provisional efforts at foresight in where architecture goes from here. How can a new graduate position themselves to enter their career in the age of AI?

Class 13 – 5/8/26 10:00 AM to 12:50 AM: FINAL PROJECT REVIEW

8 - Bibliography

1. Agrawal, A., Gans, J., & Goldfarb, A. (2018). *Prediction Machines: The Simple Economics of Artificial Intelligence*. Boston, MA: Harvard Business Review Press.
2. Bender, E. M., Gebru, T., McMillan-Major, A., & Mitchell, M. (2021). "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?" In *FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*.
3. Bernstein, P. (2018). *Architecture, Design, Data: Practice Competency in the Era of Computation*. Basel: Birkhäuser.
4. Bernstein, P. G. (2022. Second edition 2025). *Machine Learning: Architecture in the Era of Machine Intelligence*. London: Royal Institute of British Architects Publications.
5. Burkov, A. (2019). *The Hundred-Page Machine Learning Book*. [Quebec City, Canada]: Andriy Burkov.
6. Carpo, M. (2017). *The Second Digital Turn: Design Beyond Intelligence*. Cambridge, MA: The MIT Press.
7. Chaillou, S. (2022). *Artificial Intelligence and Architecture: From Research to Practice*. Basel, Switzerland; Boston, MA: Birkhäuser Verlag GmbH. (Second edition 2025)
8. Chayka, K. (2024). *Filterworld: How Algorithms Flattened Culture*. New York, NY: Doubleday.
9. Christian, B. (2020). *The Alignment Problem: Machine Learning and Human Values*. New York, NY: W.W. Norton & Company.

10. Company, M. (2020). *The Next Normal in Construction: How Disruption Is Reshaping the World's Largest Ecosystem*.
11. Crawford, K. (2021). *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*. New Haven, CT: Yale University Press.
12. Asadi, E., Lin, B., & Chen, I. (2018). "Pictobot: A Cooperative Painting Robot for Interior Finishing of Industrial Developments." *IEEE Robotics & Automation Magazine*, 25(June): 13.
13. Folkens, B. (2017). *Chihuahua or Muffin*. CloudSight. Retrieved from <https://blog.cloudsight.ai/chihuahua-or-muffin-1bdf02ec1680>.
14. Gebru, T., Bender, E. M., McMillan-Major, A., & Mitchell, M. (2021). "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?" *FAccT '21*. Virtual, Canada.
15. Gille, B. (1986). *History of Techniques* (Vols. 1–2). New York, NY: Gordon and Breach Science Publishers.
16. Illich, I. (1977). *Disabling Professions*. London; Salem, NH: M. Boyars.
17. Jha, S. (2020). "Can You Sue an Algorithm for Malpractice? It Depends." *STAT*.
18. Johnston, G. B. (2008). *Drafting Culture: A Social History of Architectural Graphic Standards*. Cambridge, MA: MIT Press.
19. Leach, N. (2020). "Do Robots Dream of Digital Buildings?" *1st International Conference on Computational Design and Robotic Fabrication (CDRF 2019)*, Beijing, China: Springer.
20. Lee, K.-F. (2021). "Why Computers Don't Need to Match Human Intelligence." *WIRED*.
21. Marcus, G., & Davis, E. (2019). *Rebooting AI: Building Artificial Intelligence We Can Trust*. New York, NY: Pantheon Books.
22. Metz, C. (2016). "One Genius' Lonely Crusade to Teach a Computer Common Sense." *WIRED*, Conde Nast.
23. Negroponte, N. (1970). *The Architecture Machine*. Cambridge, MA: MIT Press.
24. Neufert, E., Neufert, P., Baiche, B., & Walliman, N. (2000). *Architects' Data*. Malden, MA: Blackwell Science Publishers.
25. Pearson, C. A. (2021). "Continuing Education: Artificial Intelligence." *Architectural Record*. New York.
26. Rowe, P. G. (1982). "A Priori Knowledge and Heuristic Reasoning in Architectural Design." *Journal of Architectural Education*, 36(1): 18–23.
27. Russell, S. J. (2019). *Human Compatible: Artificial Intelligence and the Problem of Control*. New York, NY: Viking.
28. Russell, S. J., & Norvig, P. (2021). *Artificial Intelligence: A Modern Approach*. Hoboken, NJ: Pearson.
29. Steenson, M. W. (2017). *Architectural Intelligence: How Designers and Architects Created the Digital Landscape*. Cambridge, MA: The MIT Press.
30. Susskind, D. (2020). *A World Without Work: Technology, Automation, and How We Should Respond*. New York, NY: Metropolitan Books/Henry Holt & Company.
31. Susskind, R. E., & Susskind, D. (2015). *The Future of the Professions: How Technology Will Transform the Work of Human Experts*. Oxford, United Kingdom: Oxford University Press.
32. Wagner, K., & Cepl, J. (2014). *Images of the Body in Architecture: Anthropology and Built Space*. Tübingen: Wasmuth.
33. Weizman, E. (2017). *Forensic Architecture: Violence at the Threshold of Detectability*. Brooklyn, NY; Cambridge, MA: Zone Books/MIT Press.
34. Witt, A. (2021). "Shadow Plays: Models, Drawings, Cognitions." *LOG: Model Behavior*, 50: 29–38.

End of Syllabus

[https://yaleedu-my.sharepoint.com/personal/samuel_omans_yale_edu/Documents/ARCH 2300 Scales of Intelligence Spring 2025/Syllabus/Scales of Intelligence Syllabus.docx](https://yaleedu-my.sharepoint.com/personal/samuel_omans_yale_edu/Documents/ARCH%20300%20Scales%20of%20Intelligence%20Spring%202025/Syllabus/Scales%20of%20Intelligence%20Syllabus.docx)

6100b-S26: Scales of Intelligence: AI, Agency, and Architecture
Syllabus Summary

Note all readings are listed on due date

Updated		1/15/26 18:52						
Theme	Class	Date	Description	Format	Assignment	Reading 1	Reading 2	Reading 3
Direct Use	1	1/16/26	3 Hypotheses, Technical Demo	Sam Lecture on the history of technological determinism, 3 Hypothesis about the future	None	NA	NA	NA
	2	1/23/26	Current AEC Models: recent developments in Arch-specific AI applications	Lecture on micro history (Phil, Brennan), then last 6 months, (Sam Vin)	Assign 1: Individually choose one portion of arch services to simulate w/ MCP or AutoDesk Foundation model (AFM) or other software listed	NA	NA	NA
	3	1/30/26	Desk Crits: Assignment 1, Draft	Half Reading presentations, Half Desk Crits on Assign 1	Assign 1 draft: first reaction, technical hurdles, reading presentation	Vishnoi, Nisheeth K. 2024. "How Machines Learn to Write." Various Things I Think About (Substack), May 30, 2024. https://nisheethvishnoi.substack.com/p/how-machines-learn-to-write .	Anderson, Stanford. 1966. "Problem Solving and Problem Worrying." Lecture, Architectural Association and Cranbrook Academy of Art. http://web.mit.edu/soa/www/downloads/1963-69/TH_AA_Lond-Lect_66.pdf .	Assigned Technical Article from last 10 years (read with the help of an LLM)
	4	2/6/26	Pinup: Assignment 1	Pinup	Assign 1 final: findings and speculation on near term capabilities.	NA	NA	NA
5 2/9 - 2/13 Advanced Studio Travel Week								
Disciplinary Impact	5	2/16/2026 seminar makeup day	Design and practice: economics, project structure and implication of tools/modalities	Phil lecture, with possible guest	(Reading)	Ashcraft, Howard W. 2010. "The Integrated Form of Agreement." Construction Lawyer 30 (3): 1-8.	Suskind, Richard, and Daniel Suskind. 2015. "Change." In The Future of the Professions: How Technology Will Transform the Work of Human Experts, 9-43. Oxford: Oxford University Press.	NA
	6	2/20/26	Pinup: Assignment 2 Proposal	Desk Crits	Assign 2 (final project) proposal: Speculative application of MCP, AFM, or other, 3 sentences	NA	NA	NA
	7	2/27/26	Delivery Networks: Impacts on and of Adjacent Disciplines	Phil intro, Alexis McGuffin, Suffolk Construction & Developer or other guests	(Reading)	Bernstein, Phillip G. 2018. "Designing Design: Optimizing, Solving, Selecting." Architecture, Design, Data : Practice Competency in the Era of Computation. Basel, Birkhauser. 102-113.	Chailou, Stanislas. "Structures." Artificial Intelligence and Architecture: From Practice to Research. 2025. (2nd Edition). Basel: Birkhauser.	Bernstein, Phil. 2025. "Delivery, Means and Methods." Machine Learning: Architecture in the Era of Artificial Intelligence. Basel: Birkhauser. 68-78
3/2 - 3/6 Mid-Terms Reviews - Studio classes 3/7 - 3/22 Spring Recess								
Societal & Environmental Impact	8	3/27/26	Interim review of emergent projects	Student Presentations in sections	Assign 2 draft due			
	9	4/3/26	Cultural environment of practice, Social economic Impacts	Half Brennan lecture, Half reading discussions	Reading Presentation	Busta, Caroline. 2019. "Playing the Algorithm: Art, Instagram, and the Attention Economy." New Models. https://newmodels.io/posts/playing-the-algorithm	NA	NA
	10	4/10/26	Ethics: Environmental and Labor Impacts	Half Lecture? Half reading discussions	Reading Presentation	Crawford, Kate. 2021. "Earth." In Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence, 1-32. New Haven, CT: Yale University Press.	STRUBEL, EMMA, ANANYA GANESE, and Andrew McCallum. 2019. "Energy and Policy Considerations for Deep Learning in NLP." Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics, 3645-3650. https://arxiv.org/abs/1906.03742	Sasha Luccioni, Policy Primer https://www.sashaluccioni.com/assets/AI%20+%20Environment%20Primer%20(Hugging%20Face).pdf
Project Reviews	11	4/17/26	Project updates	Section pin-ups	Assign 2 Drafts due (review)	NA	NA	
Future of Profession	12	4/24/26	Speculations on the near- and mid-term implications for the future	3 x 10 minute lectures followed by discussion	none	NA	NA	
4/27 - 5/1 Final Reviews								
FINAL	13	5/8/26	FINAL Review	Presentations	Final Assignment			