THE SHIFTING ROLE OF ARCHITECTS AS CURATORS IN THE AI ERA: MILLENNIAL ARCHITECTS IN YOGYAKARTA, INDONESIA

Yanuarius Benny Kristiawan[1,2]*, L.M.F. Purwanto[1], Riandy Tarigan[1]
[1]) Doctoral Program in Architecture, Faculty of Architecture and Design, Soegijapranata Catholic University, Semarang, Indonesia
[2]) Department of Architecture, Faculty of Engineering, Atma Jaya University Yogyakarta, Special Region of Yogyakarta, Indonesia
*e-mail: benny.kristiawan@uajy.ac.id

ABSTRACT

Artificial intelligence (AI) entered architectural practice faster than architects anticipated, leaving a practical question: What does an architect do when a machine produces dozens of design options in minutes? This study examines that question through curatorial agency, a framework that positions the architect as one who selects, contextualizes, and takes responsibility for options, rather than as the sole originator of form. The framework set the moment of judgment as the unit of analysis, supplied initial coding categories, and defined the cross-case criterion: where curatorial authority sits once machines generate alternatives. Five Generation Y architects, members of the Indonesian Institute of Architects, Yogyakarta chapter (IAI DIY), and design competition winners, served as informants. Data from semi-structured interviews, portfolios, social media, and news coverage were analyzed through thematic coding and cross-case comparison. Informants developed five curatorial competencies at once: technological literacy with critical judgment, contextual translation and cultural sensitivity, selective appropriation of tools, repetitive refinement under human supervision, and ethical reasoning grounded in human values. Their work forms three practice models (traditional technology-enhanced, AI-assisted exploration, and critical reflective digital), and in each, the architect retains design authority. Cultural mediation emerged as a distinguishing feature of the Yogyakarta cases, proposed as a candidate sixth competency, absent from the literature dominated by developed-country contexts, and in need of further testing. The study contributes evidence from a developing-country setting on the architect's shift toward a curatorial role, with implications for professional certification and competency frameworks. Its findings are analytically generalizable to comparable contexts, not representative of Indonesian architectural practice.

Keywords: *Artificial Intelligence in Architecture, Cultural Mediation, Curatorial Agency, Curatorial Competencies, Millennial Architects in Yogyakarta, Models of AI-Assisted Design Practice*

INTRODUCTION

Artificial Intelligence (AI) tools have been making their way into architectural studios in less than a decade. Generative platforms are now capable of generating crowd order options, floor plans, and photorealistic renderings in minutes. The rate of adoption far exceeds the ability of the profession to reformulate its position. When dozens of design alternatives can be produced in one go at a low cost, the question of who has the intellectual authority over the idea becomes unanswerable (Zavaleta, 2025; Agria, Le and Phung, 2026). The shift moves the architect from owner of the idea and the sole creator, the architect-as-writer, to the architect-as-curator (Moussaoui, 2025). Generative AI calls for a similar reframing of authority (Ochoa and Huang, 2025). This transformation is known as the 'second digital turn', in which the professional legitimacy of architects is now rooted more in curation skills than mere technical expertise (Carpo, 2018). The same debate has entered contemporary architectural education (Sanjust, Merone and Guitto, 2025).

The curatorial position is not the only one on offer, and the debate around it runs deeper than a change of job title. One strand asks about the material the models are built from. It covers bias and fairness in architectural AI systems, the way bias in machine learning becomes an ethical problem and not a technical one, and what the dataset leaves out, which archival theory reads as a productive absence. A second strand concerns responsibility once a model is in use: who answers for an algorithmic decision, and how far the design of AI should follow human values. A third strand looks at the working relationship itself, with human-AI co-design understood as shared initiative, not delegation (Yapo and Weiss, 2018; Zerilli *et al.*, 2019; Dignum, 2020; Arzberger, Lupetti and Giaccardi, 2024; Sherman *et al.*, 2024; Kadenhe, Musleh and Lompot, 2025)

This study takes up the curatorial position because it is the point where those strands become operational. A biased training set enters a building only through someone who accepts what the model returns; accountability becomes concrete only where a professional signs the drawing. Srinivasan shows this in visual art, where curatorial algorithms that ignore socio-cultural context produce over-representation and misattribution, and locates the repair work with the curator rather than with the algorithm. The architect who selects, edits, and rejects is the same figure who carries the consequences of the data. Curatorial agency, in this sense, is not a narrower question than dataset ethics or accountability. It is a site where both can be observed in practice (Srinivasan, 2024).

The implications of this phenomenon in developing countries have not been sufficiently recognized by the available literature. Architectural practices in Indonesia operate within a socio-cultural ecosystem and regulatory framework that differs substantially from the European or North American context. Factors of local building traditions, cultural heritage preservation regulations, budget constraints, and the acceleration of digitalization in this relatively young profession, all shape the pattern of integrating AI in everyday workflows in ways that are not always legible from Western literature. Empirical research on AI in architecture is already available for the Western context and there is also a growing conceptual work on AI in developing countries, but evidence on how Southeast Asian architects is concretely using these

tools and how they interpret their changing roles is still very limited. This gap is important because millennial architects, born between 1980 and 1996, are the group that is now leading projects, mentoring younger staff, and determining the direction of AI integration in architectural offices. Their experience in navigating this transition needs to be examined further (Mohapatra and Kumar, 2019; Yousif and Vermisso, 2022; Olusegun Aderibigbe *et al.*, 2023).

The gap that occurs is not just about geography. The curatorial argument so far has largely been built on a conceptual basis, namely the reframing of authorship. The most prominent recent statement on the argument, namely the special edition of Architectural Design on artificial intelligence, also rests on design theory and internationally recognized practical works (del Campo, 2024). What curation demands of an architect has also not been specified at a level that a curriculum or a certification scheme could use, even though the ethics literature keeps assigning the burden of judgment to precisely that role. A parallel conclusion holds for the wider Architecture, Engineering, and Construction (AEC) industry: AI's contribution there has remained largely machine-centered, developed without reference to human preference, and the field still lacks research into professionals' own views and the design patterns practitioners prefer (Rafsanjani and Nabizadeh, 2023). This study works from the architect's side of the process and addresses both gaps through practice, not position papers.

Because this study questions the architect's role within the design process, the term design needs to be settled before the curatorial argument can proceed. Design here means the iterative transformation of needs, conditions, and constraints into a meaningful spatial proposal, not the finished object. The process is not linear: problem and solution develop together through analysis, synthesis, evaluation, and repeated reinterpretation (Laiprakobsup, 2022). Design is interpretive as much as technical, since the design question itself is shaped while the work proceeds (Barełkowski, 2022).

Curation, in this study, is the practice of selecting, connecting, arranging, and mediating heterogeneous elements so that a narrative, an experience, or a spatial possibility emerges (Watson, 2021). Read this way, curation is not an activity added after a design is finished. It is a way of working inside design itself: filtering references, assembling relations, building coherence, and negotiating meaning among actors, objects, spaces, and audiences (Mulla and Mammen, 2025). In architecture and urbanism, curatorial work also serves as research and critique, not only representation (Cappeller, 2020). Positioning curation inside the design process is what allows this study to name the selection and mediation work that has long been hidden behind the idea of the architect as sole author (Markovic *et al.*, 2024).

One further boundary needs stating. This study traces curatorial work in the early phases of the design process — from problem framing through conceptual and schematic development, including the validation and representation of design decisions — not across the full cycle to construction documentation. Two reasons set that boundary. Curatorial judgement becomes consequential precisely where tools generate options faster than an architect can weigh them one by one, and that condition belongs to the phases where the design space is still opening rather than closing. The later phases are governed by different logic: technical standards, regulatory

compliance, and the signature of the professional who carries legal responsibility. The question there is not which option is chosen but who is accountable, which requires evidence this study does not claim to hold.

One question guides this research, what curatorial competencies are developed by millennial architects in Yogyakarta, Indonesia, when integrating AI into the design process? Two sub-questions follow from it and are addressed within the results and discussion, namely how the competencies observed reshape professional practice models, and how those competencies are exercised when the efficiencies AI offers meet humanistic values and local culture. Keeping a single main question holds the analysis within the reach of one framework—curatorial agency—instead of requiring separate frameworks for authorship, organizational change, and cultural value. The contribution follows the same focus. This paper provides empirical evidence from the Global South on the curatorial competencies architects actually develop, a question so far answered largely from a Western point of view and argues that cultural mediation belongs in the list of curatorial competency standards in the AI era, with direct implications for Indonesian Institute of Architects, Special Region of Yogyakarta chapter (IAI DIY) certification and continuing professional development. The three practice models mapped here support that account by showing where curatorial authority sits in each.

THEORY / RESEARCH METHODS

Theoretical Framework

The idea of curatorial roles in architecture emerged when digital tools began to generate choices faster than architects could evaluate them one by one. That shift is recent. A 2021 review of AI in conceptual architectural design found the field dominated by evolutionary computation and optimisation, where the task was to search a defined solution space, not to judge among an excess of proposals (Castro Pena *et al.*, 2021). The curatorial problem examined here belongs to the generative period that followed. In this period, curation has been placed at the core of architectural authorship and framed as a second digital turn that moves beyond technical expertise. Generative AI redistributes authorship between humans and machines, a shift that has reached architectural pedagogy and raised questions of data accessibility and fairness in algorithmic design. Architect-curators still design, but their role is to select and evaluate what AI produces: they decide which outputs are worth considering, how to use them, and which to discard. Reflexive data curation adds a further demand, namely that designers keep a critical distance from the datasets they work with. Curation, in this sense, is judgment exercised under an abundance of algorithmic results (Carpo, 2018, 2025; Zerilli *et al.*, 2019; Arzberger, Lupetti and Giaccardi, 2024; Sherman *et al.*, 2024; Srinivasan, 2024; Moussaoui, 2025; Ochoa and Huang, 2025; Sanjust, Merone and Guitto, 2025). There are five competencies that are prerequisites for effective curatorial practice:

1. Technology literacy with critical assessment is needed for architects to understand the capabilities as well as the limits of AI, including understanding

the structure of training datasets and being aware of potential biases that can affect output (Yapo and Weiss, 2018; Adeusi, Kachiside and Gupta, 2024).
2. Contextualization capabilities are needed to tailor AI output to local conditions such as culture, climate, and space usage patterns (Lou, 2023; Putjorn *et al.*, 2024; Shin, 2024).
3. Evaluation has also evolved beyond aesthetic aspects: assessments now include technical feasibility, sustainability, cultural suitability, and ethical implications (Çiçek *et al.*, 2025; Gupta, Khurana and Kaur, 2025).
4. Collaborative skills are in demand because curatorial practice is essentially cross-disciplinary — architects need to work alongside data specialists, computer scientists, clients, and communities (Pressman, 2014; McAra and Ross, 2020; Thomer *et al.*, 2022).
5. Ethical reasoning complements those competencies by requiring architects to recognize the risks or negative impacts of using AI and take appropriate steps in responding to them. The idea was extended by Newton as well as Huang and Liem to a range of more specific application contexts (Newton, 2019; Dignum, 2020; Huang and Liem, 2022; Srinivasan, 2024).

Practice changes at the same time. Linear workflows give way to data-driven iterative cycles, and individual studios move toward forms of human-AI collaboration that call for new organizational designs. Questions of design authority and ownership grow harder once an algorithm produces the first sketch (Deutsch, 2019; Kadenhe, Musleh and Lompot, 2025; Sherif and Nagy, 2025; Agria, Le and Phung, 2026). These changes weigh more heavily on developing countries, where professional regulation, education systems, and infrastructure often lag behind technological change, while several leading global practices are already restructuring themselves around the shift (Mohapatra and Kumar, 2019; Lammers and Astuti, 2021; Leach, 2022; Olusegun Aderibigbe *et al.*, 2023). In Indonesia, recent studies have applied BIM and simulation to document the space quality of altered heritage buildings and have used computational thinking to explore architectural form (Gunawan, 2026; Yudistira, 2026). This paper returns to the question set out in the introduction: what curatorial competencies do Generation Y architects in Yogyakarta develop when they integrate AI into the design process? The question moves from what the tool can do to what the tool does to the competencies an architect must hold.

Figure 1 states that chain in diagram form, and it can also be set out directly. Because the question asks which curatorial competencies are developed, the construct to be observed is the moment of judgement in which an architect accepts, adapts, or rejects a generated option, not the finished artefact. That construct fixes the recruitment criteria, namely architects who hold authority over live design decisions and work fluently with generative tools. It fixes the data, namely accounts of concrete decisions taken inside projects, read against portfolios and publicly available material. It fixes the initial coding categories, which are the five competencies named above: technological literacy with critical judgment, contextual translation, expanded evaluation, cross-disciplinary collaboration, and ethical reasoning. And it fixes the basis of cross-case comparison, namely where curatorial authority sits once the machine generates the alternatives. The two sub-questions are handled inside the same

construct rather than by separate frameworks. The first asks what these competencies do to the shape of practice, and is answered by comparing how each case organizes its workflow around those judgements, which is what yields the three practice models reported below. The second asks how the competencies are exercised when efficiency meets cultural value, and is answered from the subset of decisions in which the two pull against each other.

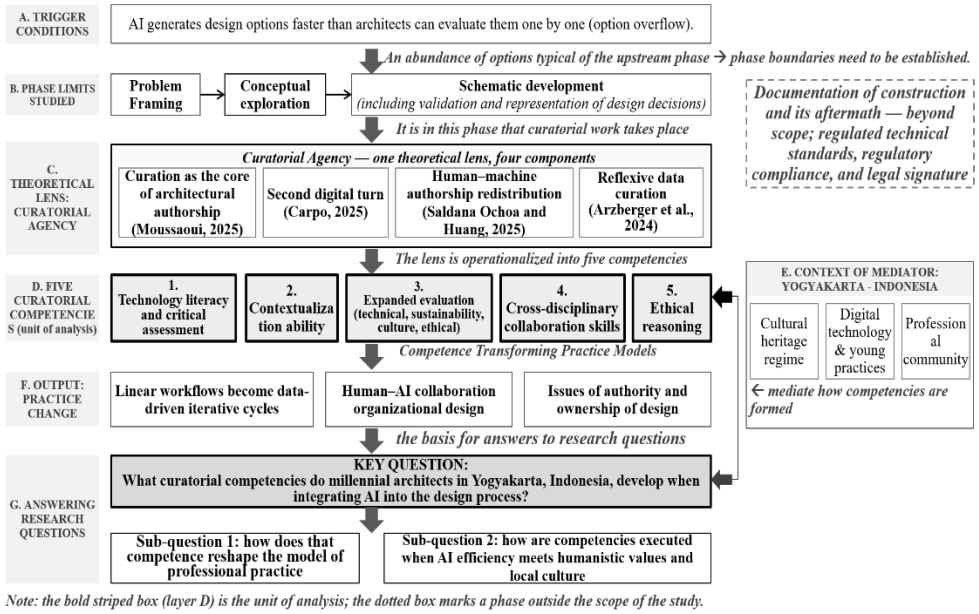


Figure 1. The Curatorial Agency Framework

Research Methods

This research is part of a broader doctoral study on the process of designing digital-based architecture by millennial professional architects, using a qualitative multi-case design analyzed thematically; phenomenology enters only as an interpretive sensitizing orientation, not as a separate research design or analytic procedure. The goal is to understand how architects experience changes in their role to the development of digital technology in architectural design.

A qualitative design was chosen because of what the research question asks, not as a matter of preference. The question concerns competencies that are developed — a process of formation lived out inside projects — and no validated instrument for curatorial competency yet exists. Building a questionnaire would have required treating the five competencies as settled categories, when their standing in the Indonesian context is precisely what is under examination. A survey could record how widely AI tools are adopted; it could not reach the moment in which an architect judges which generated option is worth keeping. The same holds for the second sub-question: a scale can register that efficiency and cultural value pull against each other, but only interpretation can show how a practitioner settles that pull in a particular

decision. The sampling frame reinforces the point, since a population of this size and a construct with this many dimensions do not support inferential statistics. Findings here are therefore generalized analytically to the curatorial agency framework, rather than statistically to Indonesian architects as a whole. A measurable instrument remains a reasonable next step, but it would be built from categories such as these rather than assumed in advance.

Selection proceeded in three stages from Indonesian Institute of Architects, Special Region of Yogyakarta chapter (IAI DIY) membership data. The first stage identified forty-five millennial professional architects holding intermediate certification. The second applied the award criterion: no more than twelve of the forty-five had been recognized in a national design competition, a record that serves as public and verifiable evidence of design judgement exercised under scrutiny. Of those twelve, five were reachable and willing to be interviewed at length, and these five became the key informants for examining the shift in roles from shapemakers to design curators who integrate AI into creative workflows. The set therefore covers close to half of the eligible sub-population rather than a small convenience selection, although it was availability rather than theoretical selection that determined which of the twelve were reached, and no claim is made that the five exhaust the range of orientations present in the wider group. Data from these in-depth interviews were analyzed to identify patterns of technology adoption as well as the challenges faced by local practitioners in balancing design ethics and efficiency (Said *et al.*, 2023; Dharmatanna *et al.*, 2025; Melindasari, 2025).

Informant Profile

The criteria applied at recruitment follow from the research question and the theoretical framework rather than from convenience. Because the question asks how curatorial competencies are developed in practice, the informants had to be architects in whom the two conditions for such formation are present at once: authority over live project decisions and working fluency with generative tools. Millennial standing was required because curatorial work presupposes both of these held together. An earlier cohort holds the authority but met these tools after its design habits had settled, so what can be observed there is adjustment rather than the formation of competency; a younger cohort is fluent but not yet certified, and executes curatorial decisions without owning them. An intermediate certification was required as the marker of that decision authority. Yogyakarta was chosen because the two conditions the framework treats as decisive press against each other there with unusual force, i.e., a dense supply of digital technology and young practices alongside a heritage regime that still constrains design decisions. Cultural mediation can only be observed where cultural context actually bears on a choice, and since this paper argues that mediation belongs among curatorial competencies, Yogyakarta is where that argument can be tested most sharply. Four of the five informants hold a postgraduate qualification.

The orientation profiles presented below are not predetermined. The profiles were developed during the analysis process based on the results of the interviews, as well as the spectrum in Figure 2, and the three practice models reported in the study results. When reviewed based on the framework used, the five informants covered all five competencies, with at least two independent findings for each. Therefore, the

adequacy of the data is determined by the representation of the construct being studied, not by the proportion of population representation. Each profile is presented based on its contribution to uncovering analytical aspects, especially the type of curatorial decision that is the focus or challenge in the practice, so that the competencies observed can be seen in their actual implementation, not just as biographical information of the informant. The five profiles of the informant architects can be narrated as follows, and Table 1 summarizes them against the framework:

1. Informant 1: builds a cross-sector virtual studio that relies on remote collaboration as the operational backbone. Winning the national competition isn't just a design feat — it's proving that this decentralized, network-based work model is on par with conventional studios.
2. Informant 2: chose interior design and art-cultural integration as his field of practice, as well as being the initiator of young architects' activities in Yogyakarta. He not only designs, but builds a professional ecosystem.
3. Informant 3: moved in a more communal direction. The practice rests on a typology of social and educational functions, with a participatory approach that positions the community as the party shaping the design, not just the end user. Recognition followed from that direction of work.
4. Informant 4: Digital technology is used to produce design works in everyday practice. Informant Architect 4 uses BIM and generative AI together throughout projects, both residential and commercial design typologies. The projects are managed into the workflow from the start. The characteristic of informant success in competitions is in validating that approach in their competition work.
5. Informant 5: works with digital technology, but interrogates each tool before committing to it. The stance reads less as resistance than as a principled refusal to adopt without deliberation.

Table 1. Informant Selection: Practice Focus, Emergent Orientation, and Coverage of the Five Curatorial Competencies

Informant	Practice focus	Orientation (emergent)	Competencies most visible
1	Cross-sector virtual studio	Virtual-collaborative	Technology literacy; collaboration
2	Interior and art-cultural integration	Artistic-cultural	Contextualization; collaboration
3	Social and educational typologies, participatory	Communal-participatory	Contextualization; expanded evaluation; ethical reasoning
4	BIM and generative AI across whole projects	Production-integrated	Technology literacy; expanded evaluation

Informant	Practice focus	Orientation (emergent)	Competencies most visible
5	Deliberate interrogation of each tool before adoption	Deliberative-critical	Technology literacy; ethical reasoning

These five profiles form a spectrum that can be traced, although not linearly. Informant 1 and 4 both rely on digital infrastructure as the foundation of work — the difference is, Informant 1 builds collaboration infrastructure, Informant 4 builds production infrastructure. Both demand the same capacity: selecting, configuring, and orchestrating tools. Informants 2 and 3 share an orientation to social and cultural contexts — Informant 2 through artistic-cultural heritage, Informant 3 through community. Both place the relationship between the architect and the world outside the studio as part of the design process itself. Informant 5 is not completely independent. Instead, he gave weight to the other four — showing that the issue of technology adoption is not how far it is adopted, but how consciously it is done.

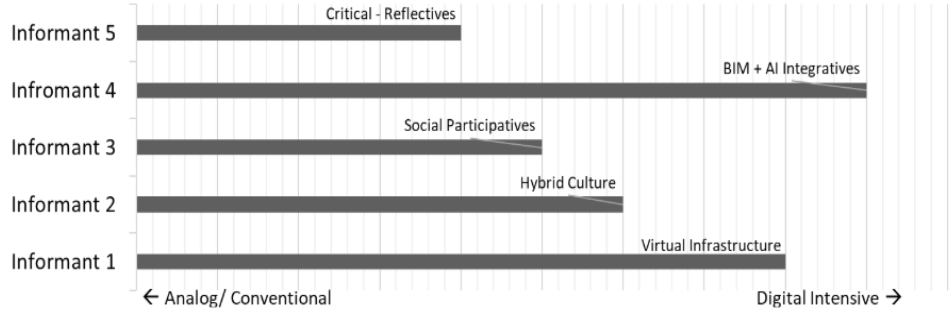


Figure 2. Informant Digital Technology Orientation Spectrum Chart

From the above description and chart, it can be seen that the role of curators in architectural practice does not arise from a single path. The curatorial nature arises from the mastery of digital infrastructure in Informant 1 and Informant 4, from negotiations with the community in Informant 3, from the dialogue between technology and tradition in Informant 2, and from the habit of questioning in Informant 5. Five architects, one common tendency, different ways of getting there.

Data Collection

Data collection takes place in 2024, sourced from three tracks. First, in-depth interviews with each informant were recorded with their consent and transcribed. Because the interview guide traced the stages of the design process, the phase boundary set out in the introduction follows the data rather than being imposed on it: the accounts obtained concentrate on problem framing, conceptual exploration, and schematic development, with no informant describing AI use in the preparation of construction documents. The interview guide covers the stages of the design process, the use of digital technology in the workflow, concrete experience with AI tools, perceived competency shifts, relationships with clients, collaboration patterns, and

personal attitudes towards technology. Second, a review of the project portfolio, a description of the results of the competition, and other relevant project documentation. Third, publicly available materials — social media searches, presentations, and news related to the speakers. Triangulation is done between what the architect says, what his work shows, and what is published.

Analysis

The analysis follows a thematic coding procedure. The transcripts were read line by line for open codes, which were then grouped into axial codes under the five categories the framework supplies in advance: technological literacy with critical judgment, contextual translation, expanded evaluation, cross-disciplinary collaboration, and ethical reasoning. Two of the results reported below were not read off those categories but constructed during analysis, and are therefore marked as emergent: the three practice models, which answer the first sub-question, and cultural mediation, which is put forward as a candidate sixth competency. Holding the a priori categories apart from the emergent ones is what allows the framework to be tested against the material rather than merely illustrated by it. Selective coding identifies the core themes presented in the results section; NVivo is used to manage coding schemes. Cross-case analysis compared patterns between five cases to find similarities and deviations. Credibility is strengthened through four procedures: triangulation of sources (interviews, portfolios, public materials); member checks, in which each informant reviews their own interpretation of the quote; peer briefings with two researchers of architectural education; and bold descriptions stored in the results section to support the assessment of transferability by other readers.

The chain from each question to its evidence can be traced in one place. For the main question, the construct examined is the moment of curatorial judgement; the evidence is the interview accounts of concrete design decisions, triangulated against portfolios and public material; the procedure is axial coding under the five a priori competencies; and the finding is the set of five competencies reported in the results and mapped case by case in Table 1. For the first sub-question, the construct is the organisation of workflow around those judgements; the evidence is the same interview corpus read at the level of the practice rather than the decision; the procedure is cross-case comparison; and the finding is the three practice models. For the second sub-question, the construct is the tension between efficiency and cultural value; the evidence is the subset of decisions in which the two pull against each other; the procedure is close interpretation of those passages with member checking; and the finding is cultural mediation, offered as a candidate sixth competency and reported as emergent rather than a priori.

RESULTS AND DISCUSSION

After analyzing five case studies, five core competencies were identified that were essentially the same across all five cases. Although each case displayed varying degrees of emphasis or importance for each competency, all five emerged consistently. The five reported here are not identical in wording to the five the

framework supplies in advance, and the difference is itself a result. Technological literacy, contextual translation, and ethical reasoning are unchanged. The expanded evaluation the literature treats as a standing capacity appeared in the accounts only as something enacted across iterations and is therefore reported as repetitive refinement under human supervision. Cross-disciplinary collaboration did not appear as a competency in its own right but as the setting in which the other judgements were made, while a competency the literature does not name - deciding which tool is admitted to which task - appeared in every case and is reported as selective appropriation of tools. When viewed collectively, these five competencies constitute the fundamental requirements (essential prerequisites) that an architect-curator must possess to play an effective role in the contemporary practice context examined here.

Several of these competencies have recognizable counterparts in earlier digital practice, and stating them at the level of skill alone would not distinguish them from what BIM or parametric work already demands. What makes the set curatorial rather than generically digital is the condition it answers to. Conventional digital tools return one result per instruction, so the architect's task remains authorship in the older sense: specifying what the tool should produce. Generative AI inverts that relation. It returns many plausible results at near-zero marginal cost, and it carries no internal criterion for which of them is worth keeping. Under that condition the scarce act is no longer production but selection, and selection against a criterion the machine cannot supply is what curatorial work consists of. Each competency set out below is therefore reported as an operation performed on an oversupplied option space: judging which output can be trusted (1), supplying the contextual criterion the model does not hold (2), deciding where the option space should be opened at all (3), running the reject-and-reframe loop that follows (4), and holding the standing criterion of worth against which options are refused (5). Read in this way the five are not a skills inventory but an account of where authorship relocates when generation ceases to be scarce.

1. Technology literacy and critical assessment
   The level of use of AI among informants is not uniform. Informant 4 uses generative AI as a brainstorming partner that cuts initial thinking time and concept development by about half, while expanding the number of idea options. Informant 5 used it to create simulations in the competition — strategically, mainly due to time constraints. The consistent part between the two: no one leaves decisions to AI output. All criticize, evaluate, and filter. Informant 3 questions whether AI is capable of capturing human feelings and meanings in space—a statement that puts AI strong on logic and data but is not yet capable of understanding the experiences and emotions of space. Recognizing when to trust a machine and when to override it is a skill that develops through practice. The five architects do not start from zero — they select, test, and judge. That sequence already describes what curators do.
2. Contextual translation and cultural sensitivity
   Architects are actively transforming digital output into contextual forms. Informant 3 uses simple animations—not the most technically advanced—for community engagement, as accessibility takes precedence over the appearance of the building. Informant 4 selectively applies parametric tools based on the character of the project and the client's expectations. Informant 5 used

environmental simulations to validate residential home designs during the pandemic, while maintaining the spatial quality and integrity of local cultural patterns. Cultural sensitivity here is not an ornament to soften the process. It works as a mediator between what the algorithm is capable of producing and what makes sense in the context of Yogyakarta architecture.

3. Selective appropriation of tools
   Informant 1 distinguishes between the use of digital technology — though not always explicitly — between government projects, private clients, and competitions. Informant 4 uses representational strategies to describe obvious ideas, and parametric strategies when form exploration is needed. Manual sketching is still used to control the creative direction; AI for efficiency and exploration. This hybrid workflow is a conscious choice to balance human control with computing capabilities. Architects act as curators, not just users of tools: they choose which tools are used, when they are used, and for what purpose. AI doesn't control the design — it's the architect who curates the use of AI.
4. Repetitive refinement and human supervision
   In all five cases, the architect evaluates each output, identifies the problem, and directs the next iteration. Informant 5 states that trust in a design idea grows when measured and calculated synthesis confirms interpretation—an obvious curatorial act. Design is not portrayed as a one-way forward feed, but rather as testing, evolution, and resolution based on the quality of the experience, cultural meaning, and client fit — not just compute optimization.
5. Ethical reasoning and value-based practices
   Architects operate a value framework that guides their curatorial decisions from the beginning of the process, not as a consideration that comes later. Informant 3 places human values and feelings as non-negotiable priorities and treats generative methods with skepticism based on considerations of architectural meaning. Informant 5 maintains creative control on the human side and treats the tool as an instrument that serves the purpose of design.

Ethical positioning acts as a selection mechanism: architects take up tools that serve their values and set aside those that do not. AI does not shrink the architect's role — it extends the obligation to keep computational output answerable to human meaning and cultural context (Moussaoui, 2025). Architecture that loses that accountability loses what makes it worth building. Taken together, the five competencies answer the main research question in a specific way: the shift from shape maker to curator is not a change in what architect’s value but a change in where authorship is exercised — from generating the form to governing which of many machine-generated forms is allowed to proceed, and on what grounds. Table 2 below summarizes them with examples from interviews.

Table 2. Five Curatorial Competencies of Millennial Architects in Yogyakarta

Curatorial Competence	Operational Meaning	Evidence of Indicative Practice	What Generative AI Makes Newly Necessary
Technology Literacy and Critical Assessment	Architects understand how AI tools work and can assess when the machine's output serves the design and when human intuition should take over.	Informant Architect 4 treats generative AI as a brainstorming partner; Informant Architect 3 questions whether algorithmic logic can capture human feelings and meanings in space.	Earlier tools returned one result per instruction and could be checked against that instruction; generative output carries no such reference, so trustworthiness must be judged from the output itself, case by case.
Contextual Translation and Cultural Sensitivity	Architects rework universal digital output into a form that suits Indonesia's cultural, social, and climatic conditions.	Informant Architect 3 curated accessible visual materials for community engagement; Informant Architect 5 uses environmental simulations to validate culturally appropriate housing solutions.	Parametric and BIM tools inherit the architect's own parameters; generative models are trained on distributions in which Indonesian cultural context is largely absent, so the criterion has to be supplied from outside the model.
Selective Allocation and Implementa-tion of Strategic Tools	Architects choose tools deliberately for each type and phase of the project rather than adopting any tools wholesale.	Informant Architect 1 implements different workflows for government, private, and competitive projects; Informant Architect 4 distinguishes a representational approach from a parametric based on the character of the project.	Choosing between conventional tools is a question of efficiency; choosing whether to invoke generation is a question of whether an oversupply of options should be created in that phase at all.
Iterative Enhancement and Human Supervision	Architects maintain judgment at every decision point in the design circle, treating the output of the tool as input for consideration.	Informant Architect 5 runs a simulation cycle in which each result is interpreted and translated before the next iteration; Informant Architect 4 maintains design quality through BIM impact detection.	Iteration with conventional tools refines a single artifact; iteration with generative AI is a reject-and-reframe loop over competing candidates, in which the decisive act is refusal rather than adjustment.

Curatorial Competence	Operational Meaning	Evidence of Indicative Practice	What Generative AI Makes Newly Necessary
Ethical Responsibility and Values-Centered Practices	Architects place human well-being, cultural sustainability, and environmental responsibility above pure efficiency or aesthetic novelty.	Informant Architect 3 makes human values and feelings a non-negotiable design priority; Informant Architect 5 frames building performance as an ethical commitment to sustainability.	Conventional tools advance no proposal of their own; generative output arrives already framed as a plausible proposal, so values must operate as standing grounds for refusal rather than as a later review.

Three Practice Models

Cross-case analysis yielded three different practice models. These models are not on one axis of AI adoption intensity. Each places AI in different roles within the architectural office and explains what it shouldn't do. In traditional augmented technology, digital tools accelerate established design activities without changing the underlying design logic. In AI-assisted exploration, AI expands the initial exploration space before architects curate the most promising results, and in critical, reflective digital practices, architects limit digital tools to uses that reinforce humanistic and social values. In all three models, authority over design decisions remains with architects. Figure 3 provides a schematic overview of the three models and the points at which they converge.

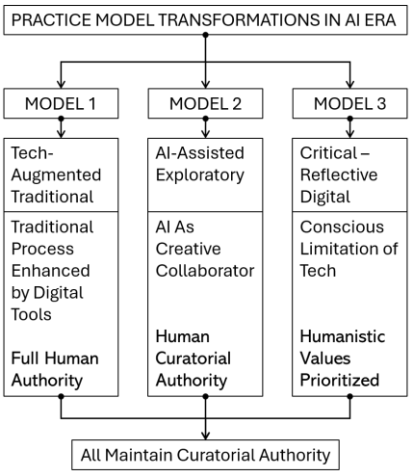


Figure 3. Practice Model Transformations in the AI Era

Table 3 turns the schematic in Figure 3 into a comparison across the five informants. Each row sets the working logic of a model against the position AI takes

within it and names the informants whose practice it represents. The distribution is uneven. Informant Architects 1 and 2 work within Traditional Augmented Technology, where human authority increases and no design is generated algorithmically, while Informant Architect 4 alone follows AI-Assisted Exploration and treats AI as a creative collaborator in the early phases only. Informant Architects 3 and 5 share the Critical Reflective Digital model, in which AI stays subject to human judgment and restraint is read as a form of literacy. Read this way, the table shows where each architect draws the line on AI, not how much AI each of them uses.

Table 3. Three Models of Practice of Five Informants

Practice Model	Working Logic	AI Positioning	Representative Informant
Traditional Augmented Technology	Digital tools accelerate established design activities without changing the underlying design logic.	Increased human authority; There is no algorithmic creation.	Informant Architects 1 and 2
AI-Assisted Exploration	Architects use AI to expand the initial exploration space and then curate the most promising results for development.	Creative collaborators in the early phases, with clear boundaries between exploration and execution.	Informant Architect 4
Critical Reflective Digital	Architects deliberately limit the use of digital tools to applications that reinforce humanistic and social values.	Subject to human judgment; restraint as a form of literacy.	Informant Architects 3 and 5

Efficiency Under Pressure

In the developing world, economic pressures, tight deadlines, and resource constraints encourage practitioners to work more with less—and in these conditions, humanistic values are easily displaced by the demands of efficiency. Indonesian architects who choose to defend these values are not on the defensive of technological change. The choice is deliberative, that is, a position taken consciously, not by force.

Efficiency, optimization, and performance dominate the AI literature in architecture (Noor Afshan and Ar. Sameer Sharma, 2024; Agria, Le and Phung, 2026). Findings from Indonesia show the limits of this tendency. Certain design qualities cannot be produced by speeding up the process. Pushing the process too far towards optimization will actually erode its humanistic dimension, which is the reason why a building is meaningful. Curatorial competence thus includes the ability to say no to AI at the wrong moment, to speed when work takes time, and to efficiency arguments when slower design workflows result in something more rooted. All five architects confirm this in their architectural practice, i.e. AI is not used to deciding, but to expanding choices.

Cultural mediation is put forward here as a candidate sixth curatorial competency, alongside the five drawn from existing literature. The claim is made at

the level of the construct rather than of a region: wherever a design decision must answer to cultural criteria that the model does not hold, mediation becomes a distinct curatorial operation and not a stylistic afterthought. Whether it holds as a stable sixth competency requires testing in settings other than the one studied here. The architects in this study were not choosing between AI outputs. They were mediating between global computational capability and local cultural patterns, and they were rejecting options that were technically sound and aesthetically plausible but wrong for the place. That kind of mediation requires deep contextual knowledge and sustained community involvement. Neither can be compressed into a computation.

Implications for Professional Practice

Architects already in practice need continuing education that builds the evaluation criteria and professional confidence to hold their ground as the tools around them keep shifting. IAI has a concrete role through certification schemes, workshops, and mentoring programs that recognize curatorial function as something that requires active assessment and support, rather than treating it as something that already exists on its own. IAI's competency framework needs to follow the above. Cultural mediation in a tropical climate, rich in cultural heritage, is a basic professional task that is not a by-product of architectural practice. Clarifying this curatorial problem will sharpen the explanation related to the profession, about what architects provide that AI cannot provide. This also gives architects a stronger foothold in setting their value to clients, regulators, and the construction sector.

Scope and Transferability of the Findings

Yogyakarta was selected for the reason set out in the methods, which is professional rather than academic: it is a market in which design decisions are routinely answerable to a heritage regime that is still in force, so the criterion a generative model does not hold gets tested on ordinary projects rather than on exceptional ones. Its professional community is also comparatively well organized. The accounts reported here therefore sit ahead of routine practice elsewhere in Indonesia and should be read as such. It is important to explicitly state this limitation so that readers understand the context and scope of the research findings.

However, the key dynamics identified are not unique to Yogyakarta. The practice of balancing tradition and innovation, bridging the use of global technology with local conditions, and establishing professional authority amidst rapid technological change is also experienced by professional millennial architects in various regions of Indonesia. What carries beyond Yogyakarta is therefore the construct rather than the distribution. Wherever generation becomes abundant while the criterion of worth remains outside the model, selection becomes the scarce act and curatorial work becomes necessary. Whether the same five competencies take the same form in other cities is an empirical question this study does not settle.

How the three practice models are distributed across Indonesia is not something this study can report; five cases in a single city cannot support a claim about regional distribution. Whether the intensity of AI use varies with city size, and in which

direction, remains an open question. Nevertheless, the curatorial role—which encompasses the ability to select, direct, contextualize, and disseminate technological outputs—remains relevant across these contexts. Further research is needed to test these findings more broadly, for example, through comparative studies in cities like Jakarta, Surabaya, and Bandung. Furthermore, evaluating design quality, client satisfaction, and project outcomes across different models would help identify the most effective competencies. Longitudinal studies with ongoing monitoring are also crucial to understanding how curatorial practices evolve as architects who have become accustomed to using AI early in their careers gain experience.

CONCLUSIONS

This study examines how millennial architects in Yogyakarta develop curatorial competencies and integrate them into their professional practices in response to the increasing use of AI in architectural design. Read against the curatorial agency framework, the answer to that question is that five competencies are developed together rather than in sequence, and each was observed in at least two independent cases. Technological literacy with critical judgment is visible wherever AI output is reviewed before it is accepted; contextual translation is visible wherever computational results are brought into line with the cultural setting; selective appropriation of tools is visible wherever the architect decides which tool is admitted to which task instead of adopting the whole toolkit; repetitive refinement under human supervision is visible wherever the architect runs the reject-and-reframe loop across iterations, with data specialists, clients, and communities drawn in where the judgement requires them; and ethical reasoning is visible wherever responsibility for the eventual users of the building is carried through the design process. In every case the weighing itself stayed with the architect.

This tendency is then manifested in three practice models, namely traditional practices strengthened by technology, AI-assisted exploratory practices, and digital-critical reflective practices. Each model shows a different way of utilizing technology yet consistently places the architect as the primary authority holder in the design process. Thus, the shift in role from designer to curator is no longer just a prediction or discourse of the future. This study shows that the shift has taken place and is becoming a real part of the professional practice of architecture today.

The Yogyakarta case shows that curation also functions as a cultural translation, i.e. as an intermediary between global technological capabilities and local architectural identities. Cultural mediation is offered as a sixth competency and not as a relabeling of the second. Contextual translation adapts a generated option to local conditions of culture, climate, and use, and so operates on the option; cultural mediation negotiates whose cultural claim the option must answer and operates on the brief and on the relation between the architect, the community, and the heritage regime. The first can be exercised alone at the desk; the second cannot. These findings have practical consequences: how IAI defines professional competence, and how the profession explains its value to society in an era when machines can already produce sensible designs at almost zero cost. The architects of the AI era, based on this

evidence, are no longer the ones who draw every line. It is the one who decides which lines deserve to exist, why, and for whom.

Three limits follow, two of them from the phase boundary of this study. Curatorial practice in construction documentation, tendering, and site supervision was not tested here and remains open for further research, particularly where questions of professional liability come into play. One informant does extend digital work across the whole project through BIM, but BIM functioned as production infrastructure that keeps decisions coherent, while the curatorial judgement examined in this study stays upstream of it.

A third limit concerns the audience. The evidence gathered here comes from practicing architects, not from studios or curricula, so consequences for architectural education cannot be drawn from it directly. Whether curatorial judgement can be taught before a student holds authority over a live decision, and where such teaching would sit in a curriculum, are questions this design was not built to answer. They are recorded here as a gap: a study of architectural education would require its own framework, its own informants, i.e., students and studio instructors, and a pedagogical rather than professional unit of analysis.

REFERENCES

Adeusi, T.S., Kachiside, O.L. and Gupta, R. (2024), "Innovative architectural design practices enabled by ai-powered parametric and computational approaches," *https://wjarr.com/sites/default/files/WJARR-2024-3959.pdf*, 24(3), pp. 2487–2498. Available at: https://doi.org/10.30574/WJARR.2024.24.3.3959.

Agria, M.E., Le, A. and Phung, Q. (2026), "AI integration in architectural design and management: professionals' perspectives," *Architectural Engineering and Design Management*, 22(1), pp. 67–82. Available at: https://doi.org/10.1080/17452007.2025.2548911.

Arzberger, A., Lupetti, M.L. and Giaccardi, E. (2024), "Reflexive data curation: opportunities and challenges for embracing uncertainty in Human-AI collaboration," *ACM Transactions on Computer-Human Interaction*, 31(6). Available at: https://doi.org/10.1145/3689042.

Barełkowski, R. (2022), "Design, design process and architect's position projekt, proces projektowy a postawa architekta." Available at: https://doi.org/10.21005/pif.2022.50.A-02.

del Campo, M. (2024), "The wicked, the tamed and the transformative nature of artificial intelligence," *Architectural Design*, 94(3), pp. 6–13. Available at: https://doi.org/10.1002/ad.3049.

Cappeller, R. (2020), "Cooperative architecture: creative and social design modes as urban practice," *XII Seminario Internacional de Investigación en Urbanismo, São Paulo-Lisboa, 2020* [Preprint]. Available at: https://doi.org/10.5821/SIIU.9936.

Carpo, M. (2018), "The second digital turn," *The Second Digital Turn* [Preprint]. Available at: https://doi.org/10.7551/MITPRESS/9976.001.0001.

Carpo, M. (2025), "AI tectonics, or the culture wars of building technology," *Architectural Intelligence 2025 4:1*, 4(1), pp. 2-. Available at: https://doi.org/10.1007/S44223-024-00081-0.

Castro Pena, M.L. *et al.* (2021), "Artificial intelligence applied to conceptual design. A review of its use in architecture," *Automation in Construction*, 124, p. 103550. Available at: https://doi.org/10.1016/J.AUTCON.2021.103550.

Çiçek, S. *et al.* (2025), "ArchiJury: exploring the capabilities of vision-language models to generate architectural critique," *Journal of Computational Design*, 6(1), pp. 165–190. Available at: https://doi.org/10.53710/JCODE.1618548.

Deutsch, R. (2019), *What are architects for?: Design technology and the future of professionalism*, *Defining Contemporary Professionalism*. RIBA Publishing. Available at: https://doi.org/10.4324/9780429347856-19.

Dharmatanna, S.W. *et al.* (2025), "Integrating AI in architectural design thinking: an opportunity and challenges study in Indonesia architectural education," *MODUL*, 25(1), pp. 55–63. Available at: https://doi.org/10.14710/MDL.25.1.2025.55-63.

Dignum, V. (2020), "Responsibility and artificial intelligence," *The Oxford Handbook of Ethics of AI*, pp. 214–231. Available at: https://doi.org/10.1093/oxfordhb/9780190067397.013.12.

Gunawan, M.F. (2026), "Utilizing BIM and simulation to document the heritage buildings' space quality, case study Blenduk church," *Journal of Architecture & Environment*, 25(1), pp. 47–74. Available at: https://doi.org/10.12962/j2355262x.v25i1.a22998%20.

Gupta, U., Khurana, A. and Kaur, H. (2025), "Exploring the intersection of AI and ethics in architecture: implication for design, design thinking and built environment," *International Research Journal on Advanced Engineering and Management (IRJAEM)*, 3(03), pp. 641–646. Available at: https://doi.org/10.47392/IRJAEM.2025.0105.

Huang, H.Y. and Liem, C.C.S. (2022), "Social inclusion in curated contexts: insights from museum practices," *ACM International Conference Proceeding Series*, 22, pp. 300–309. Available at: https://doi.org/10.1145/3531146.3533095.

Kadenhe, N., Musleh, M. Al and Lompot, A. (2025), "Human-AI co-design and co-creation: a review of emerging approaches, challenges, and future directions," *Proceedings of the AAAI Symposium Series*, 6(1), pp. 265–270. Available at: https://doi.org/10.1609/AAAISS.V6I1.36061.

Laiprakobsup, N. (2022), "Research collaboration with the architectural design process: co-development of problems and solutions," *Journal of Architectural/Planning Research and Studies (JARS)*. Available at: https://doi.org/10.56261/jars.v10i2.16767.

Lammers, J.C. and Astuti, P. (2021), "Calling for a global turn to inform digital literacies education," *Journal of Adolescent & Adult Literacy*, 64(4), pp. 371–377. Available at: https://doi.org/10.1002/JAAL.1103.

Leach, N. (2022), "*Architecture in the Age of Artificial Intelligence*, *Architecture in the Age of Artificial Intelligence*." Bloomsbury Publishing Plc. Available at: https://doi.org/10.5040/9781350165557.

Lou, Y. (2023), "Human creativity in the AIGC era," *She Ji: The Journal of Design, Economics, and Innovation*, 9(4), pp. 541–552. Available at: https://doi.org/10.1016/J.SHEJI.2024.02.002.

Markovic, S. *et al.* (2024), "A conceptual framework for positioning the architect in a continuous digital approach to designing architecture: the case of the 'digital chain.'" *Facta Universitatis, Series: Architecture and Civil Engineering.*" Available at: https://doi.org/10.2298/FUACE240713002M.

McAra, M. and Ross, K. (2020), "Expanding studio boundaries: navigating tensions in multidisciplinary collaboration within and beyond the higher education design studio," *International Journal of Art and Design Education*, 39(4), pp. 795–810. Available at: https://doi.org/10.1111/jade.12324.

Melindasari, T.D. (2025), "Masa depan arsitektur: peran arsitek dalam era desain berbasis AI," *Device: Journal of Information System, Computer Science and Information Technology*, 6(1), pp. 171–187. Available at: https://doi.org/10.46576/DEVICE.V6I1.6600.

Mohapatra, S. and Kumar, A. (2019), "Developing a framework for adopting artificial intelligence," *International Journal of Computer Theory and Engineering*, 11(2), pp. 19–22. Available at: https://doi.org/10.7763/IJCTE.2019.V11.1234.

Moussaoui, A. (2025), "Redefining architectural authorship: the curatorial paradigm in AI-driven practice," *Frontiers of Architectural Research*, 14(1), pp. 78–94. Available at: https://doi.org/10.1093/9780198945215.003.0033.

Mulla, S. and Mammen, A. (2025), "Curation as design: co-designing learning experiences for public school education system," *Proceedings of the 19th International Conference of the Learning Sciences - ICLS 2025*, pp. 2253–2257. Available at: https://doi.org/10.22318/ICLS2025.435892.

Newton, D. (2019), "Generative deep learning in architectural design," *Technology Architecture + Design*, 3(2), pp. 176–189. Available at: https://doi.org/10.1080/24751448.2019.1640536.

Noor Afshan and Ar. Sameer Sharma (2024), "Exploring the impact of AI on architectural creativity and efficiency," *IJFMR - International Journal for Multidisciplinary Research*, 6(2). Available at: https://doi.org/10.36948/IJFMR.2024.V06I02.15753.

Ochoa, K.S. and Huang, L.S. (2025), "Reframing authorship: the evolving role of architects in the age of generative AI," pp. 149–154. Available at: https://doi.org/10.35483/ACSA.AM.113.20.

Olusegun Aderibigbe, A. *et al.* (2023), "Artificial intelligence in developing countries: bridging the gap between potential and implementation," *Computer Science & IT Research Journal*, 4(3), pp. 185–199. Available at: https://doi.org/10.51594/CSITRJ.V4I3.629.

Pressman, A. (2014), *Designing relationships: The art of collaboration in architecture*, *Designing Relationships: The Art of Collaboration in Architecture*. Taylor and Francis. Available at: https://doi.org/10.4324/9781315852355.

Putjorn, P. *et al.* (2024), "Hand, heart, and AI harmony: integrating generative AI to innovate Northern Thai local wisdom," *International Computer Science and*

Engineering Conference [Preprint], (2024). Available at: https://doi.org/10.1109/ICSEC62781.2024.10770642.

Rafsanjani, H. N. and Nabizadeh, A.H. (2023), "Towards human-centered artificial intelligence (AI) in architecture, engineering, and construction (AEC) industry," *Computers in Human Behavior Reports*, 11, p. 100319. Available at: https://doi.org/10.1016/J.CHBR.2023.100319.

Said, A.N.M. *et al.* (2023), "Implementasi artificial intelligence dalam dunia arsitektur dan pengaruhnya terhadap profesi arsitek," *Seminar Nasional Dies Natalis 62*, 1, pp. 620–626. Available at: https://doi.org/10.59562/SEMNASDIES.V1I1.1117.

Sanjust, P., Merone, O. and Guitto, L. (2025), "Designing with artificial intelligence: reflections on authorship, intentionality, and creativity in contemporary architectural education," *REIA - Revista Europea de Investigación en Arquitectura* [Preprint], (26). Available at: https://doi.org/10.64197/REIA.26.1006.

Sherif, J. and Nagy, G. (2025), "AI tools integration in architectural design phases: a structured framework for time-efficient visualization of design alternatives in architectural firms," *WSEAS Transactions on Systems*, 24, pp. 719–741. Available at: https://doi.org/10.37394/23202.2025.24.61.

Sherman, J. *et al.* (2024), "The power of absence: thinking with archival theory in algorithmic design," *Proceedings of the 2024 ACM Designing Interactive Systems Conference, DIS 2024*, pp. 214–223. Available at: https://doi.org/10.1145/3643834.3660690.

Shin, H. (2024), "Ambiguous AI: lossy compression, model collapse, and intercultural sensitivity," 비평과 이론, 29(3), pp. 173–206. Available at: https://doi.org/10.19116/THEORY.2024.29.3.173.

Srinivasan, R. (2024), "To see or not to see: understanding the tensions of algorithmic curation for visual arts," *2024 ACM Conference on Fairness, Accountability, and Transparency, FAccT 2024*, pp. 444–455. Available at: https://doi.org/10.1145/3630106.3658917.

Thomer, A.K. *et al.* (2022), "The craft and coordination of data curation: complicating workflow views of data science," *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW2). Available at: https://doi.org/10.1145/3555139.

Watson, F. (2021), "Introduction: the new curator: exhibiting architecture and design," *The New Curator: Exhibiting Architecture & Design*, pp. 13–19. Available at: https://doi.org/10.4324/9781351029827-1.

Yapo, A. and Weiss, J. (2018), "Ethical implications of bias in machine learning," *Proceedings of the Annual Hawaii International Conference on System Sciences*, 2018-January, pp. 5365–5372. Available at: https://doi.org/10.24251/HICSS.2018.668.

Yousif, S. and Vermisso, E. (2022), "Towards AI-assisted design workflows for an expanded design space," *Proceedings of the 27th Conference on Computer Aided Architectural Design Research in Asia (CAADRIA) [Volume 2]*, 2, pp. 335–344. Available at: https://doi.org/10.52842/CONF.CAADRIA.2022.2.335.

Yudistira, F. (2026), "Explorative analysis and structured speculation: rethinking computational design as an approach for architectural form exploration," *Journal of Architecture & Environment*, 25(1), pp. 89–114. Available at: https://doi.org/10.12962/J2355262X.V25I1.A23143.

Zavaleta, Jorge Pablo Aguilar (2025), "Architectural intelligence the new paradigm of architecture," *International Journal of Bioinformatics and Intelligent Computing*, 4(2), pp. 28–38. Available at: https://doi.org/10.61797/ijbic.v4i2.510.

Zerilli, J. *et al.* (2019), "Algorithmic decision-making and the control problem," *Minds and Machines 2019 29:4*, 29(4), pp. 555–578. Available at: https://doi.org/10.1007/S11023-019-09513-7.