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Co-speculating with AI: From prompts to practices

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Abstract: This paper presents a vocabulary for co-speculation with AI, developed through an experimental design studio with 55 postgraduate students who used generative AI tools to explore more-than-human design practices of *decentering*. The vocabulary spans multiple scales of interaction—from individual prompting acts to extended collaborative sessions—serving descriptive, analytic, and generative functions. Whilst it was developed through the specific context of decentering practices, we argue that this vocabulary is transferable to diverse design domains. It offers designers and researchers a framework for more reflective and intentional engagements with AI, contributing to emerging discussions on how design practice evolves when speculation becomes a shared activity between humans and machines.

Keywords: co-speculation; prompt craft; more-than-human; design pedagogy

1. Introduction

Over the past years, the emergence of generative AI (genAI) has begun to transform design practice. What was once defined by passive tools and obedient interfaces has become a terrain of uncertain relations (Benjamin et al., 2021; Giaccardi, Murray-Rust et al., 2024), where designers converse with algorithmic systems (Arzberger et al., 2024; van der Burg, 2023), negotiate authorship (Bomba et al., 2024), and reimagine creativity (Caramiaux et al., 2025; Caramiaux & Fdili Alaoui, 2022). Yet even as AI becomes common in design workflows (Caramiaux et al., 2019; Sun et al., 2024), we know little about how designers might engage with these systems reflectively and intentionally (Van Der Maden, Van Beek, Nicenboim et al., 2023; Van Der Maden, Van Beek, Halperin et al., 2024; Van Der Maden et al., 2025). The act of prompting, often framed as a technical or linguistic skill, calls for re-examination as a fundamentally relational and epistemic practice.

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Alongside the moment of flux engendered by the adoption of genAI, the scope of design itself has expanded from problem-solving and user-centered approaches toward more relational and ecological orientations. More-than-human design challenges designers to attend to interdependencies between humans, technologies, and other species (Giaccardi, Redström et al., 2024; Poikolainen Rosén et al., 2025; Tironi et al., 2023; Wakkary, 2021), cultivating practices such as *decentering*—the deliberate displacement of the human as the sole locus of meaning and value (Di Salvo & Lukens, 2011; Forlano, 2017; Giaccardi, 2020; Nicenboim et al., 2023). Both genAI and more-than-human design have the potential to unsettle the boundaries of agency in design: one by distributing creativity across human and machine, the other by situating it within multispecies and planetary networks.

This paper brings these two trajectories together by exploring *co-speculation*. We use the term to describe speculative practices that unfold between human and AI through iterative cycles of prompting, response, and reflection. Co-speculation transforms prompting from an instrumental command into a conversational and performative act. By tracing the micro-dynamics of prompting alongside the broader arc of collaboration, we aim to make visible the subtle negotiations that come into play when the act of designing includes elements of AI in the process.

Our analysis is grounded in an interaction design studio conducted in 2024 at Politecnico di Milano, within a semester-long course on more-than-human design. We focus on a workshop, part of the studio course, that invited fifty-five postgraduate students to experiment with genAI tools as part of a design exercise focused on decentering (see 2.1).

Drawing from this empirical work, the paper develops a vocabulary for co-speculating with AI. The vocabulary operates across multiple scales of interaction—from the fine detail of individual prompts to the extended flow of collaborative sessions—and serves descriptive, analytical, and generative purposes. It offers both researchers and educators a framework for articulating how co-speculation unfolds in practice and for cultivating more thoughtful, situated, and responsible forms of AI collaboration in design.

The paper first situates co-speculation within the theoretical traditions of speculative and more-than-human design, as well as current debates on human-AI co-creativity. It then describes the methodological and pedagogical framework of the studio, before presenting the vocabulary and illustrating its key dimensions through examples from students' work. The paper concludes with how this vocabulary might support more intentional, reflective, and transferable practices of co-speculation with AI.

2. Related work

Our study is situated within three overlapping conversations: more-than-human design, human–AI co-creativity, and the notion of co-speculation between humans and AI.

2.1 More than human design and decentering

The emergence of more-than-human design marks a profound shift in how design understands agency, responsibility, and participation, foregrounding design as a practice of relating within complex ecologies of humans, technologies, and other species. As noted by several scholars (Forlano, 2017; Frauenberger, 2019; Giaccardi & Redström, 2020; Giaccardi, Redström et al., 2024; Poikolainen Rosén et al., 2025; Tironi et al., 2023; Wakkary, 2021), the

human-centered design paradigm, though historically instrumental in caring for human needs, has reached its limit in addressing the interconnected eco-social and technological challenges of our time. In this context, more-than-human design is less a methodological extension than an ontological reorientation. Within this orientation, *decentering* has become a key methodological and ethical gesture. Initially introduced as an "experiential component of nonanthropocentrism" (DiSalvo & Lukens, 2011), decentering invites designers to encounter how nonhuman forces shape knowledge and action. Recent practice-based accounts emphasize that decentering is not about stepping away from a human frame, but learning to move differently, to design *with* rather than *for* (Nicenboim et al., 2023; Nicenboim et al., 2024). This aligns with critiques that a total escape from anthropocentrism is neither impossible (Chow et al., 2025) nor desirable, and that more-than-human approaches should expand rather than dismiss human perspectives (Scholz et al., 2024): not to erase human agency but to situate it within broader relational networks.

2.2 Human-AI co-creativity and prompting practices

Another major shift is the recent proliferation of generative AI tools. This has opened new territories for co-creative practice, prompting designers to renegotiate the boundaries of authorship, expertise, and material agency. Framed as a creative partner rather than a mere productivity tool (Davies et al., 2021; Caramiaux & Fdili Alaoui, 2022), AI systems do not merely extend human creativity but transform the conditions under which design unfolds. These transformations take many forms. For example, van der Burg et al. (2022) develop a conversational, situated practice with generative models, building tacit literacies for prompting, interpreting, and iteratively steering algorithmic outputs. Arzberger et al. (2024) cultivate a reflexive human-AI practice to confront and challenge internalized biases and develop a set of tactics to illuminate these through interactions with AI. Van der Maden et al. (2023) outline the need for accommodating AI's affordances for serendipity, exploration, and inquiry. Lindley and Whitham (2025) propose the notion of *prompt craft* to describe a shift from engineering precision toward an embodied, iterative engagement with generative systems, extending the designer's repertoire to include craftful gestures of tuning, listening, and improvisation.

2.3 Co-speculation and speculative thought in design practice

Historically, speculative design refers to a critical design approach that enables discursive practices around possible futures and alternative configurations of the present, particularly in relation to emerging technologies (Dunne, 1999; Auger, 2013). It is not about things but ideas (Dunne & Raby, 2013). In this paper, we use *co-speculation* to describe a mode of working with other other-than-human forms of knowledge in the speculative process that opens "greater participation and multiple perspectives for speculative inquiry" (Wakkary et al., 2022). Following Wakkary et al. (2018), co-speculation involves engaging participants who are uniquely positioned to "actively and knowingly speculate with us" in ways designers cannot do alone. Of particular interest here is work that directly integrates technology into speculative practice, whether by treating technology as the target of speculation or as the means through which speculative worlds are generated: from applied speculation with robots (Auger, 2014; Murray-Rust et al., 2024), using non-functional or estranged robotic artefacts to provoke alternative viewpoints on technological futures, to the use of AI as a

means to generate speculative metaphors and narrative fragments that help designers think differently about emerging possibilities (Blythe et al., 2025). Within this landscape, improvisational and conversational approaches to speculative practice have become particularly relevant. Examples range from using professional actors to interrogate nonhuman perspectives on mobility through sensor-driven narratives (Chang et al., 2017), role-play distributed energy systems (Pschetz et al., 2019), and explore unforeseen ethical situations with intelligent systems (Reddy et al., 2020) to employing dramatic techniques for understanding value conflicts in smart homes (Cila et al., 2025), enacting situated encounters with robots in supermarket (Rozendaal et al., 2024) and devising immersive robotic futures (Luria et al., 2020), as well as experiential futures that bring together artists and performers to animate possible worlds (Candy & Dunagan, 2017).

3. Methodology

The workshop examined here was the third in a sequence of three workshops on co-speculating with AI, conducted as part of a broader interaction design studio on more-than-human design at Politecnico di Milano. The studio brief invited students to explore resilient climate futures through the guiding concept of the “more-than-human body” (Homewood et al., 2021). We focus here on a one-day workshop engaging 55 graduate students in three progressive exercises using various AI tools (see Table 1). The workshop unfolded through three activities: 1) *visualising more-than-human perspectives*; 2) *conversing with more-than-human bodies*; and 3) *crafting a video about more-than-human bodies*. Students began by selecting a nonhuman entity and using text-to-image AI to depict its perspective, attending to its distinctive sensory modalities. They then prompted a language model to simulate this entity as a “more-than-human body,” requiring responses strictly from its point of view. Finally, they synthesized these explorations into short videos combining AI-generated visuals, text, and audio to represent how their chosen body senses the world. As the workshop was part of a sequence of modules guiding students from a design brief on resilient climate futures to interactive storytelling, the entities, co-speculation theme, and initial ideas were carried forward from earlier outdoor activities and idea-generation workshops.

Table 1 Overview of AI tools used by students during the workshop.

Tool Type	Tools Used
Conversational AI	ChatGPT, Claude, Gemini
Image Generation	DALL-E, Midjourney, Adobe Firefly, Ideogram, FLUX-pro, Stable diffusion, Meitu
Voice / Sound	Elevation Lab, Play.ht, Speechify, InVideo AI
Video / Animation	Runway, Pika, InVideoAI

In terms of co-speculation, the instructions invited students to exchange “embodied and daily experiences” as a primary source of knowledge for the possibility that unique perspectives might be synthesized from the synoptic pretensions of epistemic machinery. In doing so, the language model was framed as an improvisational context through which new lines of thought could emerge—"imaginative speculations that recognize no law except their own dialectic consistency" (Dewey et al., 2008). No guidelines were given to the students on how to prompt.

To make sense of a broad and open practice, the key component of our analysis became the production of a *vocabulary* of prompting strategies and relational tactics as a form of *intermediate-level knowledge* (Höök, K., & Löwgren, 2012) that allowed us to generalise from the material at hand.

3.1 Data collection and analysis

Our dataset comprises multiple layers of empirical material (Figure 1): the complete chat logs from students' interactions with various AI models (primarily through the Poe platform, which provided access to the tools in Table 1), the visual and textual outputs generated throughout the workshop, students' final video artifacts, students’ reports, and our own ethnographic observations as workshop facilitators. One of the authors systematically organized and catalogued this material, creating a structured archive of hundreds of prompts and their corresponding outputs across all student groups. An overview of the students’ groups is provided in Table 2.

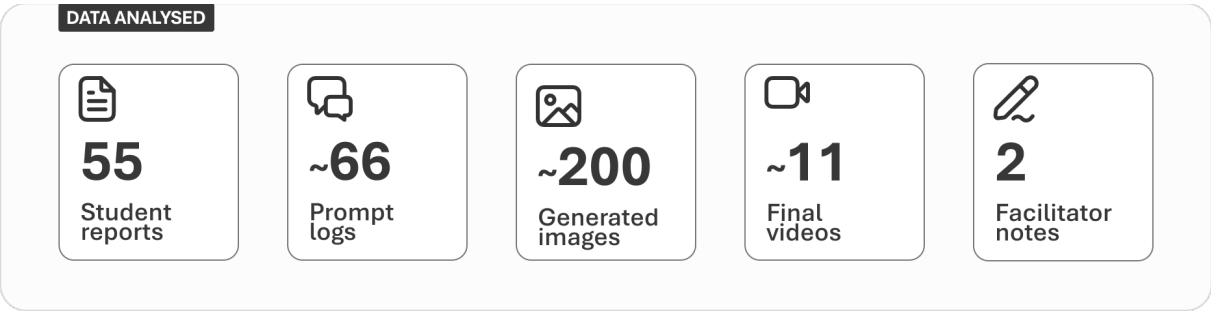


Figure 1 Composition of the dataset analysed in this study.

For the sake of readability, we chose not to indicate the specific group number or timestamp of each prompt in sections 4 and 5. Full transcripts, including all prompt–response pairs with corresponding metadata, are available in the supplementary materials to this article [https://zenodo.org/records/17580073], in accordance with open science principles. Where relevant to the analysis, we present prompts in sequence to show the unfolding of the co-speculative exchange, but otherwise omit timestamps and identifiers to maintain narrative clarity.

Table 2 Overview of students groups, including cultural background (aggregated by region) and the chosen more-than-human body with corresponding co-speculation theme.

Student groups	Cultural background	MTH body & Co-speculation theme
G1	Southern Europe & Middle East	**Bat**: Explored echolocation and bat perception to reimagine urban spaces as shared habitats.
G2	Southern Europe & Latin America	**Soy Plant**: Explored rooted sensing and its symbiotic relationship with soil systems.
G3	Southern Europe &Middle East	**Fungi**: Explored fungal sensing through sonic expression of metabolic connections.
G4	East Asia & Middle East	**Spiders**: Explored interspecies co-adaptation through shared environmental signals in spider-like networks.
G5	Middle East & Southern Europe	**Slime Mold**: Explored decentralised sensing and seasonal adaptation as metaphors for ecological resilience.
G6	East Asia	**Earthworm:** Explored as perceptual link to soil as a living system.
G7	South Asia, Middle East & Southern Europe	**Lichen:** Explored as part of a hybrid monitoring and restoring urban air quality.
G8	East Asia	**Mother Tree:** Explored as a regulatory AI node supporting forest resilience and multispecies coordination.
G9	East Asia & Southern Europe	**Spartina**: Explored ecological collapse in the Venice lagoon, highlighting human–non-human interdependence.

G10	East Asia & Middle East	**Caterpillar**: Explored how non-human entities reclaim and co-shape abandoned buildings, reframing decay as multispecies cohabitation.
G11	Southern Europe & Middle East	**Mushroom**: Explored as decentralized communicators within ecological networks, translating soil health into human- perceptible signals.

The analytical process centered on a five-day residential research retreat where the author team immersed themselves in this archive, engaging in iterative cycles of individual analysis and collective discussion. Rather than applying formal coding procedures, we adopted an interpretive and dialogical approach, allowing insights to emerge through close reading, comparison, and reflection on the material. This intensive format enabled deep engagement with the data while maintaining the discursive reflection central to our pragmatism-informed research approach. Through this process, we identified recurring patterns, unexpected uses of the AI tools, and moments of conceptual breakthrough or struggle. These observations gradually crystallized into the vocabulary we present, each emerging from the intersection of our pedagogical intentions, students' creative explorations, and the affordances and resistances of the AI systems themselves.

4. Articulating the design space of co-speculation with AI

The vocabulary we present in this section serves multiple, interchangeable purposes.

- **Descriptively**, it offers terms for articulating how co-speculation with AI unfolds in practice.
- **Analytically**, it helps designers recognize and discuss the dynamics of their interactions.
- **Generatively**, it provides a grammar for extending, revitalizing, or redirecting AI collaborations when interactions stall, enabling designers to move past blockages and open new speculative trajectories.

We discuss three groups of terms in the vocabulary: the *dynamics* of co-speculation, the *semantic components* of prompts, and the *relational tactics* employed.

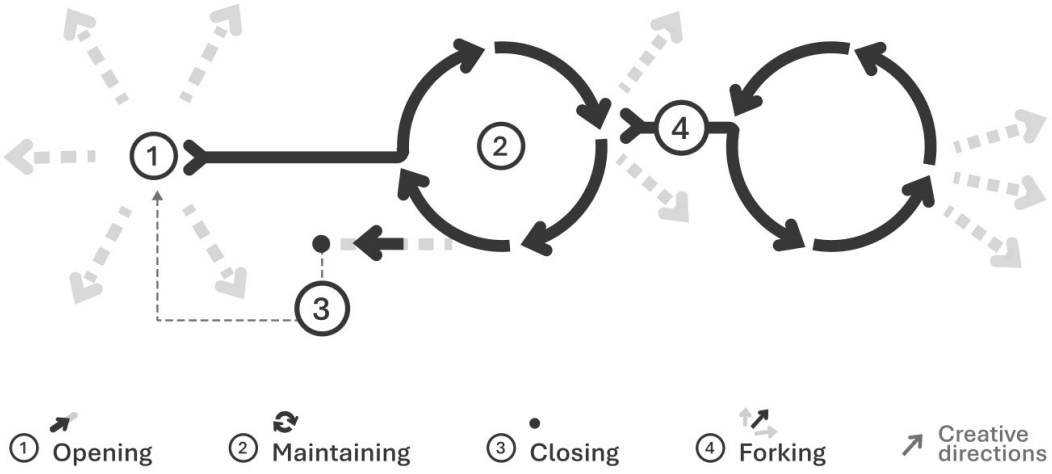


Figure 2 Diagram illustrating the key phases of co-speculative prompting: Opening, Maintaining, Closing, and Forking. A line moves through these phases, showing how creative exploration unfolds over time and occasionally branches into new directions that reopen the process.

4.1 Dynamics of co-speculation

We first describe the overall dynamics of a co-speculation session. Across the hundreds of exchanges students had with AIs, we noted that, almost without exception, their interactions aligned with one of the following phases (Figure 2):

- **Openings** mark the emergence of new conceptual territories, often triggered by the model's unexpected translations or reframings. These are moments within the interaction when new ideas sprout, and the energy of the exchange intensifies.
- **Maintainings** stabilize dialogue through incremental additions, refinements, and attunements that sustain the speculative thread. The direction of the exchange is preserved while new information is added or nuanced, allowing the co-speculation to be refined and consolidated.
- **Closings** are moments when progress stalls and repetition or drift curtail further exchange. The line of reasoning becomes mundane and will likely be abandoned. During these moments, the co-speculative energy is likely to dissipate.
- **Forking** describes moments when a new Opening emerges unexpectedly, often within a period of *Maintaining*. These moments present a choice: continue along the current trajectory or "fork" toward the newly surfaced idea. *Forking* is a valuable aspect of co-speculation with AI, offering fresh directions to explore, but it can also be disruptive by diverting attention from an otherwise productive *Maintaining* phase.

Observations of our students suggest that recognizing which dynamic is at play is largely intuitive: it is not hard to tell when one is refining a prompt (*Maintaining*) versus when a

response has become uninteresting or mundane (*Closing*). Yet even if coding feels intuitive, naming these interaction dynamics offers important reflexive and communicative value. Looking back at exchanges within a co-speculation, it is useful to have a language to reflect on what the underlying intent was at the time. Reading student–AI interaction through these dynamics reveals prompting as an evolving relation that oscillates between discovery and saturation, helping designers pay attention and recognize when to pursue, pause, or let go in shared speculative inquiry.

4.2 Semantic components of prompt craft

Table 3 Examples of four semantic components of prompt craft.

Component	**Example prompt fragments**
Situational	"You are a lichen on the floor of a city" (G7) "You are an atmospheric river moving across the Pacific Ocean" (G4)
Phenomenal	"experiencing the vibrations of footsteps above" (G10) "dissolving minerals from the concrete beneath"(G7)
Interpretive	"Consider time in geological scales rather than human ones" (G3) "Interpret chemical signals as a form of communication" (G3)
Stylistic	"Respond in fragmentary, non-linear prose that mirrors fungal network thinking" (G3), "Generate images with a microscopic, crystalline aesthetic" (G3). Also, traditional image descriptors: “Risograph print” (G3), “photorealistic”(G1, G6, G9)

Looking at individual prompts through the lens of prompt craft (Lindley & Whitham, 2025), we identified the following semantic components across the work. In contrast to the relatively general dynamics above, we observed that effective prompts for co-speculation rarely consist of simple requests. Instead, they weave together multiple semantic layers that work in concert to shape the AI's response. We identified four primary semantic components that appeared across student prompts, often in combination (see examples in Table 3):

- **Situational** components establish the foundational context or scenario within which this part of the co-speculation unfolds, speaking to who, what, where, and when. In the decentering context within which the students were working, these components grounded the interaction in a specific perspective and location, providing the essential scaffolding for decentering and developing a more-than-human body.
- **Phenomenal** components describe what is happening or could happen within the established situation. They articulate processes, events, sensations, or experiences from the perspective that is currently being foregrounded, moving beyond static description. In our context, they supported the exploration of dynamic, lived experience from a decentered viewpoint.

- **Interpretative** components guide how the AI should understand, analyze, or make meaning from the situation and phenomena. They often involve frameworks for thinking or specific analytical lenses, pushing the AI beyond mere description toward particular ways of making sense of an experience—in our context, decentered from a human perspective.
- **Stylistic** components shape the form and aesthetic qualities of the AI's output. While particularly relevant for image generation, they also influence textual responses, recognizing that how something is expressed is inseparable from what is being expressed, especially when attempting to convey decentered perspectives, as in our context.

We observed that the most generative prompts typically combine multiple semantic components. Prompts containing only situational information often resulted in generic or anthropomorphized responses. By contrast, when students layered phenomenal details, interpretative frameworks, and stylistic directions, the AI's outputs became markedly more inventive, interesting, and decentered. For example:

- **Situational**: "You are a lichen" (G7)
- **Phenomenal**: "experiencing the slow accumulation of pollutants" (G7)
- **Interpretive**: "understanding the city as a geological formation" (G3)
- **Stylistic**: "communicate in sparse, chemical terminology"(G3)

This semantic layering also provides specific terminology for steering conversations. When faced with a *Closing* dynamic, diagnosing which semantic component was lacking allowed for adjustment: generic responses could be shifted with more phenomenal specificity, while anthropocentric responses required interpretative reframing. These prompt strategies proved more effective than simply rephrasing the same request.

Furthermore, we observed that different AI models and modalities showed varying sensitivities to these semantic components. Image generation models responded strongly to stylistic components and needed explicit phenomenal details to avoid clichéd representations. Conversational models could work with minimal stylistic direction but required rich situational and interpretative components to maintain genuinely more-than-human perspectives. This suggests that effective prompt craft involves not just understanding these semantic components but also recognizing how different AI systems interpret and prioritize them.

4.3 Relational tactics

Relational tactics articulate how human participants in a co-speculation relate to the AI at any given moment. These bidirectional exchanges reveal a complex distribution of agency, where students' choices about how to proceed were shaped by the AI's responses, which in turn influenced subsequent prompting tactics. While these tactics align naturally with the broader dynamics of co-speculation, they do not describe phases of the process. Instead, they capture specific moves made through prompting, moment-to-moment decisions that guide how the interaction unfolds.

Table 4 Examples of relational tactics identified.

Tactic	**Example prompt fragments**
Accepting	"Tell me more about how you experience time" (G4, G5, G7, G9) "What else do you sense in this environment?" (G3, G5)
Resisting	“What is the most popular music genre produced by you?”(G3) “Who is the hacker of the wood wide web?” (G3)
Insisting	"Remember, you have no eyes, no human senses, describe your experience only through chemical gradients." (G3)
Adding	"Now consider how you detect magnetic fields" (G5), "What changes when winter arrives?"(G5), "A construction project begins nearby" (G4)
Smoothing	"Less poetic, more matter-of-fact" (G7), "What do you mean by 'feeling' in this context?"(G5), "Connect this to what you said earlier about mineral exchange." (G5)
Model Change	“Venice lagoon from a low water viewpoint, 2500.” (G9) (Stable Diffusion XL → DALL-E 3); “A metaphoric perception of light and energy from a soybean plant.” (G2) (Ideogram-v2 → Stable Diffusion 3.5-L) (see Figure 3)



Figure 3 Visual outcomes illustrating the Model Change tactic. Top two images (prompt "Venice, 2500"): generated with Stable Diffusion XL (left) and DALL-E 3 (right). Bottom two images (prompt "Soybean perception of light and energy"): generated with Ideogram-v2 (left) and Stable Diffusion 3.5-L (right).

Accepting is recognizing value in the AI's current output and deepening or expanding the exploration within the established framework. This might manifest as prompts like "Tell me more…", or "What else…". Students who skillfully employed *accepting* often discovered unexpected depths in their more-than-human perspectives, as each accepted response became a foundation for more nuanced investigation, often explored through *Maintaining* or *Forking* dynamics and by tweaking semantic components.

Resisting occurs when students cannot see or work with what the AI has offered. In our context, it manifested as a pull back toward familiar human frames, countering the AI's more decentered and imaginative *Openings* and unavoidably steering the interaction towards *Closing*. For example, after the AI described biochemical communication as "Metabolomics—the primordial tongue of molecules," students slipped back into human tropes, asking about music genres and art forms, asking for example "What is the most popular music genre produced by you?"(G3).

Insisting captures attempts to redirect or constrain the AI's responses through explicit boundary-setting. When the AI drifted away from a more-than-human perspective, students insisted on the intended decentering: "Remember, you have no eyes, no human senses" (G3). This tactic surfaced whenever the model slipped from the desired viewpoint, with some students readily following such drift and others more attuned to the need to insist and re-anchor the exchange.

Adding involves incremental elaboration, introducing new elements without fundamentally altering the script. Students extended the exchange by inviting sensory modalities: "Now consider how you detect magnetic fields" (G5), temporal dimensions: "What changes when winter arrives?" (G5), or contextual details: "A construction project begins nearby" (G4). This tactic proved especially effective during *Maintaining* phases, allowing students to build rich, multifaceted perspectives through gradual accumulation rather than dramatic shifts.

Smoothing encompasses the fine-tuning adjustments that refine and polish the co-speculation. These might be subtle stylistic corrections ("Less poetic…"), requests for clarification ("What do you mean by …"), or building coherence ("Connect this to…"). Students who skillfully employed smoothing often produced the most compelling final artifacts, having iteratively refined their co-speculation toward increasingly precise expressions of more-than-human experience.

Model change represents the decision to attempt the same or similar prompts with a different AI system. Some students ended up experiencing *Closings* despite having crafted well-considered prompts because they were using a model that was ill-equipped to respond. This was particularly stark with text-to-image models (Figure 3). Model changes frequently led to unexpected *Openings*, as different models' training biases and response patterns could dramatically reframe the same prompt.

These relational tactics show how successful co-speculation requires a flexible repertoire. Students who relied too heavily on any single tactic often found their explorations becoming

predictable or getting stuck. Those who fluidly moved between accepting and insisting, who knew when to add versus when to smooth, and who deliberately employed model changes, generated the richest and most surprising decentered perspectives. The tactics thus offer not just descriptive categories but a practical vocabulary for recognizing and diversifying one's exchanges with AI in co-speculation.

5. Annotated example: *Chemical Democracy*

To illustrate how this vocabulary of co-speculation unfolds in practice, and over time, we present the work of one student group (Group 3), tracing their project from the initial design brief to the final installation. The example includes the prompts they made, the responses they received, and annotations using the vocabulary developed above. Key moments from their image generation and textual conversations are shown, with corresponding annotations in Figures 4a and 4b.

Group 3 began with the idea of a more-than-human body that appears in cities during humid periods, where core elements (air, water, soil) meet instruments (moss, algae, humans, crickets) to produce music reflecting the ecosystem's health. This initial idea led students on a speculative journey towards a 'metabolomic language' of chemical signals and musical signifiers.

After the workshop, the students' project evolved into Nexus, an interactive installation set in a future where heat has depleted the soil's nutrients and mammals exchange body fluids with the ecosystem to restore balance—a poetic scenario inspired by 'metabolomic language' as the basis for a new form of chemical democracy grounded in fungi's distributed intelligence (Figure 5).

As one of the team members reflected in her report: "While tone, lexicon, and semantics influenced how AI responded to us, its answer helped us adjust our aim and ask new questions, ultimately arriving at a surreal universal language: metabolomics, fungi's poetry of chemical reactions."

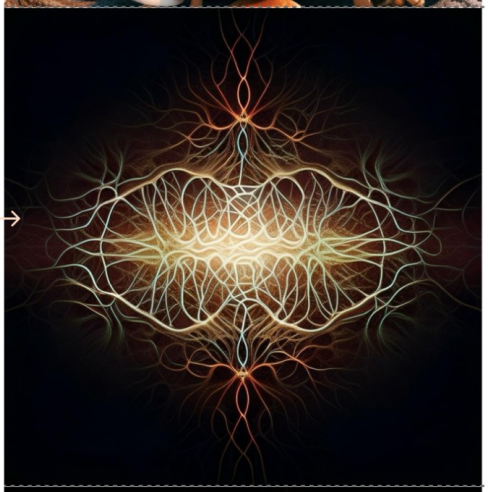
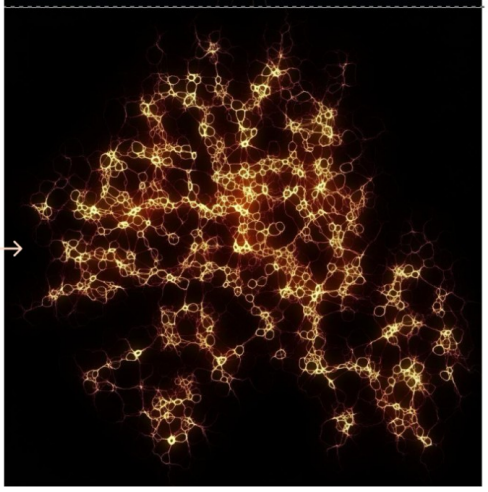
Phase description	Generated image	Analysis
In their image work, the students began with ***brief prompts assuming*** that the model already understood ideas like decentering or non-anthropomorphic design. When the outputs disappointed, they realized such concepts had to be co-constructed through language.		**Opening** *Misalignment between intention and output generates new speculative ground rather than closure.* *This particular opening is enacted through a tactic of **Resisting** in which students reject anthropomorphic outputs and push back against the model's assumptions.*
Through successive refinements, they enriched their prompts with ***analogies***, ***metaphors***, and ***sensory descriptors***.		**Maintaining** *This is supported by the tactic of **Adding**, whereby students incrementally layer new **Semantic Components** to stabilise the dialogue.*
They began describing the entity through ***environmental relations*** ("guided by light sources, oxygen-rich areas, and communication pulses") rather than human traits. Eventually, the process plateaued: further prompting produced repetition rather than discovery. Recognizing this saturation point, the group decided to end the image experiment.		**Closing** *The co-speculative energy dissipates and curiosity gives way to saturation.*

Figure 4a Image exploration by Group 3, illustrating the shift from anthropocentric to fungal perception, with annotated vocabulary of co-speculation.

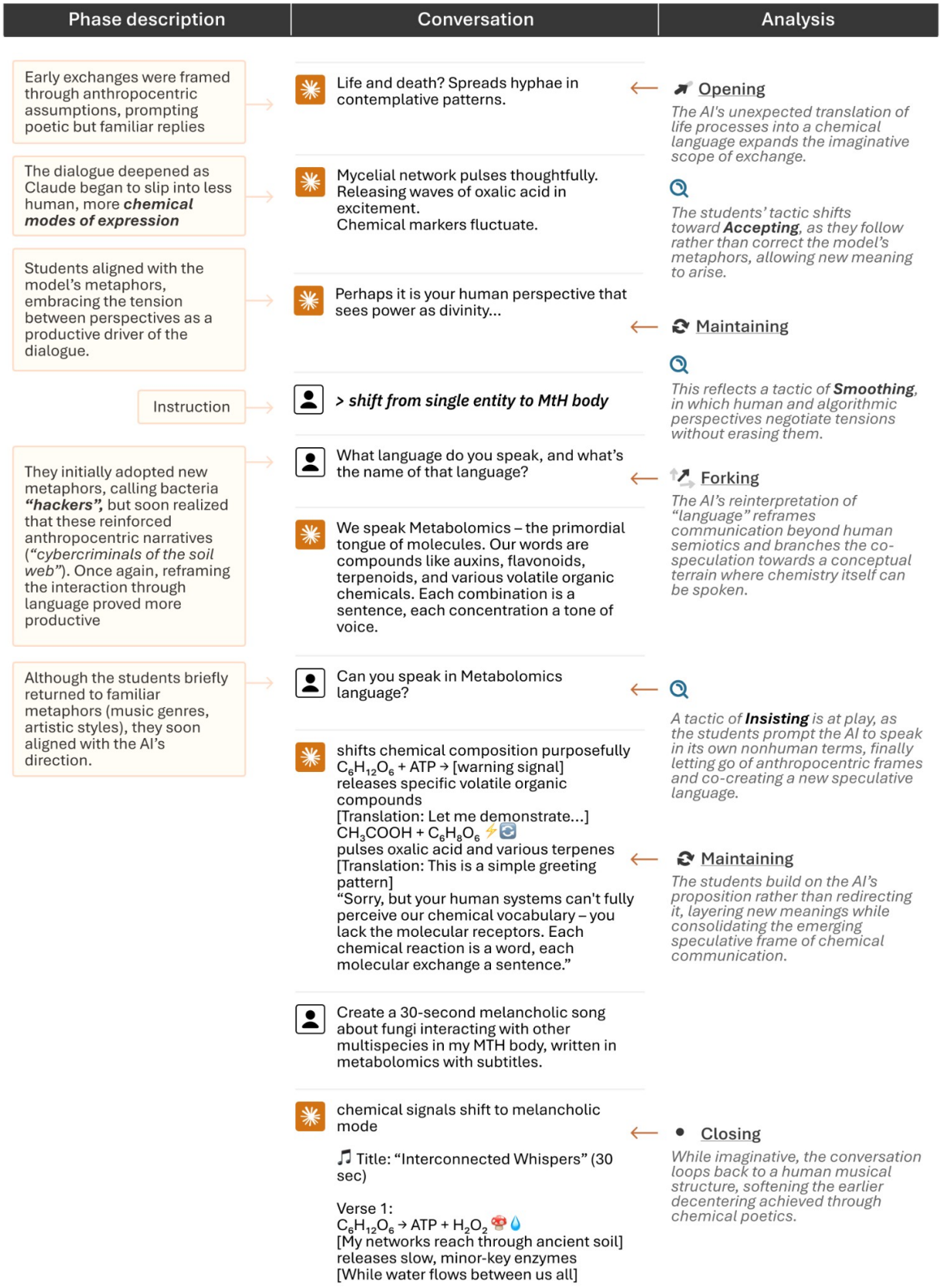


Figure 4b Textual conversations with Claude showing the emergence of a 'metabolomic language', with annotated vocabulary of co-speculation.

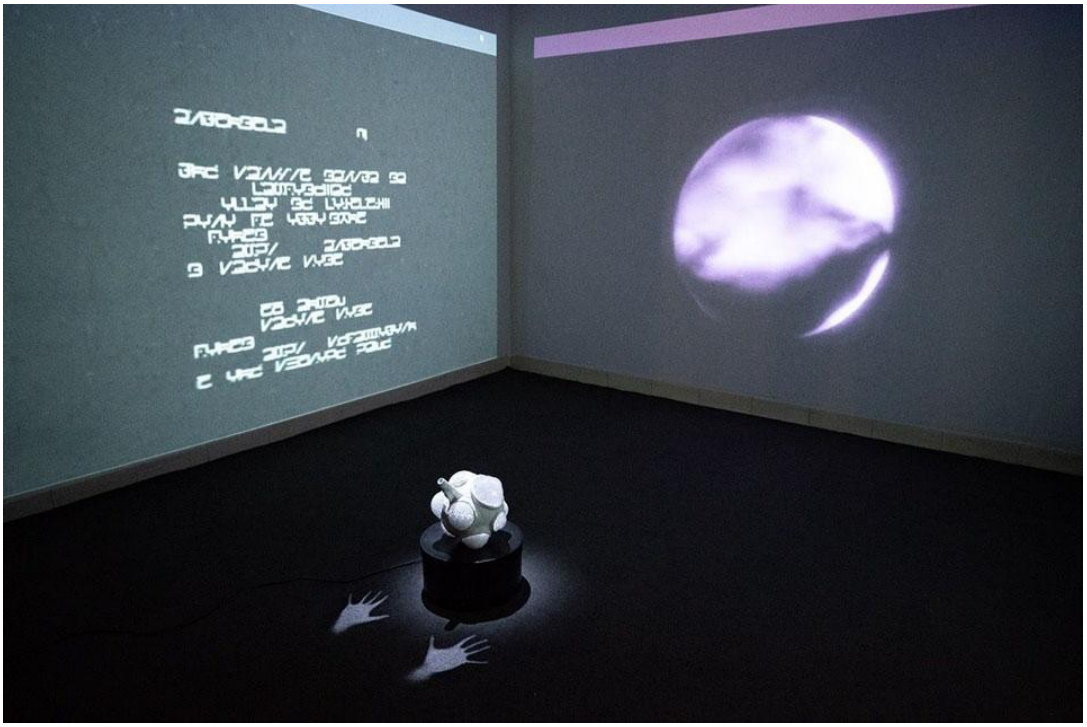


Figure 5. Nexus—final installation by Group 3. The interactive environment invited participants to contribute through their breath, symbolically "donating" chemical matter to the ecosystem, translating the speculative concept of Chemical Democracy into an embodied experience of ecological interdependence.

6. Conclusions and future work

We set out a vocabulary for co-speculation with AI articulated through three lenses: (1) *interactional dynamics* that trace the arc of an exchange (Openings, Maintainings, Closings, with Forking as a recurrent branch), (2) *semantic components* of prompt craft (Situational, Phenomenal, Interpretive, Stylistic), and (3) *relational tactics* (Accepting, Resisting, Insisting, Adding, Smoothing, Model Change). Together, these lenses name how co-speculation unfolds over time, how meaning is composed within individual prompts, and how designers steer from one turn to the next.

Our contribution differs from work that aims to design or evaluate AI systems. We are not defining the intrinsic qualities of the models; we are describing the interactional dynamics that emerge between humans and models and offering language for working with those dynamics. In doing so, the paper contributes to the relational interfacing structures needed for resonant design practice with generative AI (Murray-Rust & Giaccardi, 2026), fitting the broader agenda of building frameworks and grammars that make reflective, shared speculation possible.

Pedagogically, the vocabulary supports cultivating intentionality rather than scoring creative output. Following McIntyre and Smith (1989), intentionality refers to our directedness toward states of affairs, acting with an aim rather than drifting on unexamined cues. In the context of co-speculation with AI, intentionality extends beyond individual focus. It involves problematizing how the more-than-human "languages"—as a verb—and takes part in design alongside us, exploring how their distinct points of view can inform and enrich design

processes. Decentering requires such intentionality. Designers must recognize when they are opening, maintaining, or closing a line of inquiry, and choose tactics (e.g., insisting, adding, switching models) that align with their aim. The point is not to produce "better images," but to *deepen the quality of attention* in human–AI collaboration.

Consistent with our methodological stance, we offer these lenses as generative perspectives for experienced practitioners, not prescriptive rules. They emerged from immersion in student practice and are presented as provocations to think with. We invite readers to adapt, combine, or contest them in their own co-speculative settings.

Finally, the vocabulary is actionable for future interventions. It gives a framework to prototype against and a way to situate a range of more or less agential tools that shape design processes. This can be used directly (as teaching prompts, rubrics, and reflection checkpoints for students) and embedded (as features in tools that visualize dynamics, recommend tactics, or nudge semantic layering). The functions identified in human turns—such as opening, maintaining, insisting, smoothing, or model switching—clearly resonate with a wide range of conversational and collaborative settings with generative AI, including writing, programming, education, and knowledge work more broadly. This paper illuminates how these moves dynamically organize the unfolding of human-AI collaboration over time. Rather than treating interaction as a sequence of isolated prompts and responses, the annotated moments show that co-speculation unfolds as a temporal rhythm: Openings surface new territories, Maintainings consolidate and attune, Closings signal saturation. Making this rhythm legible is a step toward intentional, reflective, and transferable practices of co-speculation with AI.

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