

IdeaScape: Supporting Designers' Ideation

Needfinding Report

Team 6

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CMPSC 185

Human–Computer Interaction

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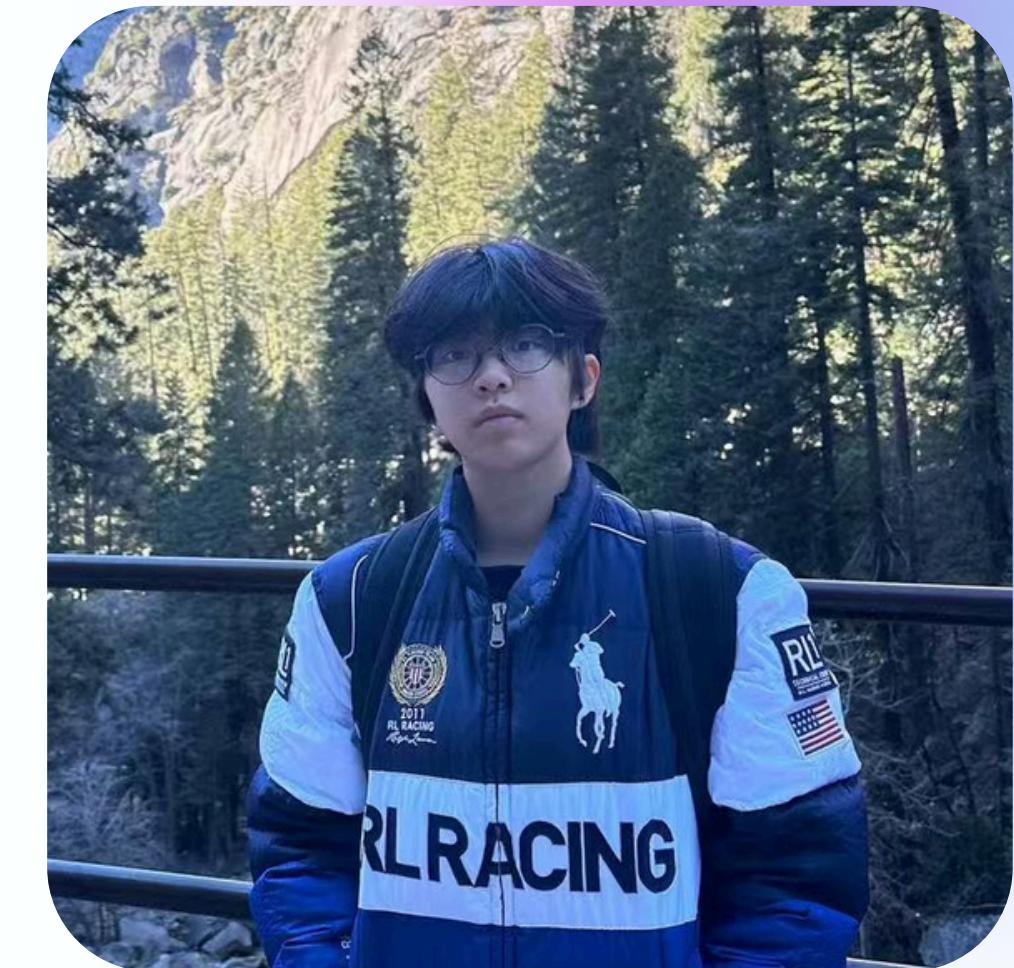
Team Members



Xue Gao
MAT student



Jintong Yang
MAT student



Yanxiu Jin
ECE student

T3: Designing for Human Agency and Control

As more products quietly automate decisions from what we see, what we click, what we buy, to what we remember, people can end up supervising systems rather than acting with intention. Sometimes that automation is helpful; other times it erodes autonomy, confidence, and accountability. This theme asks you to design tools that keep people meaningfully “in the loop,” not as a last-resort override, but as an active partner in decision-making. How might we design systems that make it easy to choose, steer, and revise automated outcomes so users remain capable, informed actors?

Problem Domain

Are we interested in it?



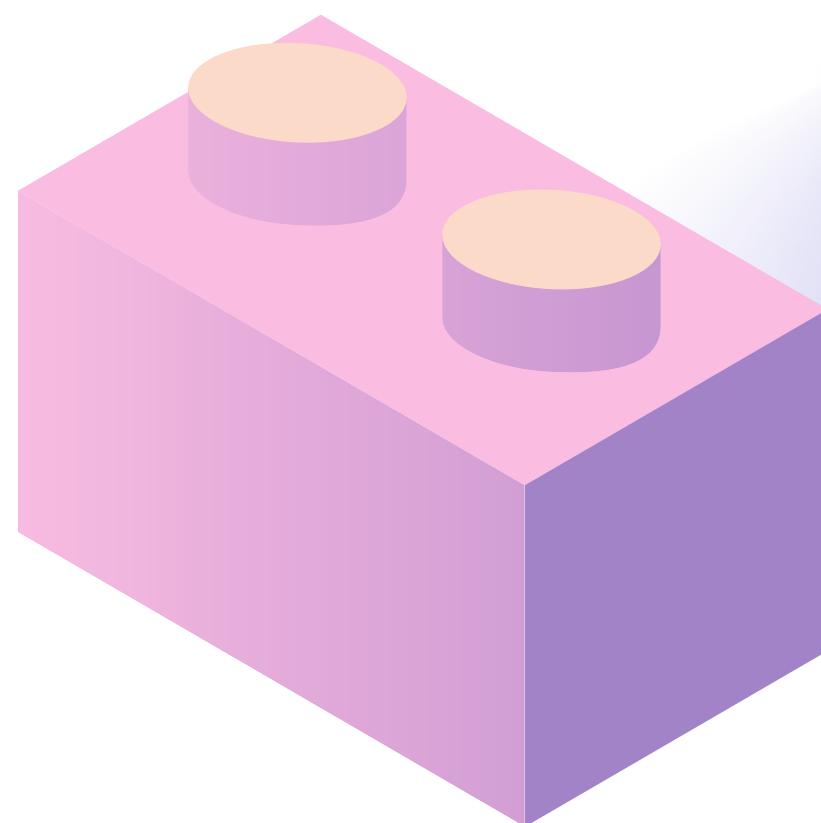
Creative
Design
Ideation in
Industry

Is this a domain vulnerable to
loss of agency through automation?

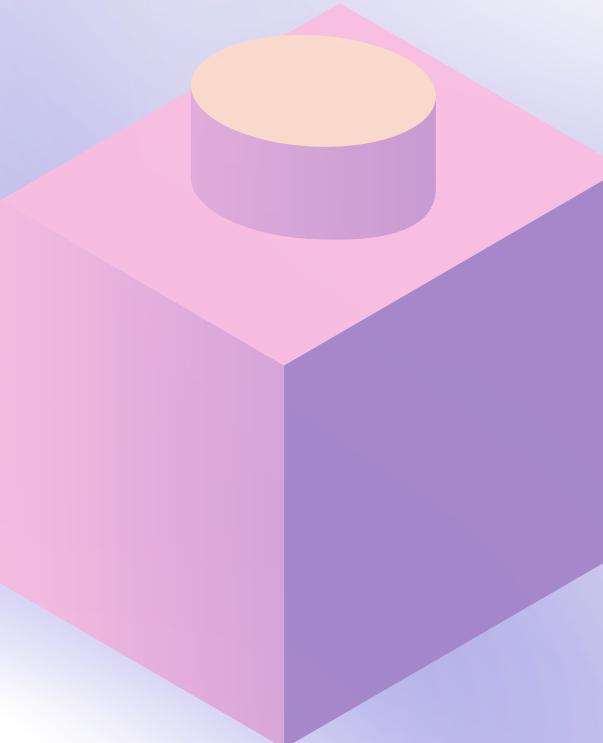
Is this a shared everyday
professional experience?

Participant Selection Factors

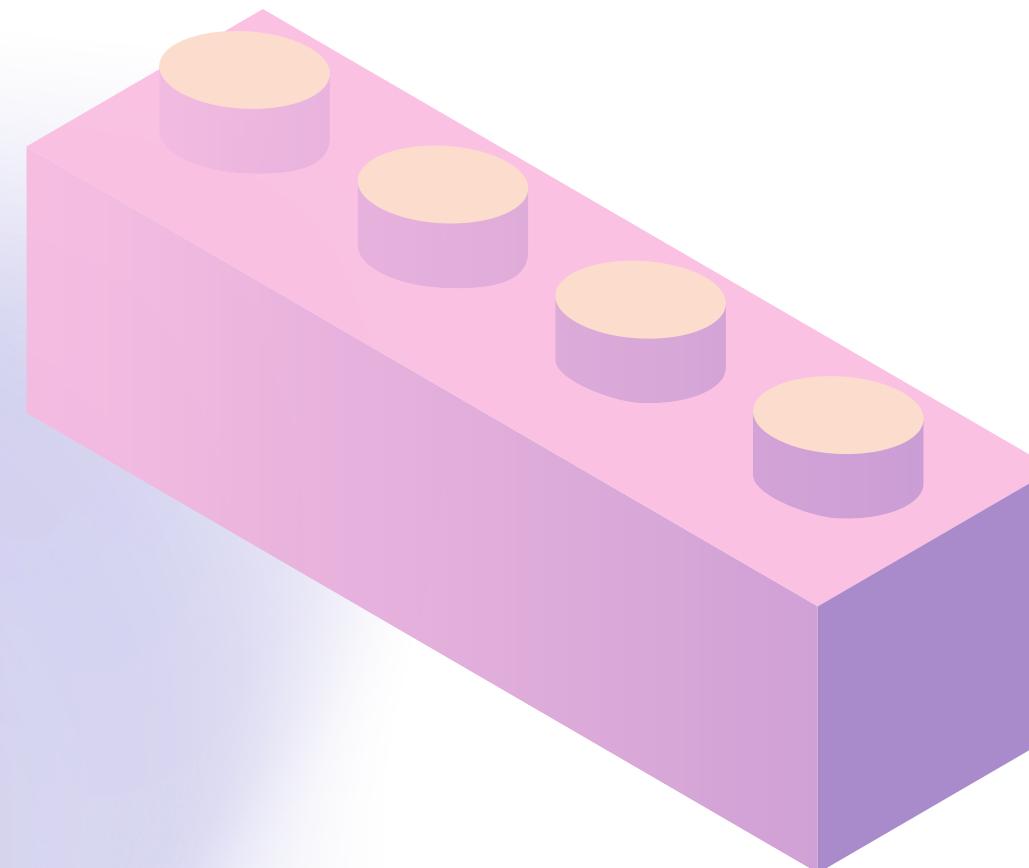
Non-UCSB
Student



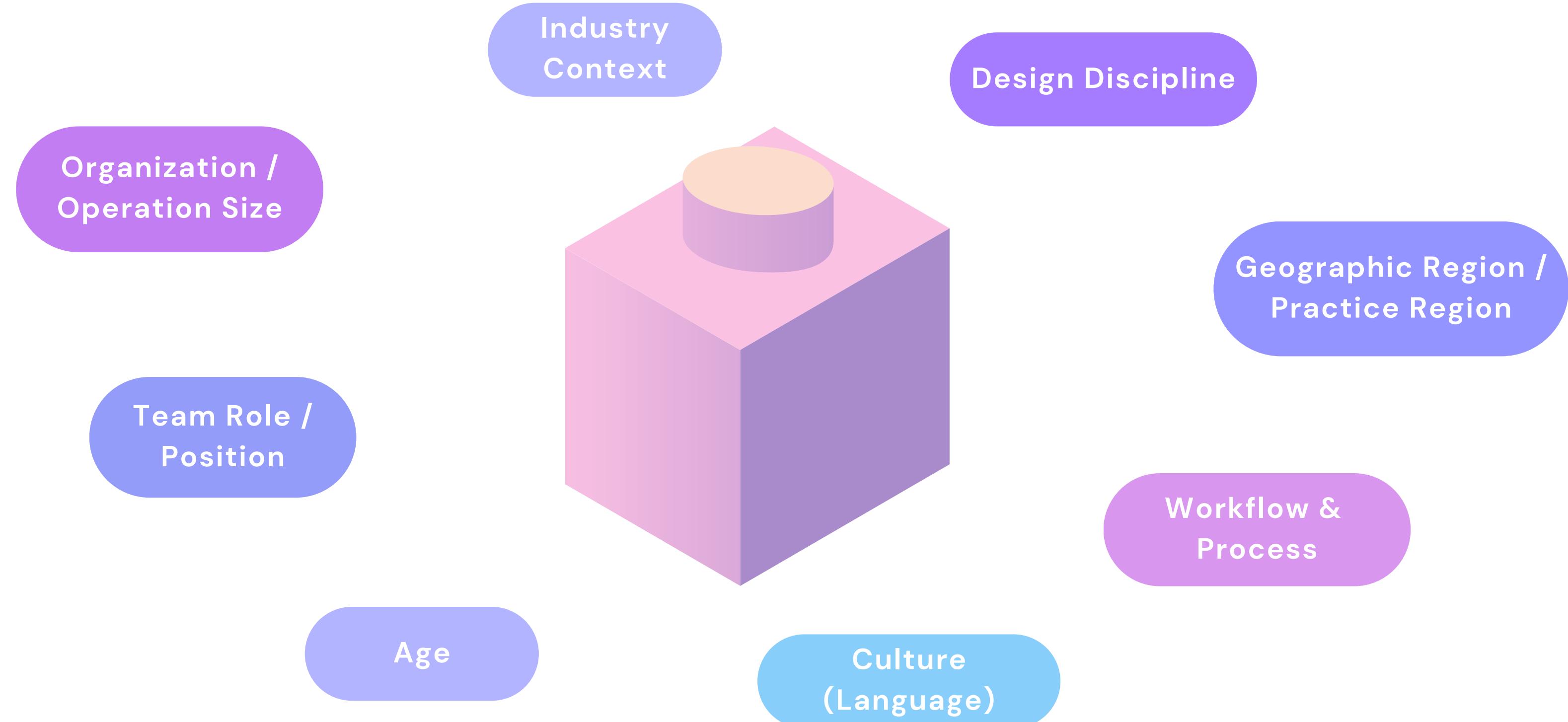
Current
Practitioner
in Industry

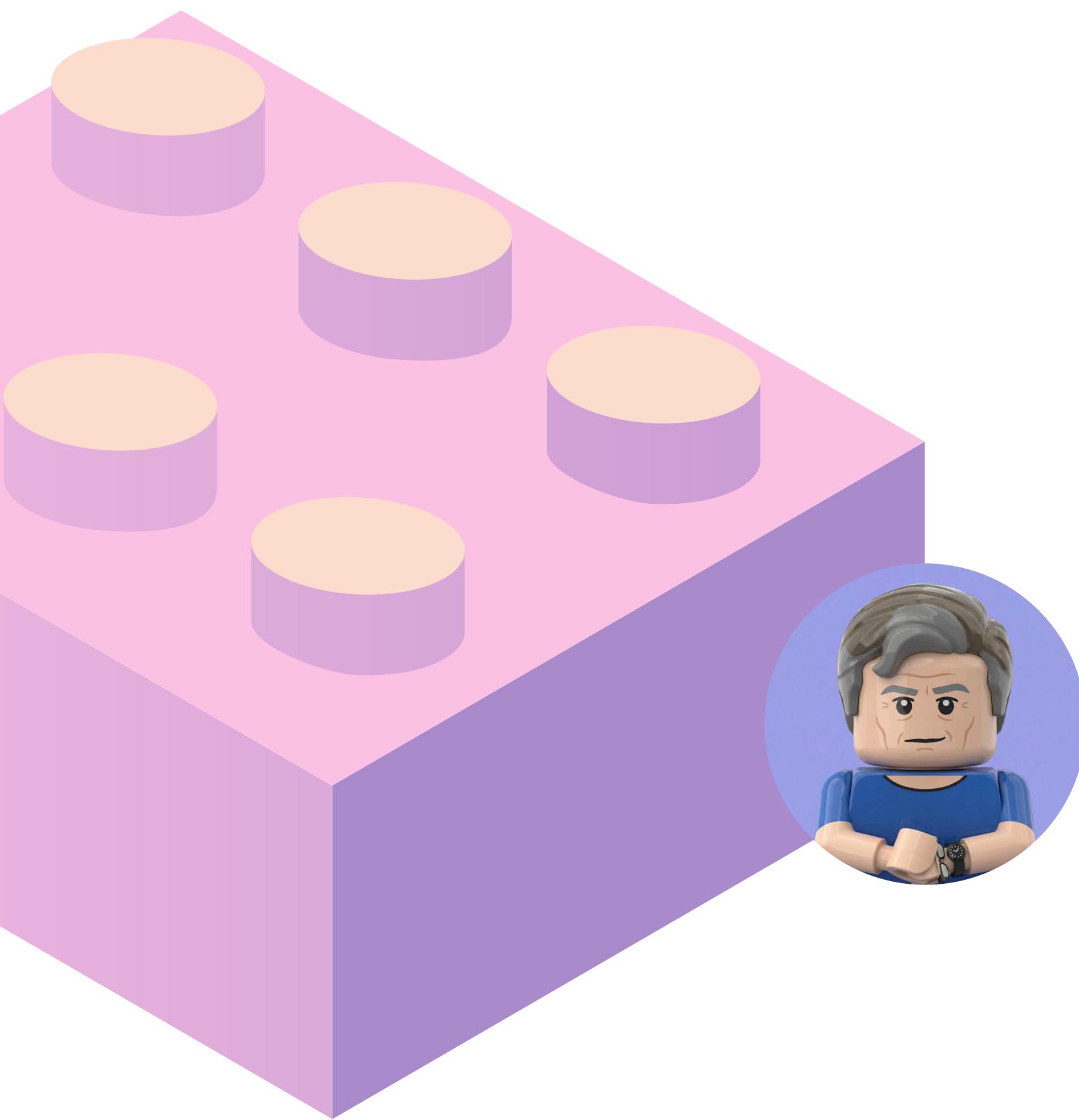


Diversity



Diversity Consideration





Extreme Case: Joe

He's the **owner** of the manufacturing studio inherited from his family. Thus:

- 1 He has **greater decision-making authority**
- 2 He operates at a **high-level, conceptual role**
- 3 He has **visibility across the entire workflow**
- 4 His role is **not linear or chain-based**
- 5 He **collaborates** directly with **external architects and designers**

Interviewee Information

We conducted 3 **semi-structured** interviews with 4 interviewees for needfinding. Participants were recruited through **personal and professional networks**, including collaborator referrals, faculty-organized industry visits, and UCSB faculty connections. During the interview, we used **Zoom** and the **Apple recording app** to record the conversation, and use built-in **post-meeting transcript generation** in zoom and **otter.ai** for records.

Name (Fake)	Design Disciplinary	Title & Position	Interview Location	Interview Lead	Interview Recording
Joe	Digital Fabrication & Sculpture Design	Designer, Artist & President of Manufacturing Studio	His own office	Jintong Yang	Xue Gao
Fiona	Costume Design	Freelancer & Professor of UC System	Her own office	Xue Gao	Jintong Yang
Mei	UI & UE designer	Designer of Mobile Game Company	Via Zoom w/ Ming together	Yanxiu Jin	Jintong Yang
Ming	Animator & Vfx designer	Designer of Mobile Game Company	Via Zoom w/ Mei together	Yanxiu Jin	Jintong Yang

Why are they appropriate?

- All participants actively engage in **creative ideation** within industry settings
- Their work takes place in contexts where **automation tools** increasingly influence how ideas are generated, evaluated, and finalized
- They represent **diverse** design disciplines, organizational scales, and geographic regions
- This diversity allows us to observe how **human agency and control** are maintained and exercised across **real-world** creative workflows

Interview Questions

Design & Ideation

What's your **design discipline**?

What's your **typical workflow**?

What kind of tools do you use?

How do you **organize** your ideas?

What **tools & methods** do you use?

How do you **brainstorm** ideas?

How do you **get inspiration**?

How **long** will the ideation phase usually take?

Collaboration & Communication

What's your **position**?
Do you work as a freelancer, in a studio, or a company?

Who and how do you communicate your ideas?

What do you **enjoy** and **don't enjoy** in the ideation process?

What are some **criteria** you have for you to move from ideation to the next steps?

AI Use

Do you use AI while working?
How do you use it? Can you give us an example?

What are some things you feel are **inconvenient** or **uncomfortable** using AI for ideation?
How do you deal with it?



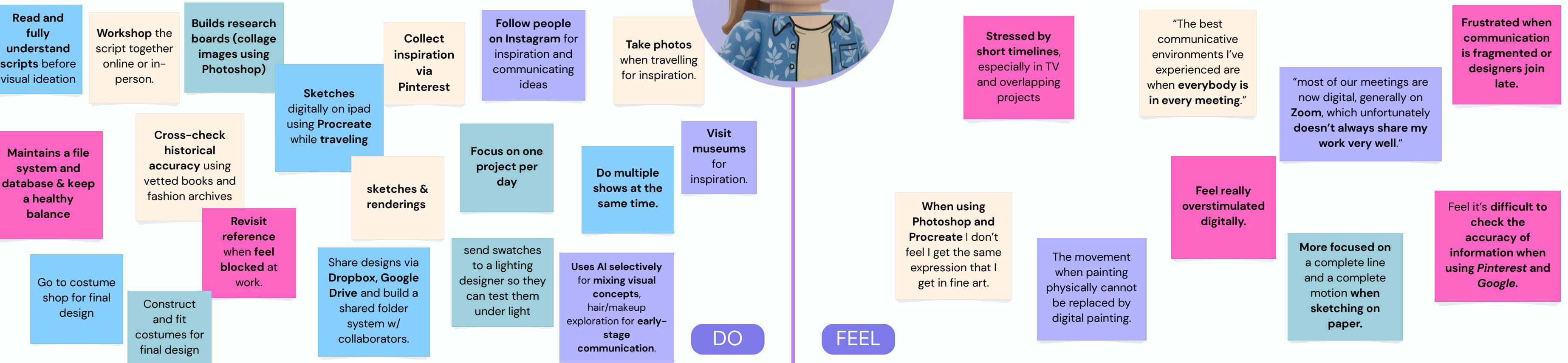
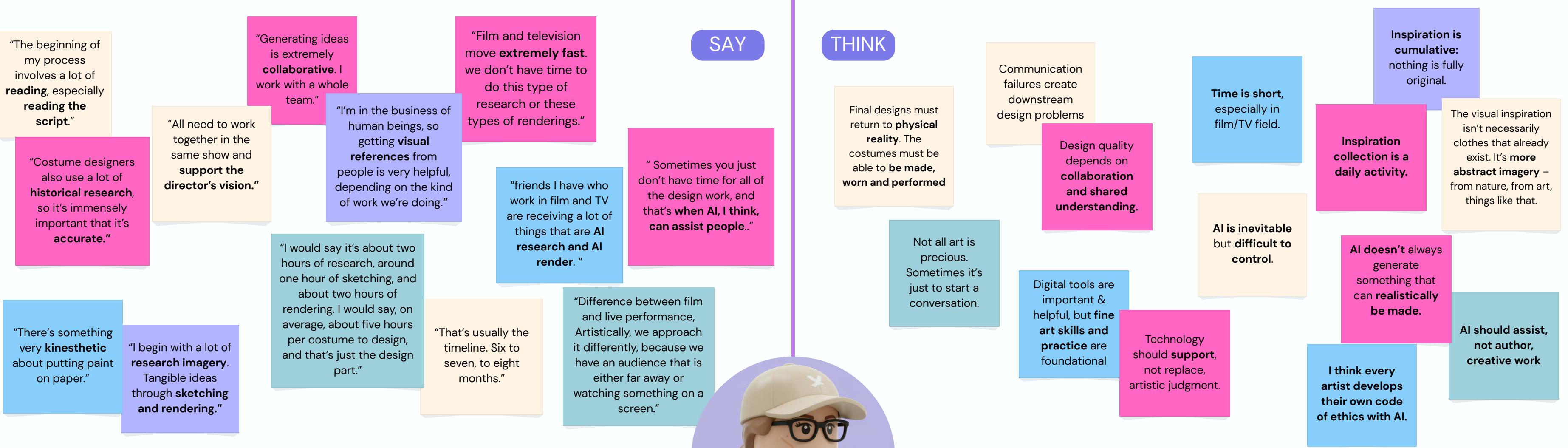
Fiona

*Costume Designer
Assistant Teaching Professor*

"What I do not use AI for is renderings or sketches. That's just something that feels too far for me, because the truth is, at that point, they're not really my ideas."

"So I use AI to help guide and communicate research, when the show is appropriate for it."

EMPATHY MAP



Key Insights

- **Accuracy is a key evaluation criterion.**

Design quality is judged not only by creativity. It's more about how well references align with historical archive, script narrative, and material realities.

- **Communication and collaboration are central to successful design.**

Synchronized and frequent conversations across departments are essential for aligning ideas and preventing misunderstandings, back-and-forth, and conflicts in the following steps.

- **Converting multimedia reference into visual design practice.**

Inspiration and research come from multiple media, such as text, books, archives, and digital platforms. Costume designers rely on visuals to reason, decide, and communicate.



- **Timeline and speed strongly shape the design process.**

Tight schedules compress ideation time and push designers toward faster, more flexible, and efficient tools.

- **AI is helpful, but only within clearly defined boundaries.**

AI supports early exploration, but is not trusted for authorship, historical accuracy, or physically executable designs. It is difficult to control.

Key Insights

- She needs to ensure the accuracy and credibility of references.
- She needs to interpret and translate multimedia research into visual design thinking.
- She needs to collect and revisit inspiration in a low-pressure, ongoing way.
- She needs databases and file systems to support design and collaboration.
- She needs clear and synchronized communication across disciplines.
- She needs to work efficiently under tight timelines and multitasking conditions
- She needs to ensure designs are physically executable in the real world



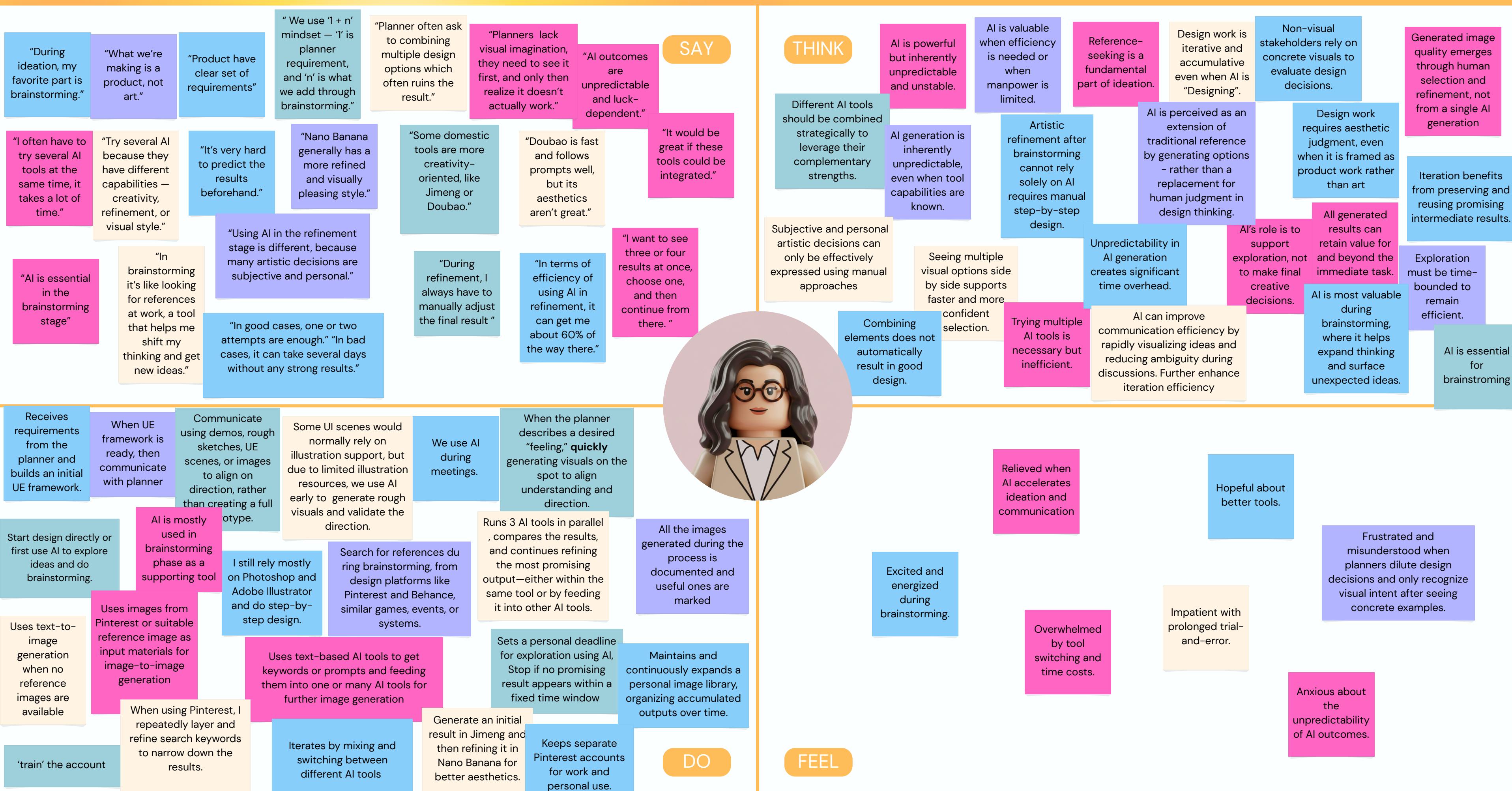
Mei

*UI & UE designer
Mobile Game Company*

“In early stages, I use AI to quickly generate rough visuals to check whether the direction feels right.”

“One inconvenience is that I often have to try multiple AI tools in parallel. I wish these tools were integrated so I could generate results from three or four AIs at once, choose the one I like, and then let all of them continue iterating.”

EMPATHY MAP



Key Insights

- Brainstorming is where AI creates the most value
- AI accelerates ideation but introduces uncertainty and overhead
- AI partly shifts effort from creation to decision-making
- AI can generate options, but design quality comes from human judgment and intervention.
- Effective workflows rely on comparing multiple alternatives and iterations
- Intermediate outputs can have long-term value beyond a single task
- Tool fragmentation disrupts creative flow
- Tool choice is contextual, not hierarchical



Key Needs

- She needs AI tools that prioritize fast, low-friction exploration during early ideation.
- She needs to manage time, effort, and uncertainty during exploration, maintaining a sense of control rather than being driven by AI unpredictability.
- She needs tools that help her choose, discard, and combine ideas, instead of simply generating more outputs.
- She needs part of generated images to persist as reusable assets
- She needs a unified and continuous workflow, minimizing tool switching and context loss to preserve creative flow.
- She needs mechanisms to externalize design intent and aesthetic judgment into visible, manipulable representations, so intent expressed through text or images can be inspected, adjusted, and used to intentionally steer generative outcomes



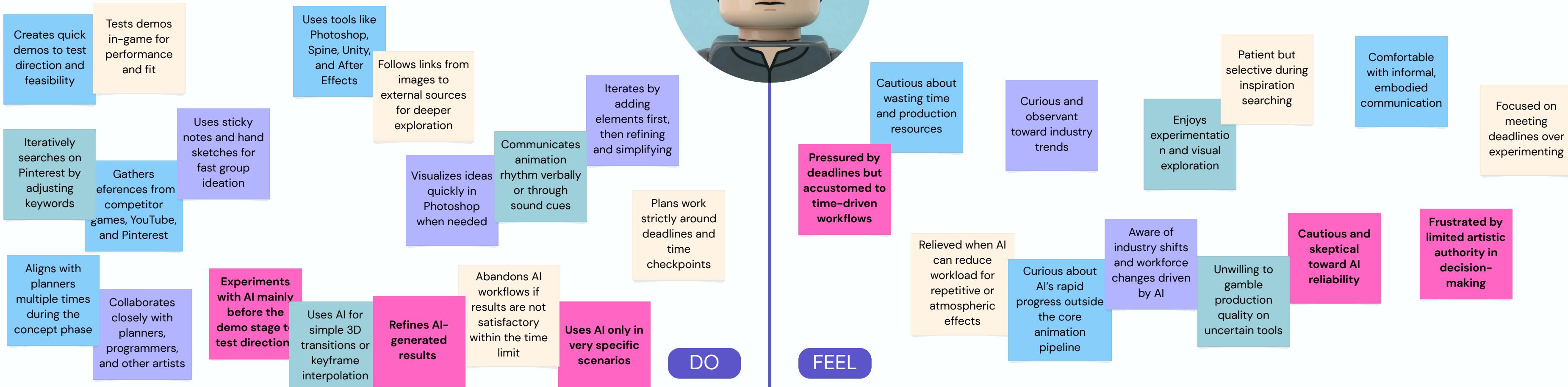
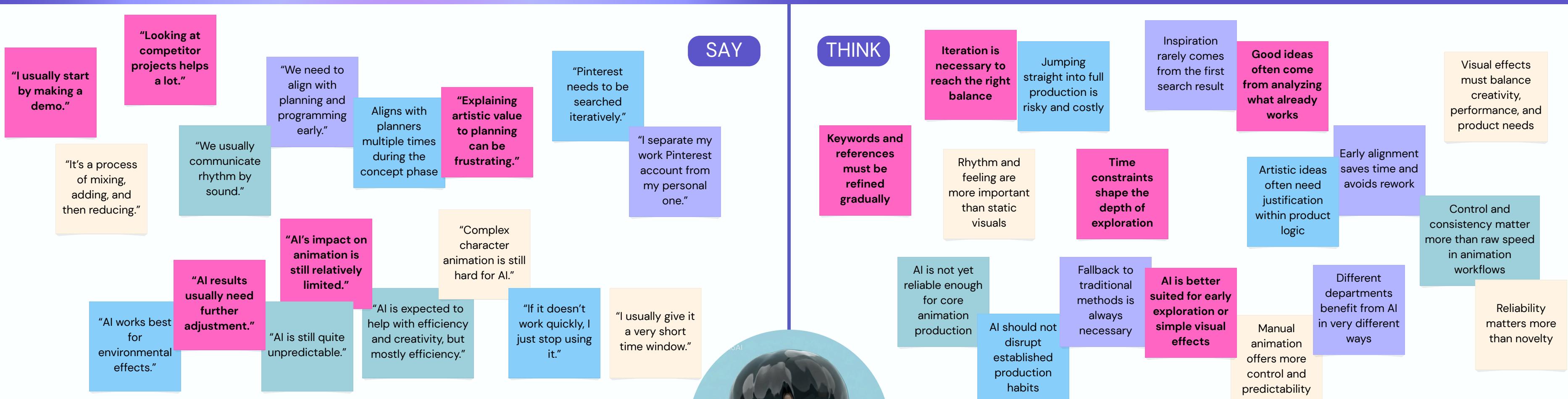
Ming

*Animator & Vfx designer
Mobile Game Company*

“I usually use AI for demos. By feeding early concept images with prompts, I can avoid the high upfront cost of traditional animation setup.”

“I usually set a clear time limit for AI. If it doesn’t produce a usable result within that window, I simply abandon it.”

EMPATHY MAP



Key Insights

- **AI is more effective for exploration than final production**
In production workflows, designers prioritize controllable and reliable results over speed gains from AI.
- **Control and predictability are more important than raw efficiency**
AI is more effective for 2D effects and natural phenomena (e.g., fire, smoke, loops) than for complex 3D character motion, which requires precise control and narrative continuity.
- **AI performs better in pattern-based effects than complex character animation**
AI is more effective for 2D effects and natural phenomena (e.g., fire, smoke, loops) than for complex 3D character motion, which requires precise control and narrative continuity.
- **AI enables individual production at near-studio quality**
- **A practical AI pipeline is multi-tool and iterative, not one-shot generation**



Key Needs

- He needs tools that enable fast idea exploration with strong control and predictable outputs that behave reliably within production workflows.
- He needs AI tools optimized for areas where AI already demonstrates clear strengths.
- He thinks individual creators need workflows that allow them to efficiently combine multiple tools and achieve near-studio-quality results.
- He needs support on step-by-step iteration, versioning, and handoff between tools rather than one-shot generation.



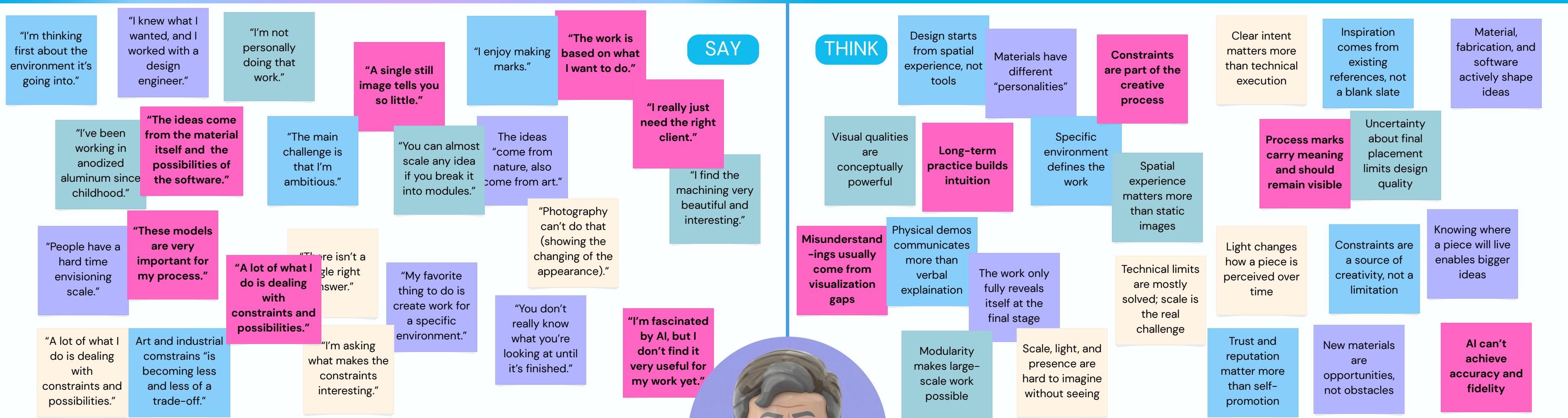
Joe

*Digital Fabrication &
Sculpture Designer, Artist,
President of a
Manufacturing Studio*

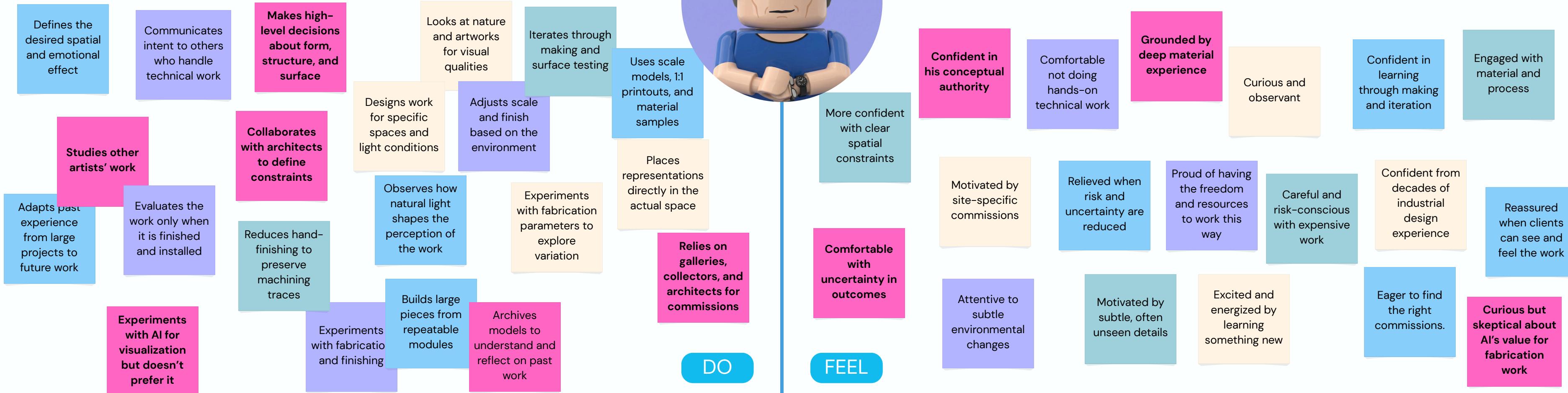
“A lot of what I do is dealing with constraints and possibilities.”

“I’m fascinated by AI, but I don’t find it very useful for my work yet.”

EMPATHY MAP



DO



Key Insights

- **Designer as Owner (Extreme Case)**

Because he owns the factory and controls production, he can design without negotiating many industrial constraints. As a result, his ideas are driven more by intent than feasibility, which differs from most designers who work within organizational limits.

- **Design medium is physical**

For him, scale, light, and spatial presence can only be understood through physical, in-situ representations. Verbal explanations, drawings, and even digital renders are secondary.

- **Generative Constraints**

Long-term material expertise and decision-making power allow constraints (such as machining marks, modularity, and fabrication limits) to be reframed as aesthetic opportunities rather than trade-offs.

- **Scale are limited by commissions**

His main challenge is not tools or process, but finding the right patrons and commissions that match his desired scale of work.



- **Shared understanding early**

Good design comes from making sure everyone understands what will be built early, instead of fixing misunderstandings after fabrication.

- **Limitations of AI**

AI-generated imagery is seen as unreliable because it alters form, light, and reflectivity, which are central to his practice. There is a mismatch between current AI tools and material-driven design workflows.

Key Needs

- He needs tools that help communicate scale, material, and light accurately to clients and architects early.
- He needs representations that preserve physical fidelity rather than abstract or stylized outputs.
- He needs workflows that work with real sites, where the context shapes the design decisions.
- He needs tools that reduce misalignment without limiting creative authority or control.
- He needs technologies that respect craftsmanship and material knowledge instead of replacing them.

Key Learnings

Design ideation succeeds through **communication and mutual understanding.**

Inspiration is collected accumulatively and continuously over time.

AI is most valuable in **early exploration**, but becomes **less controllable** as ideation progresses.

Digital tools should support predictable, low-friction exploration.

Using AI in ideation process is shifting labor **from making to deciding.**

Time management and multitasking are crucial.

A personal **database & library** enables systematic **knowledge building & rapid ideation.**

Human agency is central for designers. AI should assist intention.

What's Next?



Additional Needfinding:
Conduct interviews with
designers from **other disciplines**.

- How do they communicate their ideas and collaborate?
- How inspiration is collected over time vs. under deadlines
- Where AI currently fits and where it fails in their workflows
- Moments where designers feel in control vs. constrained by tools.



Refine POVs

Frame POVs around designers as active decision-makers, not passive operators of automated tools.



Generate HMW Questions

Focus on helping designers judge, compare, communicate, and stay in control, rather than improving raw generation quality.



Explore Experience Prototypes

Test how systems can help designers steer, revise, and bound AI-driven exploration without breaking creative flow.

Thank You

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