



Transcending Binaries: Designing for Continuums

OzCHI 2024 | Student Design Challenge | Brief

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Our world has long been defined by strict binary separations - human/non-human, physical/virtual, ability/disability and more. But these perceived boundaries are falsehoods. The reality is that we exist along rich continuums and symbiotic relationships that transcend rigid either/or delineations.

The Design Challenge

This design challenge demands that we dissolve assumed boundaries and reimagine how we create products, services, environments and experiences across fluid spectra of identities, contexts and inter-species relationships. From gender identities to cognitive abilities, cultural hybridity to ecological entanglement with other lifeforms - holistic design solutions must embrace the full, expansive continuum.

Shed binary thinking and instead design for the scale of nuanced transitions between humans and non-human intelligences, entities and ecologies. Envision seamless collaboration between biological and artificial systems, or consider a form of collaboration and interaction that, while not seamless, bridges the gaps in interesting and meaningful ways. Facilitate inclusive experiences that accommodate all points of the ability spectrum. Foster cohesive physical/digital realities and forge harmonious human/nature symbioses.

The future belongs to those who transcend rigid categorisations through innovative, inclusive and ecologically-grounded design thinking. Explore the in-betweens, liminal spaces and interconnected networks that interweave all identities and lifeforms on this shared continuum of existence.

Central to this challenge is exploring the spaces, moments and networks of connection that interweave all identities, contexts and lifeforms. These are the liminal zones where boundaries blur and binaries merge into fertile continuums of possibility:

- *The Thresholds & Transitions:* Design for the transitional spaces and transformative moments that bridge perceived divides. How can

technologies ease the seamless shifting between identities, environments or states of being? Explore experiences that keep us fluidly in transition rather than rigidly separated.

- *The In-Betweens & Intersections:* Seek out the rich in-between spaces where different contexts, cultures and ways of being overlap, intermingle and generate new emergent realities. How can design facilitate inquiry and expression within these intersectional liminalities?
- *The Interconnected Networks:* All identities, species and systems are enmeshed in interconnected networks and symbiotic relationships. Envision designs that reveal, amplify and sustain these intricate ecological interdependencies that transcend binary separations.

Rather than reinforcing strict boundaries, create solutions that revel in the in-betweens, facilitate the transitions, and fortify the interconnected networks that are the true reality of our existence along continuums. Embrace the ambiguity, the hybridity, the continual evolutionary unfolding.

Ethical Design Considerations

As you conceptualise designs that transcend boundaries and binaries, it is critical to rigorously explore the ethical impacts of your work. Ethical accountability should not be an afterthought but a driving force behind your design decisions.

To guide this, consider the following questions throughout your design process:

Inclusion and Marginalisation:

- Whose voices and perspectives are uplifted by your design? Who might be left out?
- How does your design address or perpetuate existing power imbalances, and how can it provide equity for marginalised groups?
- Are the communities affected by your design involved in the creation process? How have you ensured their self-determination?

Social and Environmental Impact:

- What are the broader social and environmental consequences of dissolving certain boundaries?
- How can your design promote sustainability, not just in terms of materials but in fostering ecological balance and ethical resource use?

Transparency, Consent, and Autonomy:

- How transparent is your design in terms of data collection, user control, and decision-making?
- Does your design offer users clear opportunities to consent and control their participation, especially in human-machine or human-ecosystem integrations?
- How does your design protect the autonomy of users, and how do you navigate conflicts where one community's "progress" might undermine another's rights or autonomy?

Speculative Futures and Accountability:

- What unintended consequences could arise from transcending current boundaries? Who might benefit, and who might be harmed by these changes?
- How do your design solutions balance innovation with the need for accountability, especially when dealing with emergent technologies or new social paradigms?

Ask yourself these questions, integrating them into the rationale behind your design. Solutions should not only challenge binary thinking but also ensure that all stakeholders—human and non-human alike—are treated equitably, sustainably, and transparently.

Things to Interrogate

In addition to the broader ethical framework, there are specific issues you should actively question and reflect on as you design. These provocations serve as focal points for deeper inquiry into the societal and environmental contexts of your work:

Marginalised Perspectives:

- Who is excluded by current binary systems, and how can your design elevate these voices?
- What systemic barriers could your design help dismantle or inadvertently reinforce?

Erosion of Boundaries:

- What are the risks of dissolving certain boundaries? Could this create new exclusions or challenges for vulnerable populations?
- How do you ensure that in transcending traditional categories, your design remains sensitive to those who may rely on these distinctions for their identity or protection?

Vulnerable Communities:

- How does your design protect or empower populations affected by these shifts, particularly in the context of technological, ecological, or social change?

Human/Machine Interactions:

- What are the implications of deeper human/machine integration? Consider the transparency and consent of users in these interactions.

Rights and Autonomy Conflicts:

- How do you navigate situations where one group's "progress" could negatively impact the rights or autonomy of another?

These points of interrogation are designed to push your ethical thinking further. Use them to guide your design decisions and as a foundation for critically evaluating the broader implications of your solutions.



Design Prompts

The following prompts are entry points for exploration - not prescriptive solutions. Use them as creative provocation to unearth the nuanced realities that binary thinking obscures. Where do you see fertile continuums and intersections demanding more inclusive design?

However, as you pursue transcendent visions, critically interrogate the ethical impacts. Whose perspectives might current binary systems marginalise? How could transcending certain boundaries inequitably impact particular groups? Ensure your solutions prioritise equitable inclusion, ecological sustainability, data rights and the wellbeing of all stakeholders.

Design to elevate ethical discourse, not just provoke for provocation's sake. Reveal the opportunities for progressive change, while also identifying potential blind-spots and unintended consequences of disrupting status quos. The future lies in ethically navigating the in-betweens.

For each prompt, ask: Whose worldviews are being centred? What are the privilege/power dynamics? How can we design with and not just for marginalised stakeholders? Let ethical accountability be a core driver, not an afterthought.

Prompts

Transcending Human/Non-Human Divides

- Immersive environment bridging biological/technological consciousness? Examine data privacy and consent implications.
- Speculative artifacts depicting human/synthetic symbiosis? Interrogate social impacts on human self-determination.

Inclusive Ability Continuums

- Solutions adapting across neurological spectrums? Ensure design is self-directed by neurodiverse communities.
- Artifacts reframing society's "norms"? Avoid perpetuating ableist assumptions through design choices.

Ecological Symbiosis

- Human/nature symbiosis visions? Centre land/resource rights of indigenous populations.
- Sustainable infrastructure proposals? Prioritise ethical material sourcing and waste streams.

Identity/Cultural Hybridity

- Experiences traversing intersectional identities? Amplify voices from those intersectional communities.
- Spaces transcending ethnic/cultural boundaries? Examine potential new inclusionary models or erasures.

Human/Machine Synthesis

- Synthetic/biological intelligence integrations? Grapple with transparency, consent and human agency.
- Critical pieces on dissolving human/technology divides? Unpack societal acceptance vs. ethical restraint.

Research with people and GenAI

In this challenge, you are **not permitted to gather information directly from people** (such as feedback, personal insights, or interviews), as we do not have ethical approval for such activities. However, you are encouraged to use Generative AI as a tool to explore different perspectives, simulate feedback, and broaden your understanding of the contexts relevant to your design.

While Generative AI can be a valuable resource, it is crucial that you engage with it ethically and critically. Keep the following guidelines in mind:

- **Diverse Perspectives:** Use Generative AI to simulate feedback from a range of different stakeholders, ensuring that you explore multiple perspectives (e.g., marginalised communities, neurodiverse populations, ecological viewpoints). Be mindful to avoid over-relying on any one AI-generated voice or perspective.
- **Accuracy and Bias:** Recognise that Generative AI can reflect biases present in its training data. Always critically evaluate the outputs, identifying and addressing any potential biases that could skew your design towards exclusion or perpetuate harmful stereotypes.
- **Transparency in AI Use:** Clearly document when and how you used Generative AI in your design process. Be transparent about the role AI played in shaping your understanding and decision-making. This will allow for an open evaluation of how AI contributed to your solution.
- **Avoiding Overreliance:** While Generative AI can enhance your design process, it should not replace critical thinking or ethical judgment. Use AI outputs as one of many tools to inform your design, but ensure that your final decisions are grounded in sound ethical reasoning and the challenge's requirements.
- **Informed Use of AI for Ethical Design:** Consider the ethical implications of relying on AI-generated perspectives. What might be missing from the AI's outputs? Whose voices might still be absent? How can you ensure your

design remains inclusive and reflective of the real-world complexity?

By using Generative AI ethically and responsibly, you can ensure that your design remains inclusive and grounded in diverse perspectives, while adhering to the constraints of this challenge.

Ethical Use of Generative AI and Machine Translation (MT)

As part of this challenge, you are allowed to use Generative AI (GenAI) and Machine Translation (MT) tools to enhance your design process. However, it is crucial to follow ethical guidelines and remain transparent about how these tools contribute to your work. The use of these tools should not replace your critical thinking or creativity but should instead support your exploration of different perspectives and design possibilities.

To ensure responsible and ethical use of GenAI and MT tools, keep the following principles in mind:

Transparency:

- You must clearly disclose and document your use of GenAI or MT tools. Include an explicit acknowledgment in your submission specifying which tools were used, how they were used, and the role they played in your design process.
- Be transparent about how the AI-generated content influenced your decisions or design choices, particularly where it contributed ideas, structure, or perspectives.

Attribution & Documentation:

- Properly attribute any content generated by GenAI or translated by MT tools. This includes acknowledging the prompts you used and the outputs you received. Ensure you provide proper credit where relevant.
- Remember, acknowledgment is different from citation; it requires you to explain how the tools supported your work, not simply where they were used.

Critical Engagement:

- Thoughtfully integrate AI-generated content into your design, using it to complement and enhance your original ideas. The output from these tools should serve as one of many perspectives informing your decisions, not a replacement for them.
- Reflect on the use of GenAI and MT in your design. Consider how it has shaped your understanding of the problem and the opportunities it presents, as well as its limitations or potential biases.

- Accuracy and Bias:
 - Critically evaluate the accuracy of AI-generated content. Be aware that these tools can sometimes produce content that is factually incorrect or biased. Always verify the information and be mindful of any underlying biases in the AI-generated outputs.
 - Avoid over-reliance on any single AI-generated perspective, and ensure that your final design decisions are based on sound reasoning and evidence.

By adhering to these principles, you will not only ensure ethical usage of GenAI and MT tools but also deepen your critical engagement with the design process, producing work that is both innovative and grounded in responsible, inclusive practices.

Boundaries for the Use of Generative AI and Machine Translation

What You May Use GenAI and MT For:

Generating Diverse Perspectives:

Use GenAI to simulate feedback from a range of perspectives, including those from marginalised communities, non-human entities, or ecological systems, to help broaden your understanding of the design context.

Idea Generation:

GenAI can assist in brainstorming ideas or exploring potential solutions related to the design challenge. Use it as a creative tool to explore different design directions or concepts.

Content Creation Support (with Limitations):

You may use GenAI to help with content ideas or supportive elements for your video and poster, such as phrasing suggestions or illustrative material. However, **you must not rely on GenAI to completely create the content**. The majority of your content should come from your own critical thinking and creativity. Ensure that all GenAI usage is disclosed and critically evaluated.

Language Translation (with Caution):

You may use MT tools for translation purposes, but be aware that some systems go beyond pure translation and make changes based on their interpretation of your text. **You must review all translated content to ensure it accurately reflects your original meaning** and does not alter your intent. Any substantive changes should be noted and critically evaluated.

Prototyping Assistance:

Use GenAI to generate code snippets, design patterns, or frameworks that support the development of a prototype, as long as it aligns with the design goals and is used as a tool, not a substitute for your understanding.

Exploring Ethical Scenarios:

Use GenAI to simulate ethical dilemmas or generate case studies that help you explore potential ethical impacts of your design.

What You May Not Use GenAI and MT For:

Direct Creation of Core Design Concepts:

You may not rely on GenAI to fully create or define your central design concept. The core design must come from your own critical thinking and creativity, not from AI-generated solutions.

Complete Content Creation for Video or Poster:

You may not use GenAI to generate the full content for your video or poster. The core narrative, explanations, and key design insights must be your own work, with GenAI playing a supportive, not a central, role.

Uncritical Use of AI-Generated Content:

Do not submit AI-generated text, ideas, or visuals without thoroughly reviewing and critically evaluating them. Any content used must be carefully vetted for accuracy, bias, and ethical implications, and it must be properly acknowledged in your submission.

Bypassing Learning Outcomes:

You may not use GenAI to complete tasks that are meant to build essential design, research, or critical thinking skills. For example, do not use GenAI to generate entire sections of the poster or write your video script without contributing your own ideas.

Unacknowledged Usage:

You may not use GenAI or MT without full transparency. Failure to document and disclose AI-generated content or the use of MT tools in your submission will be considered a breach of ethical guidelines.

Generating Fabricated or Unreliable Information:

You may not use GenAI to generate content that fabricates facts, references, or data. GenAI models can sometimes produce inaccurate information or "hallucinations," so you must verify all content for accuracy and relevance.

Circumventing Ethical Constraints:

You may not use GenAI to simulate human interviews or collect personal data, as we do not have ethical approval for such activities. Ensure that your use of AI respects the challenge's ethical guidelines, particularly around privacy and consent.

Submission Requirements

For this challenge, your submission will include both a video and a poster. These two elements should work together to showcase not only your final design solution but also the thought process and journey that led you to it. While we encourage creativity in how you present your work, both the video and poster should clearly communicate your design concept, approach, and how it responds to the challenge.

Video (5 Minutes)

- **Focus on Process and Concept:** Your video should give the audience an understanding of how you approached the design problem and the journey from initial ideas to the final solution. This includes key decisions, iterations, and the design principles you considered throughout the challenge.
- **Final Solution:** Be sure to also explain your final design, emphasising how it transcends conventional boundaries and meets the challenge's objectives.
- **Creativity and Engagement:** The video is your opportunity to tell the story of your design in an engaging and creative way. Use visuals, narration, and other elements to bring your concept to life. However, ensure that the narrative is clear and that viewers can follow both your process and the solution.

Poster (Academic Style)

- **Visual Summary of Your Work:** The poster should visually summarise your design process and final concept. Think of it as a snapshot that captures the most important aspects of your work, from initial research and ideation to the final solution.
- **Highlight Key Elements:** While the format is flexible, your poster should highlight key moments in your process, the challenges you addressed, and the innovative elements of your design. Be sure to include visuals (e.g., diagrams, sketches, or screenshots) that support your explanation.
- **Clarity and Professionalism:** The poster should be visually organised, easy to read, and follow the conventions of an academic poster. Even though you have freedom in how you present your work, make sure your design is clear, concise, and professional.

While we have provided general guidance, you have the flexibility to decide how to best present your design journey and final concept. Feel free to experiment with how you tell your story, as long as your submission is clear and effectively communicates your process and solution.

Judging Criteria

- 1 Design centered on needs**

How well does the design consider and respond to a range of needs—whether human, non-human, or systemic (e.g., ecological or technological needs)? The focus should extend beyond usability and task completion, encompassing emotional, psychological, social, ecological, and cultural factors.

How well does the design engage with the full spectrum of experiences, whether human or non-human, considering well-being, symbiosis, and interdependence?

Does the team clearly articulate how their design addresses and integrates these diverse needs, whether focusing on human, non-human, or hybrid systems? Is this connection made explicit and well-supported in the submission?
 - 2 Creativity and Innovation**

How well does the design challenge conventional binary thinking (e.g., human/non-human, physical/virtual, ability/disability)?

Does the design explore novel approaches to existing problems and introduce fresh ideas, particularly in liminal or intersectional spaces?
 - 3 Ethical Considerations and Accountability**

Has the team critically engaged with ethical implications, including transparency, consent, bias, and inclusion?

Does the design demonstrate a clear understanding of the potential social, cultural, and environmental impacts, both positive and negative?

How well has the team used Generative AI (GenAI) and/or Machine Translation (MT) ethically, as per the challenge guidelines?
 - 4 Inclusivity and Diversity**

Does the design accommodate a broad range of perspectives, including marginalised communities or diverse abilities?

How well does the design demonstrate awareness and inclusion of intersectional identities, ecological relationships, or hybrid contexts?
 - 5 Impact and Sustainability**

Does the design have the potential for long-term positive social, environmental, or technological impact?

How sustainable is the design in terms of material usage, ecological balance, and ethical technology integration?
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6**Clarity of
Presentation
and
Documentation****Video Presentation (5 minutes):**

Does the video clearly and succinctly explain the design process, the concept, and how it addresses the challenge's objectives?

Is the narrative compelling and well-structured, allowing viewers to easily follow the design journey and understand the rationale behind the decisions?

Are the visual and audio elements in the video used effectively to enhance understanding and engagement?

Poster (Academic Style):

Does the poster visually and concisely communicate the core elements of the design, including the concept, process, and key outcomes?

Is the layout clear and well-organised, with appropriate use of images, diagrams, and text to support the presentation of the design?

Does the poster align with academic standards in terms of clarity, professionalism, and depth of content?

Consistency Between Video and Poster:

Are the video and poster cohesive, reinforcing each other in presenting the design concept and process?

Is there clear alignment in how the design is explained across both formats?

Acknowledgements

Cover Image

Generated using Midjourney

Prompt: *A collage of faces and figures representing diverse perspectives (genders, age, cultural, neurodiverse, ecological), overlaid with symbols of design (sketches, tools, digital screens) to emphasise inclusivity in the design process. In the style of glitch.*

Page 4 Image

Generated using Midjourney

Prompt: *A plant inside a bubble connected to AI so that it can communicate. White background.*

Acknowledgement of the use of Generative AI

In the development of this brief, we used OpenAI's ChatGPT with a chain-of-thought prompting approach to assist with generating initial ideas, refining the structure, and drafting specific sections such as the ethical guidelines for Generative AI and Machine Translation usage, judging criteria, and design prompts. We also utilised ChatGPT and MidJourney for generating image concepts to align with the theme of inclusivity and creativity in design.

All AI-generated content was critically reviewed and edited to ensure it reflects our own understanding, perspective, and the specific objectives of the Student Design Challenge.