Berkeley MDes

2024 Graduate Exhibition

Veins of the Cosmos

We step into the boundless cosmos as designers, ready to channel our unique potential.

Like veins vital to a body, we see ourselve as essential conduits, shaping the ever-evolving world with creativity, vision, and purpose.

Berkeley MDes

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University of California, Berkeley

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ABOUT

BERKELEY MDES

The Berkeley Master of Design (Berkeley MDes) is a professional graduate program in design for emerging technologies. Jointly offered by the College of Engineering and College of Environmental Design, the MDes emphasizes a critical approach to design and social practice to address the new realities of emerging technologies in the 21st century.

The program addresses the ever-changing landscape of emerging technologies such as: artificial intelligence, augmented and virtual reality, and sensing and spatial computing. Such technologies have great potential to reshape communities, industries, and environments, yet also raise questions about their often unforeseen impacts. Today's engineers, designers, and industry leaders developing creative technologies need to be equipped with thoughtful new approaches and design tool kits to respond to these dynamics.

The MDes prepares students for these roles by connecting technical rigor, design theory and social practice. Over three semesters, students develop core skills in design process, prototyping, and communication, as well as a critical lens on technology and design. Graduates leave the program as engaged and responsive social practitioners with a deep understanding of the foundations of design and emerging technology and an informed awareness of people, contextual needs, and societal impacts.

ABOUT

THIS BOOK

In this final studio course of the MDes program, students develop proposals for novel designed artifacts - which may consist of physical objects, products, services, environments, curios, interfaces, services, or processes - that employ emerging technologies to produce positive impacts for humans, culture, the environment, or society at large. Through a guided sequence of progressive milestones of thinking and making, the work of the studio culminates in a final critique, a final exhibition of projects, and a discursive text that documents this process and positions the product in a broader social and technical context.

The studio centers on the development and completion of a design thesis. Like any design project, a thesis presents a problem along with a design solution that addresses this problem.

But a thesis is more than this.

Each thesis proposal sets up an important question for design, and the completed project provides a response to that question. **A compelling thesis is motivated equally by a specific disciplinary lineage, a socio-cultural design investigation, and a technical exploration.** A thesis mobilizes knowledge, methods, and skills acquired across a student's experience in the MDes program (both in core courses and electives) in service of a tangible contribution to domains of the student's choosing.

This book highlights the full body of thesis work across the graduating **Fall 2024 MDes cohort**.

This studio was led by Yoon Bahk, Caseysimone Ballestas, Kristian Simsarian, and Kyle Steinfeld.

Kyle Steinfeld
Faculty Director, Master of Design (MDes)
Associate Professor, Architecuture
University of California, Berkeley

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Image by author, 2024

Thoughtful Engagements

Augmenting Human Intellect through computers, without being distracted by them.

Vidit Bhargava

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

This thesis addresses the challenges posed the attention economy in a student's life, where they struggle to maintain focus amidst the constant demands of smartphones and apps. It proposes a "action-centered design framework" that reimagines computing to foster a healthier, more balanced relationship with technology. By prioritizing actions over apps and leveraging ambient media that engage more than just a student's auditory and visual senses and creates, the framework introduces a seamless integration of technology into daily life. The system anticipates a student's needs and works with the user to fulfill them through a shared understanding of their contextual environment. This approach allows technology to fade into the background when not needed, functioning unobtrusively like eyeglasses that enhance vision without drawing attention to themselves. This new paradigm encourages students to focus on their goals while reducing the distractions of traditional screen-based interactions.

How might we design computers that are not the center of our attention?

attention economy, action-centered design, ambient media, balanced technology, seamless integration

Image by author, 2024

Liminal

Collaboration Mediated with Visual Agents

Lingxiu Zhang, with Mingzhou (Ming) Gu

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

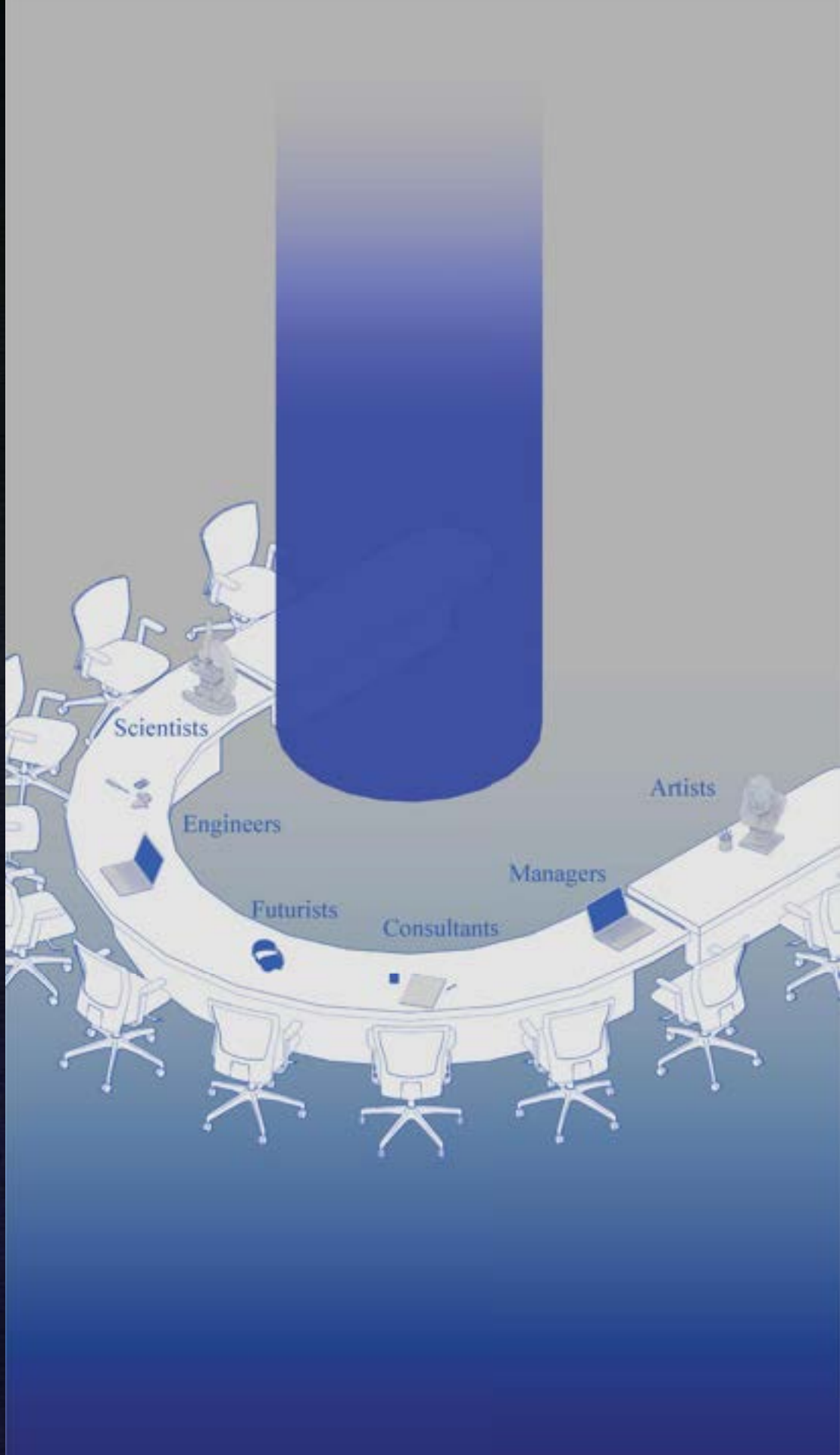
This thesis investigates how the ability of computers to understand and manipulate language, referred to as "semantic computing," can transform collaboration.

Semantic computing represents a new design material. This material enables computers to manipulate any symbolic system—from natural language, to cde, to visual representations. Through technology exploration, theoretical research, and interviews with creative professionals, we found that aligning mental models in collaborative settings is a core part of any creative process, and yet it is still challenging. Our solution synthesizes three key ideas: automated semantic visualizations, interactive iteration with the system, and perspective alignment. We tested multiple prototypes, starting with manual workflows, building up to web apps. Our system generates and updates multiple conversation models in real-time, creating a shared visual space. The results show that semantic computing can begin to enhance collaboration. Computers can be active systems to help mediate meaning-making, rather than as passive tools. This enables natural, conversation-based interactions, while leveraging computing visualization capabilities. Our work raises new questions about the role of artificial systems in collaborative settings and their organization.

How might we transform computers from passive tools into active mediators that help align mental models through visual conversation?

This thesis demonstrates how semantic computing can begin to create more effective collaboration tools. It provides a framework for designing with semantic computing as a new medium. It also acknowledges key questions about role definition and system organization in this emerging space. These insights contribute to both design theory and practice in human-computer interaction.

semantic computing, collaboration tools, mental model alignment, meaning-making, design frameworks


Scientists
Engineers
Futurists
Consultants
Managers
Artists

Liminal

Use Technology-First Principle To Develop AI-Driven Products

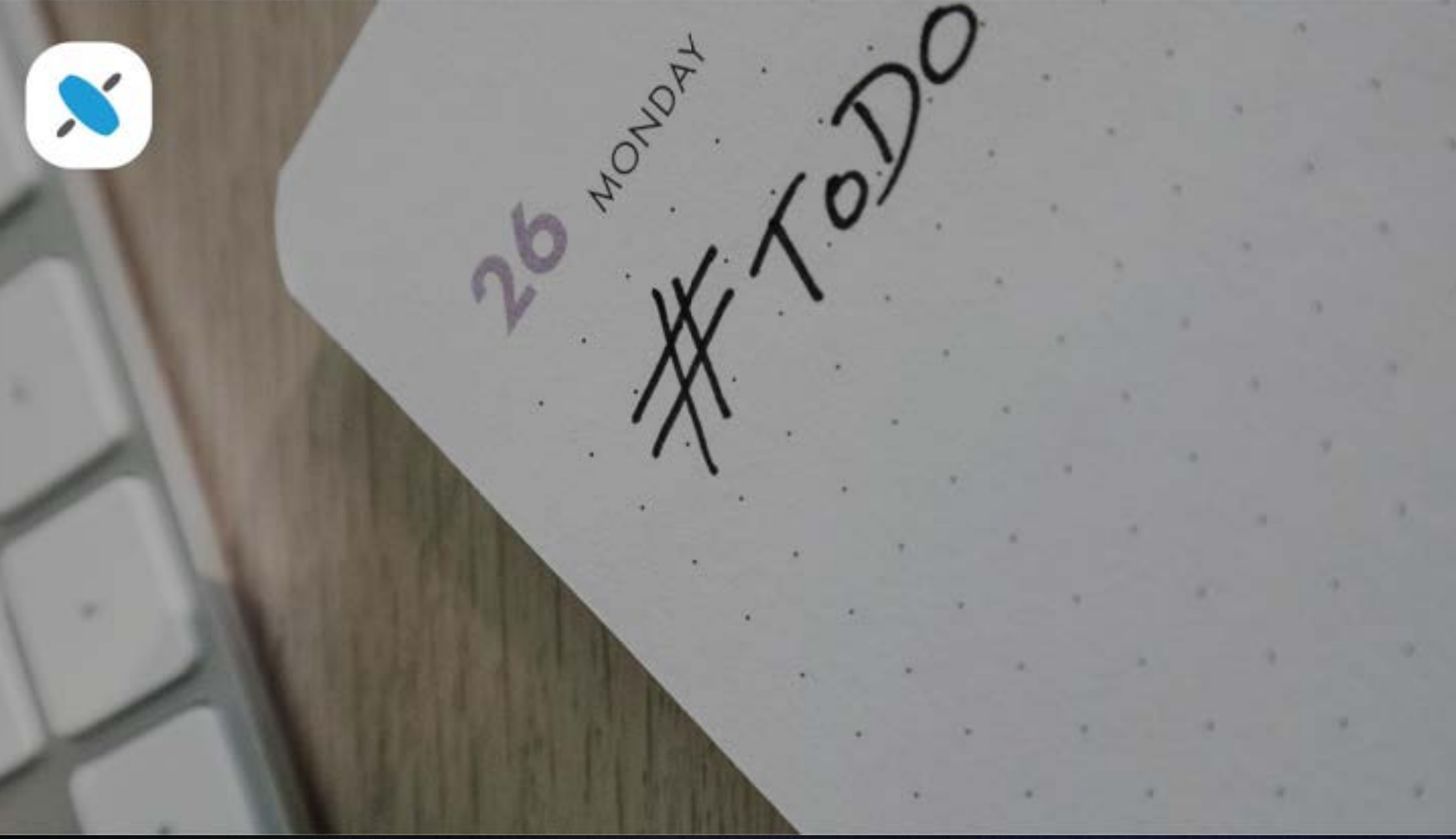
Mingzhou (Ming) Gu, with Lingxiu Zhang

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Liminal explores a Technology-First Principle for developing AI-driven products, challenging traditional design methodologies by examining how emerging technologies like generative AI can function as a design material. Through prototyping and system-level exploration, the study developed a tool for visualizing conversations in consultant-client meetings, demonstrating how AI can provide contextual support with minimal cognitive overhead. The research reveals that designers must now serve as cross-functional facilitators bridging gaps between engineers, business leaders, end-users, and community representatives, arguing for a hybrid approach that balances technological innovation with human-centered design. By maintaining essential human elements while embracing technological capabilities, the study points toward a future where design seamlessly integrates technological innovation with human needs and organizational requirements, ultimately offering a structured approach to understanding AI as a transformative design tool and emphasizing the necessity of adaptive, technology-aware design practices.

How might we approach a new design paradigm brought by generative technologies as designers?

artificial intelligence, design material, knowledge transfer, human-centered design, systems-oriented approaches



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push

A Hybrid Approach to Personal Task Management

Baurzhan Abenov

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

This project addresses the ongoing difficulty of managing tasks amid the constant cognitive overload of modern life. Drawing on decades of research in personal task management (PTM), the Zeigarnik effect and the planning fallacy, the project develops a hybrid system combining both physical and digital elements to improve task prioritization and completion. The system consists of a portable hardware device that provides tactile feedback when logging task progress and a companion mobile app for task input and tracking. The hardware device uses a simple, interactive mechanism that lets users track their tasks through physical interaction, offering a contrast to the distractions often present in digital-only tools. The minimalist mobile app enables simple task creation and monitoring. Together, these components aim to bridge the gap between the portability and connectivity of digital tools and the focus and tangibility of physical tools. Through iterative prototyping and user feedback, the project demonstrates a promising approach to personal task management that enhances prioritization, reduces cognitive overload, and fosters more engaging, effective productivity.

How might we create a personal, interactive task management system that helps users stay focused and encourages prioritization?

personal task management, Zeigarnik effect, hybrid tools, productivity, stress reduction, prioritization

Clay: AI powered personalized learning platform

Clay

Bridging Educational Inequities through AI-Driven Personalized Learning for Under-Resourced Regions

Weilong Gao, with Yang Cen

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

At present, due to the shortage of educational resources and the number of teachers in remote areas of China, the education model in middle school is often one-size-fits-all. Students are in a passive learning state, and it is difficult for them to efficiently understand the course content in class and seek help when needed. Therefore, in remote areas of China, middle school students are often trapped in a cycle of passive learning and homework plagiarism, and it is difficult to get positive learning feedback.Personalized learning has been proven to effectively help students focus and enhance their interest in learning. Tailoring education based on students' interests and their understanding of the material is significantly more effective than a one-size-fits-all approach, which was previously out of reach for students in remote areas. I tried to use artificial intelligence to transform standard courses into personalized learning journeys, guide them to learn knowledge based on their personal interests, and enter a positive cycle. This is not only an innovation in the education platform, but also about educational equity and pedagogy. This paper explores how artificial intelligence can become a bridge between strict standardized courses and individual learning.

How can LLM be leveraged to create textbook-based personalized learning experiences for middle school students in rural Chinese areas?

educational equity, artificial intelligence, personalized learning, remote education, pedagogy

Image by author, 2024

Alspire

An AI-Driven Modular Educational System

Yang Cen, with Weilong Gao

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Growing up in a bustling city, I'd never given much thought to the quiet struggle of rural classrooms. But a single article—"This Screen Could Change a Life"—opened my eyes to the chasm that separates rural and urban education in China. It's a tale of old smart devices, unbalanced resources, and students left behind, not just by technology but by the very systems meant to uplift them.

How can AI-powered modular system improve education for rural students with outdated devices?

This project is my attempt to bridge that gap—not with lofty promises, but with something practical, modular, and built for those who need it most. It's about making education accessible, one AI-driven learning card at a time.

rural education, accessibility, AI-driven tools, educational disparity, modular design

Powered by AI, the Second Mouth fine tune your sppech in real time.

A Glimpse Into the Future

Exploring Human-AI Relationship Through Interactive Narrative

Yanru Qian, with Adorey Shen and Ching Wen (Carina) Lee

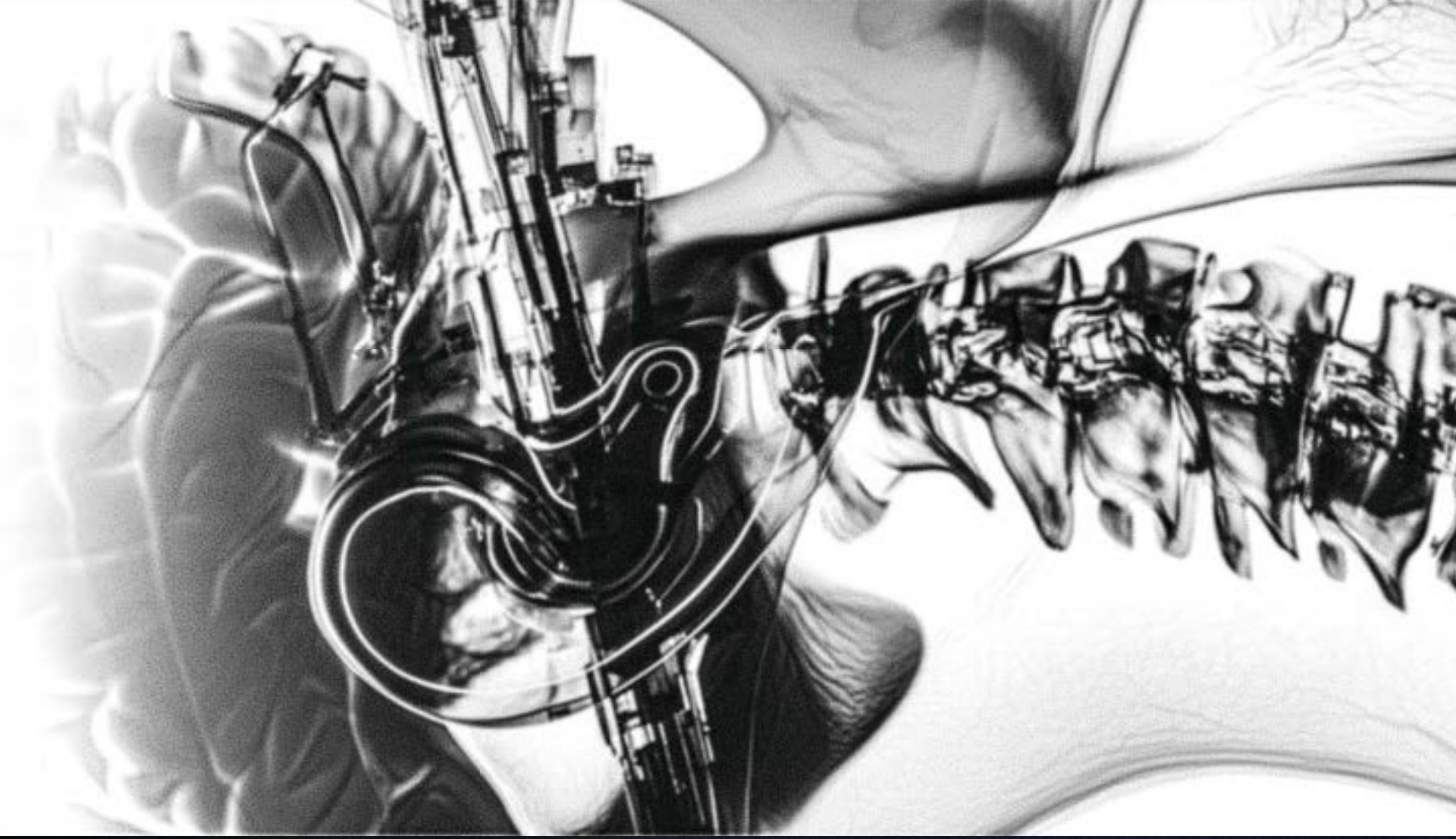
advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Artificial Intelligence (AI) and human influence and evolve alongside one another through interaction. As AI becomes increasingly proficient in communication skills and contextual understanding, we develop reliance and trust in its performance, which results in a transition from simple assistance to active collaboration. This relationship progression potentially influences how we perceive, process, and express information in ways we may not consciously recognize.

How is AI being designed to influence the way we receive, process, and express information?

To explore the future of this evolving relationship and to invite critical reflection on the ideal human-AI power dynamic, I propose the "second organ" concept, where AI acts as a sensory extension, passively collecting information and shaping our perception of experiences. As we advance AI development, how much autonomy should we grant AI to think for us to provide better assistance, while ensuring we retain control over our decisions and data? This project also experimented with critical making as a reflective design practice, aiming not only to concretize my vision as a designer but also to create a shared platform for discourse.

Human-AI interaction, speculative design, critical making, sensory extension



AI Alienation

AI [Alienation] as Humanity's Second Organ

Navigating the Alienation Between Human Agency and AI Integration

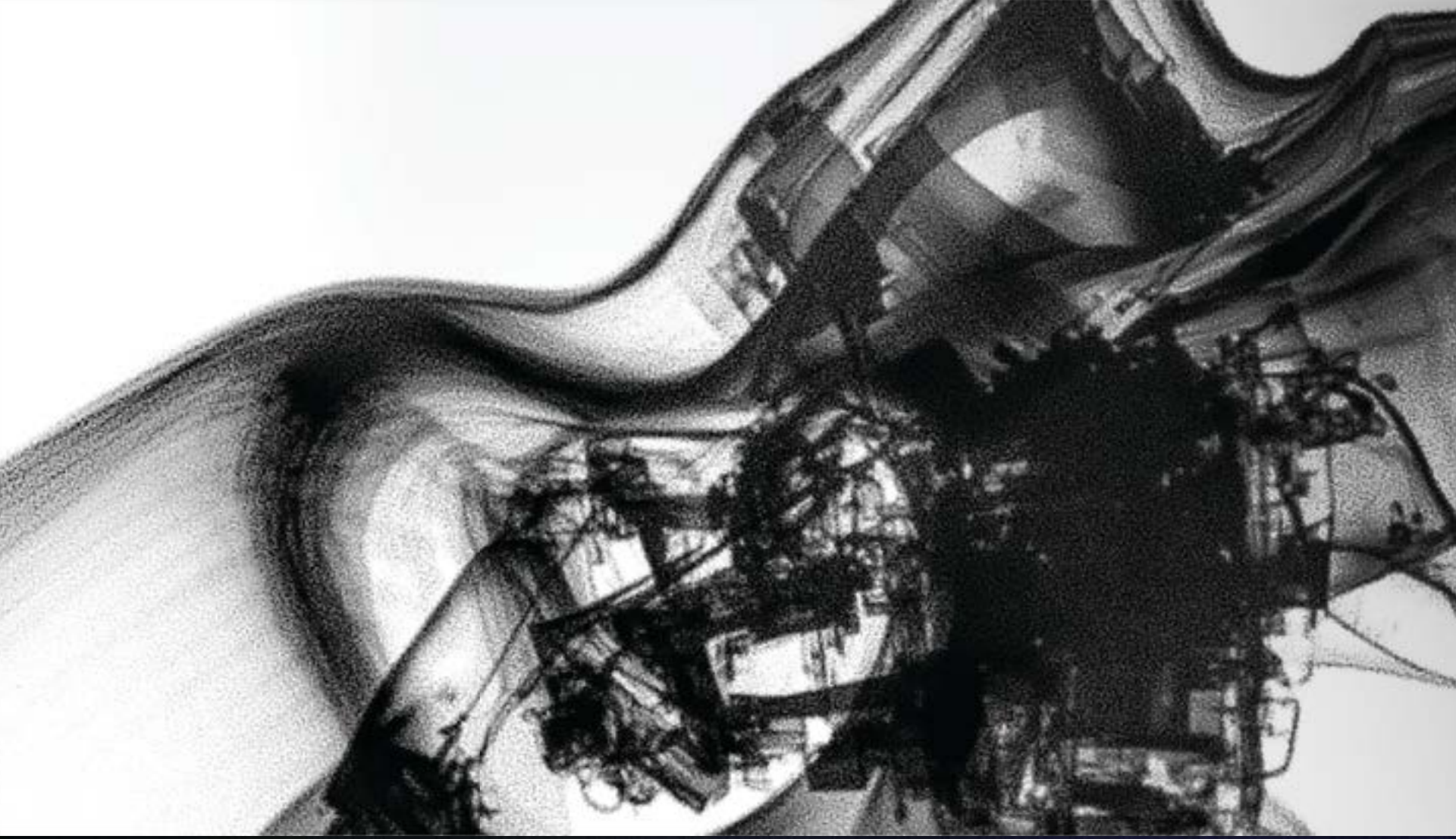
Ching Wen (Carina) Lee, with Yanru Qian and Adorey Shen

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

The deep integration of capital and technology in today's era, particularly the rapid rise of artificial intelligence, has led to an accelerated process of technological alienation. As an immature yet highly disruptive technology, AI not only reshapes the relationship between humans and society but also forms an opposing external force that intensifies alienation. Under the influence of capital, intelligent technologies have established mechanisms of control, both overt and covert, that reduce individuals to mere appendages within automated systems, prioritizing efficiency over autonomy. This thesis examines this increasing technological alienation, focusing on how human autonomy is being gradually eroded by AI, particularly under the influence of a profit-driven system. The project explores the question: What if AI becomes our 'second organ,' evolving into an artificial extension of our bodies, replacing our eyes, ears, and mouth? This hypothesis seeks to highlight the boundaries between technological utility and human values, and to provoke reflection on the ethical implications of surrendering human agency to intelligent systems.

How might we visualize future consequences to reveal how AI alienates erode human autonomy, turning individuals into appendages of technology?

artificial intelligence, uncanny valley, technological alienation, human cognition, autonomy surrender



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Second Organs

AI and the Mediation of Human Perception

Adorey Shen, with Ching Wen (Carina) Lee and Yanru Qian

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

How much of your reality is shaped by technology? This project delves into the unsettling ways artificial intelligence quietly filters your experiences, shaping what you see, hear, and say. Every interaction—whether visual, auditory, or verbal—is subtly curated, trading authenticity for convenience. Over time, this hidden mediation reshapes your perceptions, autonomy, and connections, often without your awareness.

How can we design artifacts to reveal and challenge the ways technology shapes our perceptions, judgments, and interactions with others?

The work is centered on three critical artifacts: the "Second Eye," the "Second Mouth," and the "Second Ear." Each represents a facet of AI's pervasive influence. The "Second Eye" is a wearable device that manipulates vision and memory by replacing the unwanted view of objects or people with a blurry silhouette, altering not only what you see but also what you remember. The Second Mouth transforms spoken words into a more socially acceptable tone, improving interactions but sacrificing emotional honesty. The Second Ear reinterprets incoming audio to align with personal preferences, distorting reality to prioritize comfort over truth. Together, these artifacts reveal how technology reframes human behavior and trust under the guise of enhancement.

This project challenges viewers to confront their growing reliance on AI and the implications for sensory perception, personal relationships, and individuality. By examining the balance between convenience and control, it questions whether the benefits of AI outweigh its costs to authenticity and autonomy. It encourages a critical reflection on how much of "you" is still shaped by your own choices—and how much is engineered by unseen systems.

AI influence, sensory perception, autonomy, trust, human connection

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Image by author, 2024

AI-Enhanced Creativity in Physical Mediums

East Asian Watercolor for K-12 Learners

Yunting Zhao, with Yoojin Leem

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This thesis investigates the potential of AI to bridge the gap between traditional art and emerging technologies, focusing on enhancing the accessibility of watercolor painting for children and beginners. Watercolor, known for its beauty and complexity, often intimidates new learners due to its technical demands,

How might we leverage AI to enhance creativity in conventional art forms like watercolor, making them more accessible and engaging for young learners?

such as irreversible layering and managing translucency. By integrating tactile interactions, real-time AI feedback, and user-centered design principles, this system aims to lower the barriers to mastering this challenging medium while preserving creative autonomy. The project positions AI as a collaborator rather than a replacement in the artistic process, offering guidance that fosters confidence, curiosity, and skill development. It seeks to reimagine art education by transforming traditional practices into inclusive, engaging experiences that empower users to explore their creativity in meaningful and innovative ways. Ultimately, this work highlights the potential of design and technology to enhance learning, bridging manual skills and digital innovation to inspire new generations of artists.

art education, AI collaboration, watercolor painting, accessibility, creativity empowerment

Image by author, 2024

Drawing Buddy

Building creativity by ai-collaboration drawing for K-12 learners

Yoojin Leem, with Yunting Zhao

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Drawing Buddy is an innovative AI-enhanced tool designed to revolutionize traditional art practices for children. It seamlessly integrates with conventional drawing methods, using familiar tools like pencils while introducing a touch-designer watercolor API. This combination allows for a non-intrusive guidance of the artistic process, enhancing creativity and learning engagement. Unlike purely digital solutions, Drawing Buddy retains the tactile experience of traditional arts, fostering a deeper connection to art at an early age. It encourages interactive and step-by-step drawing sessions, making art education more engaging and accessible for the digital generation.

How can we streamline the sketching process for artists using a blend of AI-driven suggestions and manual refinements?

art education, AI-enhanced tools, traditional arts, creativity, interactive learning

Image by author, 2024

Ekphrasis

Demystify Abstract Terminologies in Graphic Design Through Human-AI Co-Practice

Shayne Shen, with Bob Wei

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Critique is the cornerstone of design education, shaping how ideas evolve and take form. Yet, the abstract language of phrases like “visual harmony” or “make it more sophisticated” often creates barriers for novice designers. Rooted in tacit knowledge and steeped in professional jargon, this language demands cognitive effort to translate into actionable visual outcomes. Ekphrasis tackles these challenges by reimagining critique as a dynamic, multi-sensory experience.

How might we empower novice designers in understanding and applying professional vocabulary?

Guided by cognitive theories of reflection, articulation, and tacit knowledge transfer, this project showcases Ekphrasis, an AI-powered tool designed to bridge the gap between words and visuals. Visitors will explore how iterative feedback, informed by cognitive frameworks, transforms abstract critique into accessible and actionable guidance. By engaging with immersive, hands-on installations, participants will experience how Ekphrasis alleviates cognitive overload and enriches the critique process.

The project expands beyond digital tools through an immersive campaign addressing abstract terminology. Spatial typography, versatile visuals, and tactile installations immerse audiences in the nuances of critique, revealing its critical role in fostering communication, creativity, and collaboration. Visitors will navigate the complexities of abstract language and discover how technology can enhance their ability to interpret, reflect, and create.

Join Ekphrasis to explore how design critique, informed by theory and enhanced by technology, transforms ambiguity into clarity and inspiration.

Design pedagogy, abstract concepts, tacit knowledge, AI-powered tools, human-centered creativity, critical thinking

The main interface of EKPHRASIS. In the middle is a canvas on which you can practice composition using gray squares of different colors. The buttons on the top of the canvas are color palettes and functions, and on the bottom are evaluate buttons and verbal feedback provided by LLM. on the left and right sides are visual references provided by the program and the machine learning model.

Figure 1. the main interface of EKPHRASIS. In the middle is a canvas on which you can practice composition using gray squares of different colors. The buttons on the top of the canvas are color palettes and functions, and on the bottom are evaluate buttons and verbal feedback provided by LLM. on the left and right sides are visual references provided by the program and the machine learning model.

EKPHRASIS

Learning Tacit Knowledge in Foundational Visual Design Through Human-AI Co-Practice

Bob Wei, with Shayne Shen

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Learning tacit knowledge, such as "visual harmony in composition," is a key challenge in visual design education. Abstract concepts are often conveyed through specialized terminology, which can be difficult for beginners to grasp. EKPHRASIS, a web-based interactive educational system, addresses this by offering a structured platform for practicing visual composition. It combines a machine learning model, trained on professional designer-labeled datasets, and a large language model to provide multimodal feedback. Users receive visual references, illustrating "less harmonious" and "more harmonious" compositions, alongside tailored written critiques. Two qualitative studies were conducted with participants of varying design experience: a novice learner and an intermediate-level art enthusiast. Results showed that EKPHRASIS effectively supported understanding of visual harmony. Beginners valued the visual feedback for offering concrete guidance, while more experienced participants found the written critiques validated their design decisions. One participant noted, "The examples helped me visualize what adjustments to make." However, EKPHRASIS also presented challenges. The subjectivity of design evaluation emerged as a limitation, with feedback quality dependent on training data and user interpretation. AI bias in the dataset raised concerns about inclusivity and consistency. Additionally, limited interaction options restricted users from exploring advanced compositional adjustments. EKPHRASIS advances the integration of AI in education, providing an iterative learning environment for understanding abstract design concepts. It offers valuable insights for teaching tacit knowledge, benefiting students and educators alike.

How can interactive feedback systems enhance beginners' understanding and application of design vocabulary during practical design exercises?

visual design, interactive learning environments

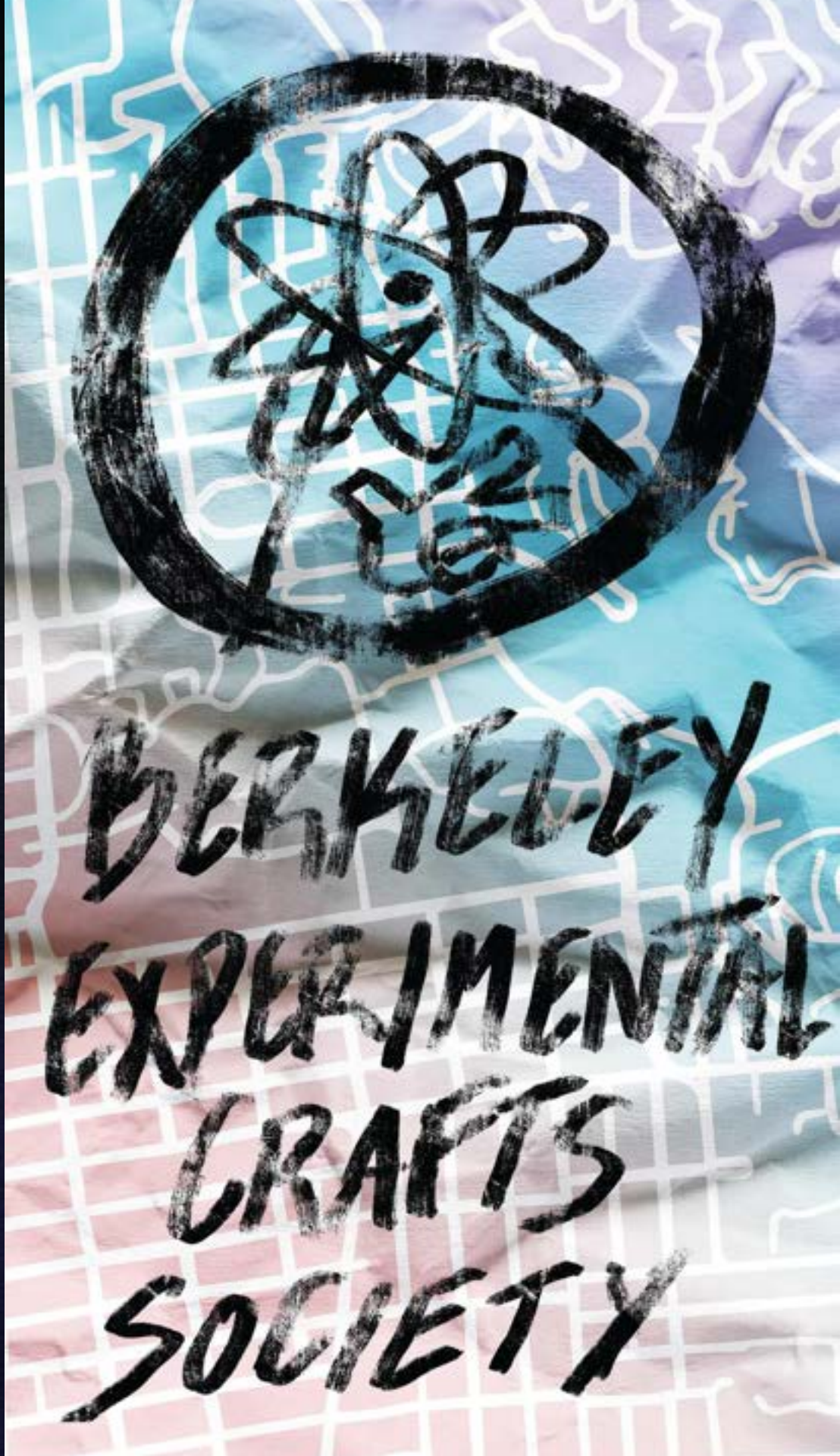


Image by author, 2024

Self-Sustaining Alternate Reality Games, Lateral Play, and Community Building

Aylish Turner

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

The Berkeley Experimental Crafts Society (BECS) is a self-sustaining alternate reality game (ARG) designed to enhance creativity, collaboration, and community-building among participants in the East Bay Area. Unlike traditional ARGs reliant on a central Game Master, BECS empowers players to collaboratively shape its evolving narrative, creating an adaptable framework for non-hierarchical play. Inspired by Jeff Watson's Reality Ends Here and its bottom-up storytelling ethos, BECS refines this model by embedding lateral player creation and puzzle-solving as core mechanics. Drawing from the lore of UC Berkeley's 1985 nuclear reactor incident, the game blends real history with fictional elements, tasking players to "fulfill inspiration" by producing artifacts that repair a rift between good and evil forces. The development process incorporated iterative playtesting, community feedback, and experiments like the "Wizard Dog," which demonstrated the feasibility of decentralized, player-driven engagement. BECS emphasizes accessibility, favoring low-tech tools over advanced AR/VR technologies to lower barriers to entry and foster inclusivity. Initial outcomes suggest the potential of ARGs as tools for participatory design, storytelling, and education, providing a scalable framework for fostering collaboration and enhancing community dynamics. Future directions include integrating sustainable digital archiving, expanding to diverse demographics, and exploring applications in educational and professional settings, positioning BECS as a model for innovative, co-creative experiences.

How can a non-hierarchical ARG framework foster creativity, collaboration, and community-building through player-driven, lateral storytelling?

alternate reality game, emergent storytelling, collaborative narrative, community-building, accessible design, lateral play, co-design

Image by author, 2024

Crafting Knowledge

Modeling Tacit Knowledge through AI

Christine Marcelino

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This project aims to explore the evolving nature of learning in the craft tradition, emphasizing how emerging technologies can be used as tools for documenting and preserving craft knowledge, as well as for critical inquiry into new design processes for collaborative artificial intelligence systems. Through a contextual inquiry into the practices of an experienced woodworker, this study explores the valuable insights that can be gained from situated knowledge. It combines robotics to replicate physical processes with a large language model to capture cognitive insights, bridging traditional craftsmanship and modern technology. This project offers just a glimpse of the transfer between humans and machines, yet there is much to be learned from their evolving relationship. What opportunities exist for knowledge sharing between humans and machines? How might we understand human ingenuity through a different lens? The shift from solitary craftsmanship to a more collaborative, technology-enabled ecosystem presents new opportunities to reimagine craft's future.

How might we preserve craft and capture the tacit knowledge therein?

Craft, Cultural Heritage,Tacit Knowledge, AI Systems, Human-machine Collaboration, Hybrid Craft Ecology

Family exploring artwork together through their CURIO cards.

CURIO

A Sustainable Art Exploration Toolkit for Families

Katherine Liu, with Ming-Chen (Charlene) Lu

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Despite museums' efforts to welcome families through innovative programming, many still struggle to create sustainable engagement beyond isolated visits. This challenge is particularly pressing given the current educational landscape's emphasis on STEM subjects at the expense of arts education, leaving a significant void in children's exposure to and engagement with art. While museums are uniquely positioned to fill this educational gap through situational learning, the lack of scaffolding touchpoints for families outside museums creates significant barriers to entry, particularly for those without prior art exposure.

How might we initiate and sustain a cycle of family engagement with art museums?

But what if discovering art was as exciting as building a collection of trading cards? Imagine the thrill of finding new pieces, the joy of sharing discoveries, and the pride of growing a collection over time — now reimagined for family art exploration. CURIO transforms these familiar collecting experiences into meaningful encounters with art through an innovative ecosystem of physical cards and digital tools that encourage open-ended investigation and sustained engagement with art museums. Drawing from principles of Active Prolonged Engagement, CURIO creates an environment where families can explore art at their own pace, following their curiosity and making personal connections with artworks through observation and discovery.

museum studies, visitor experience, art education, accessibility, child development, constructivist learning, service design, Active Prolonged Engagement (APE)

Kids building up their CURIO collections at home.

CURIO

A Sustainable Art Exploration Toolkit for Families

Ming-Chen (Charlene) Lu, with Katherine Liu

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

CURIO is built around two main elements: the Curio Kit and the Curio App. The Curio Kit features tactile cards designed to spark open-ended exploration and investigation of paintings and exhibits. Rather than prescribing specific interpretations, the cards provide flexible prompts that encourage families to notice details, make connections, and develop their own unique perspectives on the art. Parents and children can document their discoveries by photographing their interactions, making each visit more engaging and personally meaningful.

How might we initiate and sustain a cycle of family engagement with art museums?

The Curio App extends this investigative approach beyond museum walls by providing a space for families to reflect on and build upon their experiences. Photos and observations can be saved to personalized profiles, creating a growing collection of art discoveries. Through a public gallery feature, families can share their unique interpretations and gain inspiration from others, fostering a community of active art explorers. This platform creates multiple pathways for engagement that flow naturally between home, school, and museum environments.

By emphasizing active investigation and discovery, CURIO transforms traditional museum visits into dynamic family experiences that spark curiosity and sustain engagement over time. Through its thoughtfully designed physical-digital ecosystem, CURIO makes art exploration more accessible and appealing to families, inviting them to develop lasting connections with art through their own process of discovery and interpretation. This approach helps build a community of confident art explorers while making artistic discovery an integral part of family life.

museum experience, child-led exploration, family learning, accessibility, interactive engagement

To help spread awareness, we also created a campaign of heat-reactive posters that change when surface temperatures rise over 88°F. These posters call back to the anti-war screenprinting movement of UC Berkeley in the 1970s when campus buildings were turned into mass production sites for activism. These direct viewers to our mapping platform and serve as the first step in building awareness of the UHI effect.

See Beyond

Redesigning Museum Spaces for Children's Playful Engagement

Yuhe (Nancy) Niu, with Jenny Du

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This thesis reimagines museum environments to create playful, engaging spaces for children. It addresses the shortcomings of adult-centric museum designs that often fail to engage young visitors effectively. By developing a child-friendly modular space kit and a series of low-tech interventions, the project aims to make art museums more accessible and inviting for young audiences, encouraging exploration, curiosity, and active participation.

How might we redesign traditonal museum space to create child-centered environment that foster discovery, curiosity, and active learning for children?

Inspired by educational theories like Constructivism, Experiential Learning, and the Theory of Multiple Intelligences, the project emphasizes the value of interactive, sensory-rich environments that cater to the diverse ways children perceive and learn. The approach combines practical, modular architectural elements with low-tech features that can be adapted to existing museum spaces. These interventions include modular walls, interactive installations, and sensory elements like polarized filters and colored glasses, all designed to foster a deeper connection between children and the artworks.

The final outcome shows how integrating modular, scalable interventions can transform museum spaces into inclusive environments that support children's natural curiosity and learning styles. By incorporating service design principles, the project adapts these interventions to different exhibition settings—traditional, modern, and futuristic—offering unique and enriching experiences for young visitors. Ultimately, this thesis provides a framework for making museums more inclusive, interactive, and welcoming for future generations, bridging the gap between traditional cultural spaces and the evolving needs of young audiences.

museum design, adaptive architecture, modular exhibits, child engagement, active exploration, experiential learning, inclusive environments

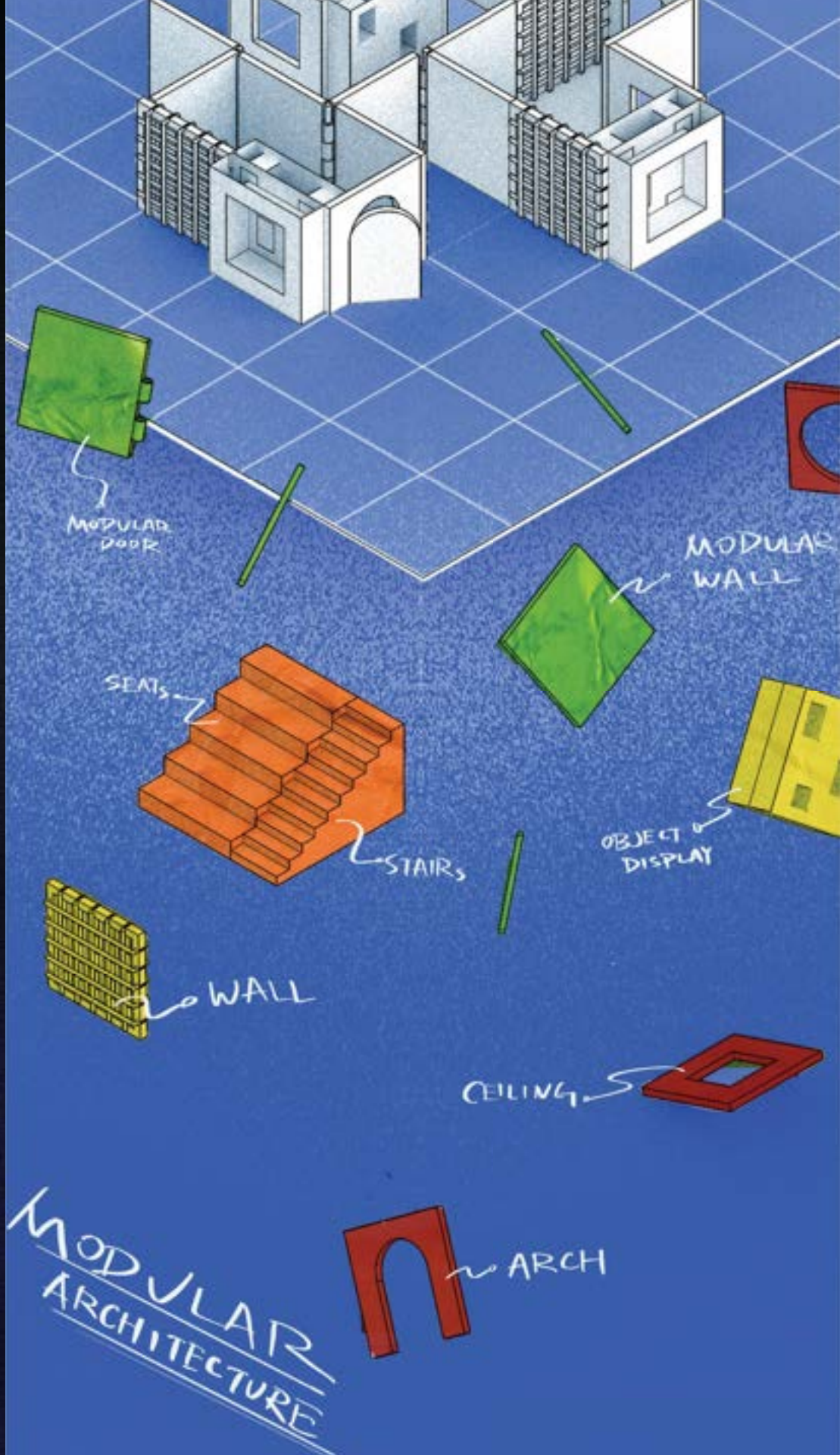


Image by author, 2024

See Beyond

Museum Through Playful Eyes

Jenny Du, with Yuhe (Nancy) Niu

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This project reimagines museum spaces for children, using tangible, sensory interactions to create inclusive, exploratory environments. By shifting from traditional adult-centric exhibition flows to playful, low-tech designs, it fosters curiosity and engagement for young visitors, making art education immersive and memorable.

How might we design the museum spaces and exhibition flow to enhance children's engagement and learning experiences?

museum design, sensory interactions, child-focused, art education, low-tech innovation

3.

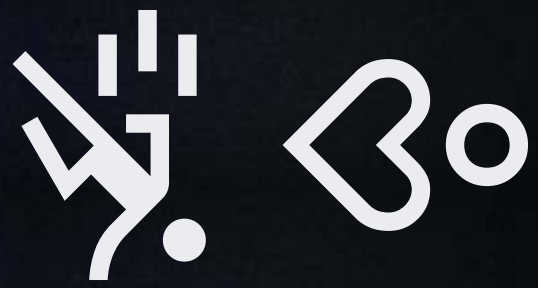


Image by author, 2024

Neem

Fareha Khan

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

In the face of growing health challenges after disasters, this project stands as a symbol of hope, empowering communities to safeguard their well-being. Inspired by the Neem tree known for healing and purification, this project introduces a simple yet powerful solution: a water-testing kit paired with the Neem app to detect mosquito larvae and combat malaria outbreaks. Designed for accessibility and ease of use, this system turns volunteers into agents of change, fostering a sense of shared responsibility in protecting vulnerable populations.

By combining traditional wisdom with innovative design and modern technology, the project transforms prevention into a collective effort. The kit features a magnifying lid and diffused light to simplify detection, while the app harnesses machine learning to analyze samples and map at-risk areas. This seamless integration of community action and real-time data creates a direct pathway for intervention, bridging the gap between individuals and public health authorities.

How might we enable communities to detect and prevent malaria after disasters through simple, accessible tools and collective action?

This project is a story of ordinary people rising to meet extraordinary challenges. It asks us to rethink prevention, to see it not as an isolated task but as a shared responsibility. What happens when we harness the strength of tradition, the promise of design, and the power of innovation? The answer lies in the ripple effects of this work: communities not just surviving, but thriving; health crises not just managed, but prevented.

disaster health, malaria prevention, community empowerment, collective action, resilient design

Pedestrian encounters a graphic on the crosswalk light guiding them through a breathing exercise as they wait to cross the street

Spaces Between

Pause, Breathe, Walk. Redesigning crosswalk lights for mindful urban interventions.

Ankur Kela

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Urban environments bombard our senses daily, often at the cost of our wellbeing. But what if routine moments of waiting—at bus stops, crosswalks, traffic lights—could become opportunities for respite and recovery? Spaces Between reimagines these overlooked urban interludes as opportunities for intentional reflection and mindful engagement.

This project focuses on redesigning the pedestrian crosswalk light to communicate safety information while simultaneously guiding users through brief breathing exercises. Using a visual interface and subtle auditory cues, the crosswalk light encourages pedestrians to synchronize their breath with intuitive visualizations, fostering awareness of both their breath and bodily sensations.

How might small-scale tactical urban design interventions democratize access to mental wellness practices?

Spaces Between critiques the level of access to wellness resources in public spaces. It proposes a tactical approach to urban design—one that weaves moments of mental recovery directly into the fabric of city infrastructure. The project envisions a future where our built environment actively prioritizes and supports human welllbeing.

urban design, sensory interventions, mental wellness, interactive installations, restorative spaces

Image by author, 2024

Visio Care Kit

Empowering users with seamless solutions for managing eye care routines.

Junjie Li, with Jingyi Guo

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This thesis focuses on making life easier for people who rely on eye drops to manage their vision care. Administering eye drops can be frustrating and challenging, with issues like difficult packaging, complex schedules, and the emotional stress of getting it right. These hurdles often lead to skipped doses and poor health outcomes. This project aims to change that by designing a system that's intuitive, supportive, and inclusive. By combining better product design, smart technology, and thoughtful guidance, the goal is to create a solution that helps people stick to their treatments, build healthier habits, and improve their overall quality of life.

How might we make eye drop use easier and improve adherence for patients with eye conditions through intuitive, technology-driven solutions?

vision care, universal deisgn, Human behavior study, eye drop management, product design, smart technology, health outcomes

Image by author, 2024

Visio Care Kit

Enhancing post-LASIK recovery with a technology-enabled eye drop management tool

Jingyi Guo, with Junjie Li

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

The post-operative care process for LASIK (Laser-Assisted In Situ Keratomileusis), a surgical procedure that corrects vision by reshaping the cornea, often involves managing multiple eye drop medications. This requires precision and strict adherence, yet existing tools frequently fall short, leaving patients to rely on memory or improvisation. This increases the risk of complications and reduces adherence.

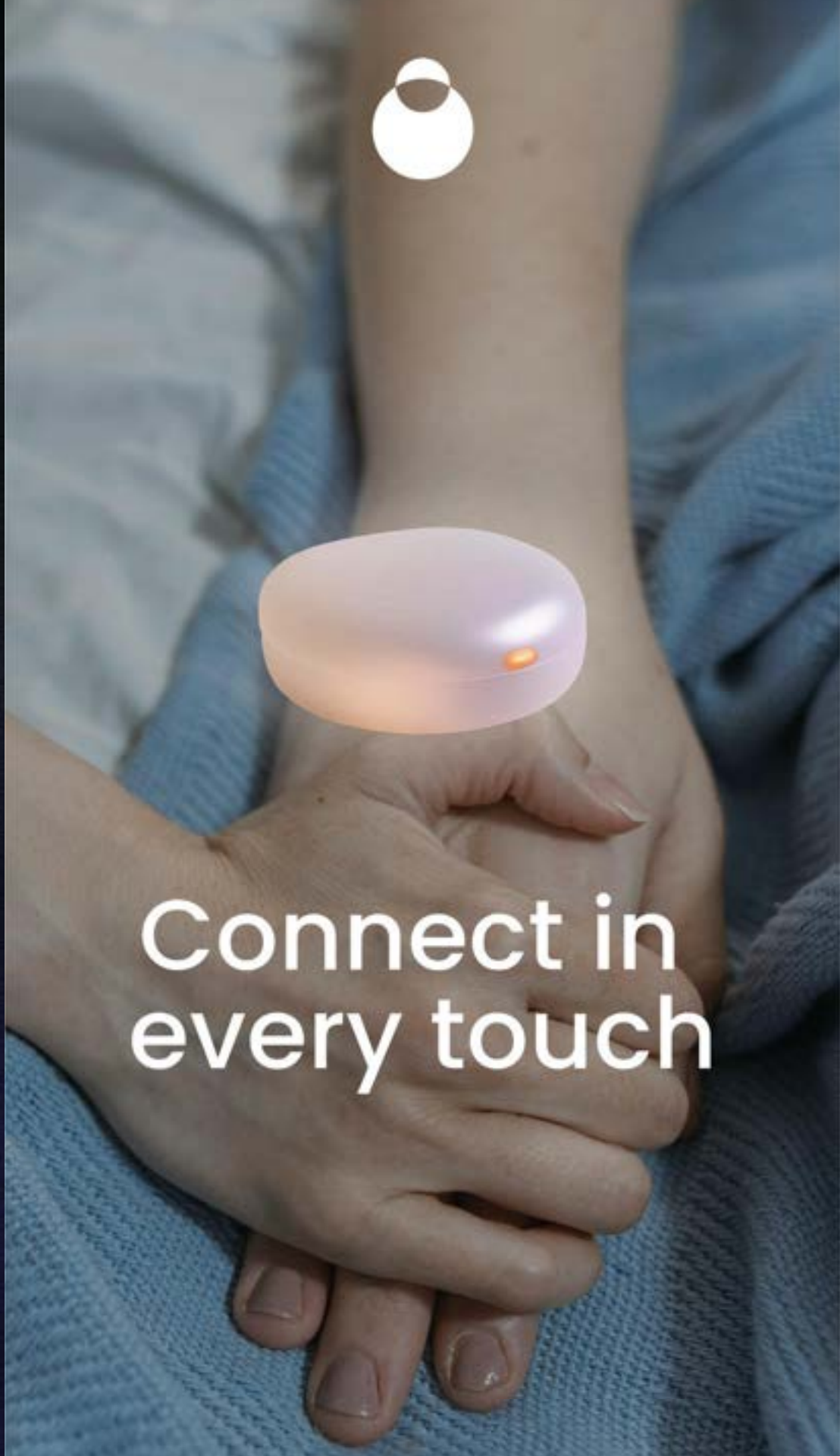
How might we make post-LASIK eye care more accessible, accurate, and engaging to support adherence?

This thesis introduces the Visio Care Kit, a comprehensive post-op care solution aimed at addressing the challenges of eye drop management. The kit includes a portable multi-eye-drop container and a charging deck, offering features such as smart schedule planning and adjustments, real-time reminders, and a user-centered bottle design that ensures accurate, single-drop dispensing.

By simplifying the user experience and fostering habit formation through engaging interactions, the Visio Care Kit reimagines post-LASIK recovery. It emphasizes a universal, patient-focused approach to healthcare design, envisioning a future where technology-driven solutions enhance vision health and adherence.

LASIK care, eye drop management, healthcare design, human-centered design, habit formation

Pebbi wearable device and app system



Pebbi

Emotional Connection for Patient and Caregivers in Cancer Care

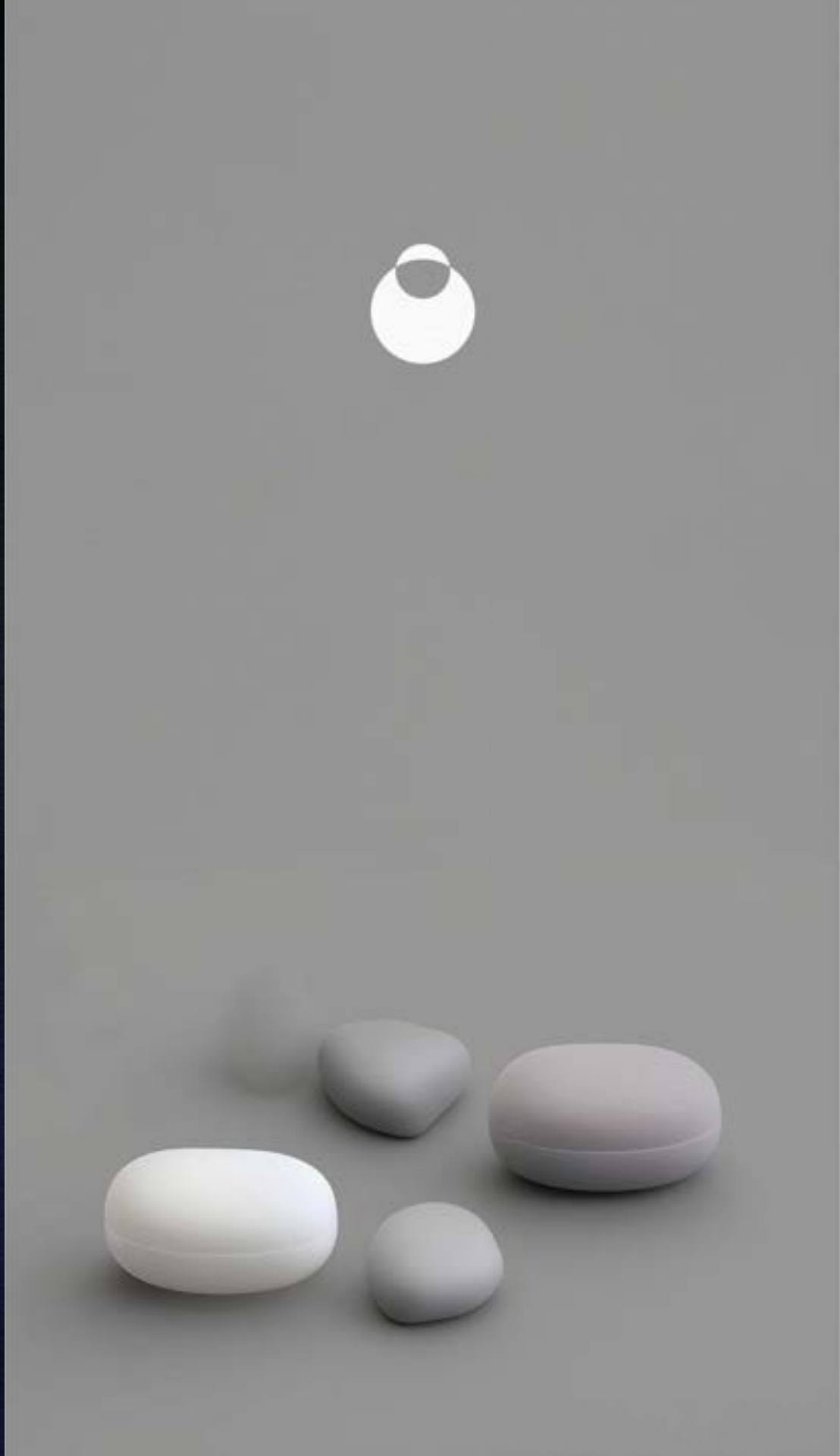
Wanlun (Christine) Ding, with Jiayi Liu

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Cancer care often goes beyond physical treatment—it's an emotionally turbulent journey shaped by feelings of vulnerability, shame, uncertainty, and isolation. Patients frequently struggle to express their emotional needs, leaving caregivers unsure of how to provide the right support. Miscommunication and unmet expectations can strain even the most well-intentioned relationships, highlighting a gap in emotional care within healthcare systems. In response, this project introduces an integrated wearable-and-app system grounded in insights from interviews, surveys, and in-person observations in cancer care settings. The system offers patient-led, low-pressure features like private voice reflections, tactile meditation guidance, mood signals, remote "pebbling" cues, and AI-driven emotion mapping. These interactions foster connection without requiring direct conversation, enabling patients to express emotions intuitively while caregivers gain meaningful context to provide empathetic, tailored support. Refined through iterative stakeholder feedback, the design emphasizes simplicity, adaptability, and privacy. It provides subtle, context-aware support that respects the deeply personal and evolving nature of cancer care. By fostering transparent communication and prioritizing patient agency, this system bridges gaps in emotional understanding without imposing on the authenticity of human connection, placing healthcare technology as a complement to, rather than a replacement for, caregiving. This work reimagines how design can facilitate meaningful connections for improving emotional care—not just in cancer treatment but across broader healthcare contexts.

How might technology-enabled personal care solutions enhance cancer patients' mental well-being for holistic health?

cancer care, emotional support, wearable technology, patient agency, healthcare design



Pebbi

Fostering Emotional Resilience in Cancer Care through Wearable Connection

Jiayi Liu, with Wanlun (Christine) Ding

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Cancer treatment often prioritizes survival metrics, leaving emotional well-being under-addressed. Patients frequently struggle with feelings of isolation, anxiety, and uncertainty, while existing support systems lack the real-time personalization needed to effectively bridge this emotional gap. This project emphasizes the power of better communication to foster better emotional health, integrating innovation with empathy to redefine patient care.

How might better communication through wearable technology enhance emotional resilience in cancer care?

At the core of this research is a wearable device designed to transform how emotions are understood and supported during treatment. Grounded in human-centered design principles, the device uses haptic feedback and voice input to enable daily emotional documentation. Artificial intelligence processes these insights, transmitting them to a companion application for caregivers, enhancing their ability to respond compassionately and effectively. Customizable notifications further facilitate social connection, encouraging consistent emotional reinforcement and engagement.

This approach demonstrates how better communication tools can unlock deeper emotional well-being, empowering patients and caregivers alike. Future research will explore its broader applications across chronic conditions, reinforcing the idea that emotional health is not secondary to physical recovery—it is integral to the patient experience. By prioritizing connection and communication, this project sets a new standard for holistic, patient-centered care.

cancer care, emotional support, wearable technology, human connection, continuous care

Image from Getty Sports

Tactus

Enhancing Athletic Performance Through Real-Time Haptic Feedback

Liam Hatakenaka, with Xiangruo (Reina) Li and Stephanie Wang

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

In the early-2000s, a Cambrian explosion of data analytics changed the game of baseball. Teams, athletes, and coaches alike adopted new, innovative technology designed to collect data on every detail of player performance. However, the development of this technology has largely outpaced practical application, creating a gap between athletes and the data that is said to help improve their performance. Turning this data into actionable insights is reliant upon the expert knowledge of sports scientists, a resource only available to those at the highest level of play.

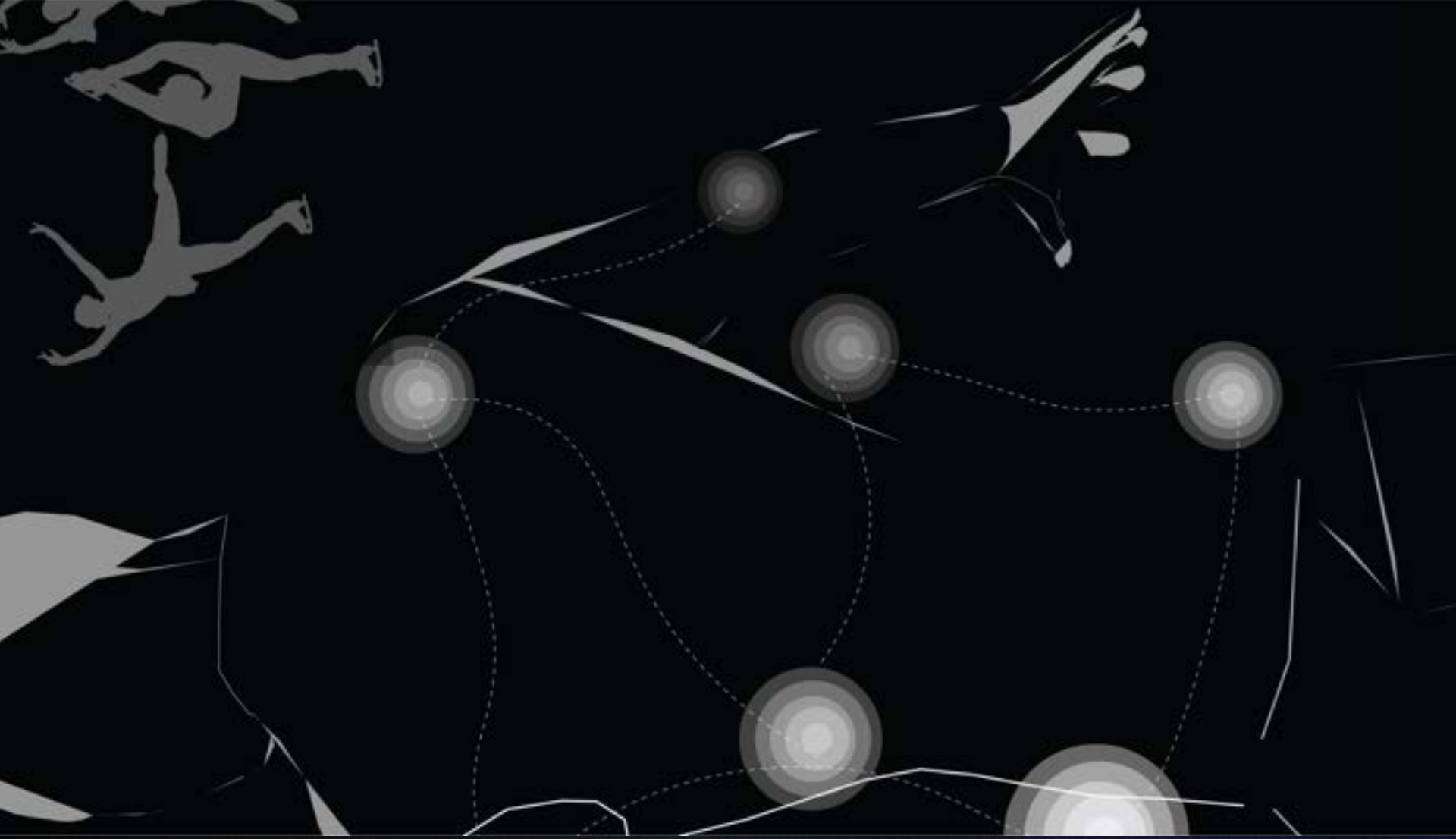
How might we design an intervention that corrects movement in real time for baseball players?

The implications of this athlete-data information gap is apparent in the way proper form is taught in sports. “Movement” (or “internal”) cueing is standard practice, in which a coach or trainer guides the athlete to proper form through internalized focus on a specific part of their body. This is largely an inexact science, especially for those without expert knowledge.

The motivation to challenge the current training paradigm manifests in Tactus, a wearable device that provides movement guidance to baseball players through haptic feedback. With embedded Inertial Measurement Units (IMUs), tactus sets a baseline movement profile—based on the athlete’s desired, “optimal” mechanics—and uses that as the basis to which all ensuing reps are compared against. Vibration motors are placed across the body to provide targeted feedback, with differing haptic patterns communicating the athlete’s adherence to their baseline.

Ultimately, this project challenges the notion that practical application of data in baseball should only be accessible to those with resources like private trainers, sports scientists, and analytics departments.

baseball training, wearable technology, tactile cueing, embodied interaction, haptic feedback



Exploring how vibrotactile patterns can communicate information and feedback in sports

Tactus

Enhancing Athletic Performance Through Real-Time Haptic Feedback

Xiangruo (Reina) Li, with Liam Hatakenaka and Stephanie Wang

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

There is a lack of professionally accurate feedback for figure skaters within traditional skating training. Athletes interact with their coach for a limited time, and the lack of comprehensive feedback support presents obstacles in identifying and correcting errors. To address this, we present Tactus, an affordable wearable device designed to enhance figure skaters' posture during dryland (off-ice) practice by providing real-time haptic feedback. The tactile experience offers athletes a more direct connection between their movements and body, increasing body awareness and reinforcing more immediate adjustments. By using Inertial Measurement Units (IMUs) at different parts of the body, it captures an optimized movement data and compares subsequent motions against this benchmark. This solution presents a more accessible approach to receive feedback, particularly in the absence of other human support. We examine the effects of different vibrotactile feedback conveyed to athletes during actual training sessions and demonstrate how these patterns help improve posture and optimize performance in sports.

How might we optimize and enhance athletes' performances in training through real time haptic feedback?

wearable technology, figure skating, haptic feedback, posture improvement, sports performance optimization

Image by author, 2024

Tactus

Enhancing Athletic Performance Through Real-Time Haptic Feedback

Stephanie Wang, with Liam Hatakenaka and Xiangruo (Reina) Li

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Tactus explores how wearable technology can enhance athletic performance and safety across sports by providing real-time, actionable feedback. Using Inertial Measurement Unit sensors and vibration motors, the wearable tracks athletes' movements and compares them to a pre-recorded baseline of perfect form. Deviations trigger haptic feedback, with intensity indicating the degree of misalignment. A complementary app allows athletes to record and analyze their sessions, providing insights on technique improvement. By integrating advanced motion-tracking technology with user-centered design, this wearable system serves both static sports, like powerlifting, and dynamic sports, such as baseball and figure skating. Unlike traditional methods relying on coach observation, delayed feedback, or video analysis, this comprehensive tool empowers athletes with instant guidance to fine-tune their form mid-session. Tested with users, the wearable bridges gaps in accessibility and usability, democratizing advanced sports technology. While this writing focuses primarily on powerlifting training, Tactus offers a versatile model for real-time feedback systems, paving the way for innovations across athletic disciplines.

How might we design a real-time vibrotactile feedback system that promotes optimal movement and reduces injury in powerlifting training?

wearable technology, real-time feedback, motion tracking, athletic performance, haptic feedback

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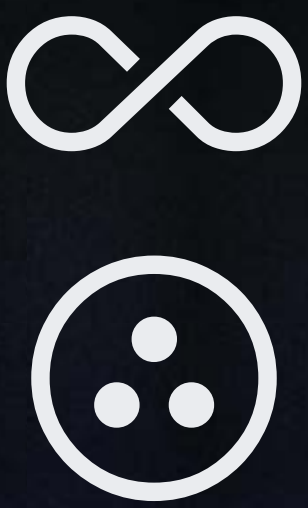
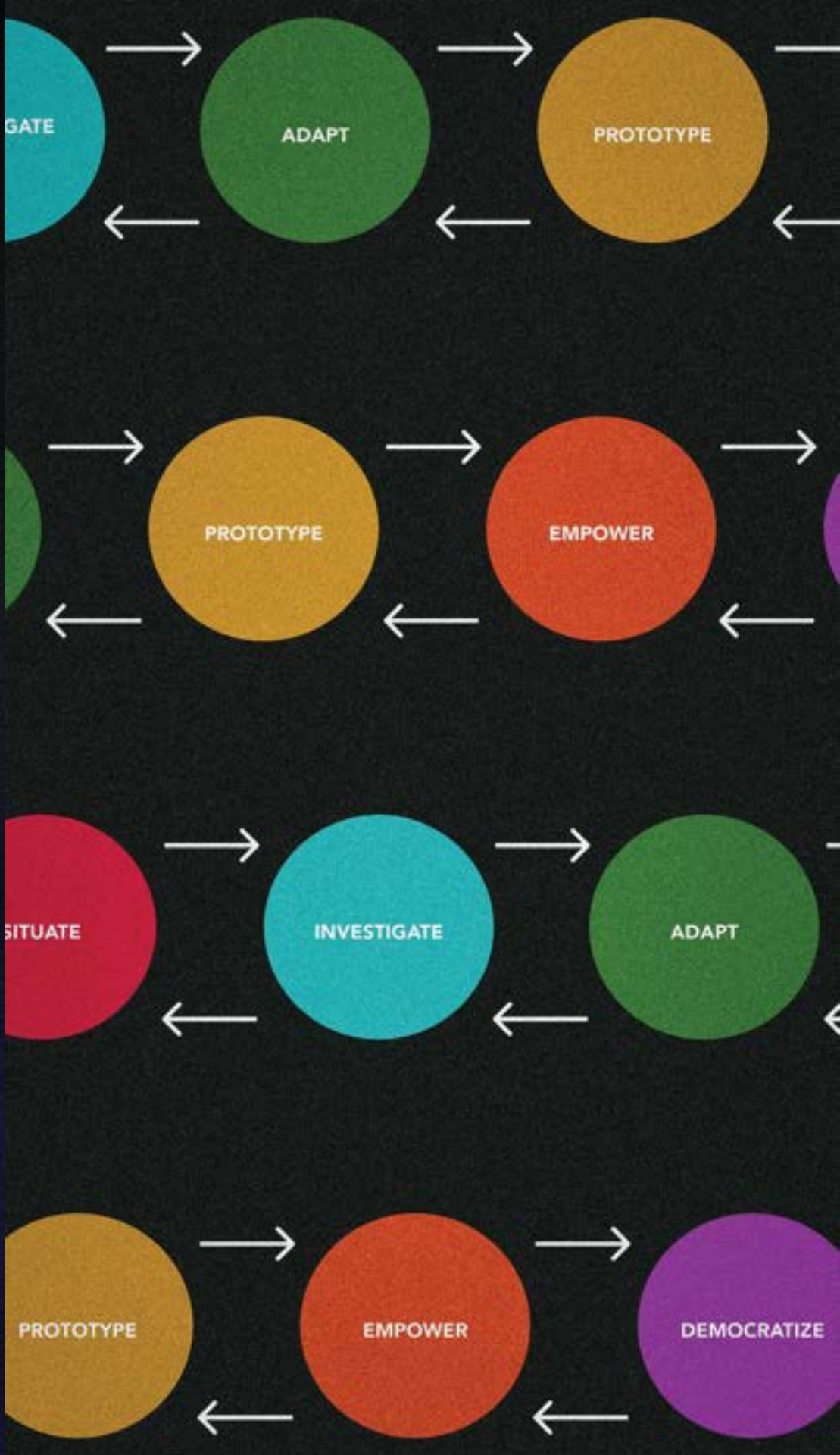




Steps of the ECHO Framework

ECHO (Empowering Contextual & Cultural Human Outcomes)

A Framework for the Design of Assistive Technologies Inclusive of the Socio-Technical and Cultural Contexts of the Majority World

Shameemah Fuseini-Codjoe

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

This thesis introduces the ECHO Framework, a design approach that reimagines assistive technology development to address the needs of the Majority World by prioritizing cultural and contextual relevance. Combining insights from Western-centric and justice-driven frameworks, ECHO emphasizes situating design within socio-technical realities, incorporating cultural symbolism, and fostering collaborative co-creation.

How might we design inclusive and empowering assistive technologies that consider the socio-technical and cultural contexts of the Majority World?

Through a case study in Ghana, where designers reimagined a blind cane, the framework was iteratively tested and refined to tackle usability and adaptability challenges. This process demonstrated how assistive technology can transcend its functional purpose to become a medium for empowerment, dignity, and cultural expression.

ECHO bridges critical gaps in existing inclusive design frameworks, which often assume a one-size-fits-all model or lack the adaptability to accommodate diverse contexts. It provides a roadmap for creating inclusive, empowering solutions that reframe assistive technologies as symbols of cultural identity and pride, fostering greater acceptance and agency among users. This thesis contributes to the growing discourse on decolonizing design and calls for future research to expand its application across disabilities and Majority World regions.

assistive technology, inclusive design, design methodology, decolonizing design, cultural relevance, socio-technical context, empowerment, disability justice

Mikmaw gathering basket

Resilient Design

Navigating Self, Systems, and Social Impact

Maria-Teresa Carmier

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

A Meta-Methodology for the Activist-Advocate-Designer This thesis introduces Resilient Design, a reflexive and embedded framework for emerging social impact designers, positioning the self as an evolving technology—a system capable of critical adaptation, iterative learning, and transformative action within complex environments. This perspective reframes designers not just as creators of external systems but as dynamic participants who evolve alongside the systems they seek to impact. Resilient Design emphasizes three iterative stages—Infiltrate, Agitate, Extrapolate—that guide designers through embedding within systems, disrupting harmful norms, and envisioning transformative solutions. Reflexivity is central to this methodology, serving as a cognitive and emotional tool for critically navigating positionality, ethics, and agency. Through vignettes of embedded practice, this work demonstrates how designers can engage with uncertainty, resistance, and systemic inequities, creating pathways for advocacy and activism. These vignettes provide speculative provocations—design experiments that explore what it means to navigate the contradictions of designing within systems while striving to dismantle them. This thesis addresses critical gaps in current design education by offering a roadmap for the Activist-Advocate-Designer: a resilient practitioner who integrates advocacy, activism, and design into a unified praxis. Resilient Design invites designers to embrace complexity, leveraging the self as technology to recalibrate their practice and foster systems of care, agency, and social transformation.

How can new designers critically and ethically engage with systems they design for or against?

Nature-Human-Centered Systems, Radical Participatory Design, Decolonizing Design, Community-Centered Design, Critical Pedagogy in Design, Intersectional Design, Indigenous Design, Transformative Practice

Making heartbeats interactive: A silent conversation between body and mind.

Embodied Enviornments

Biofeedback-driven Experiences and Artifacts for a Dynamic Wellness Space

Eliza Gonzales

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Mental health has shifted from being a peripheral concern to taking center stage, now widely recognized as an essential component of overall human health. This growing awareness also emphasizes the health of neurodiverse individuals, whose needs are often overlooked due to their less visible nature. One existing but underutilized solution lies in wellness rooms—dedicated spaces designed to help individuals, particularly in high-stimulation environments, recover when faced with overwhelming sensory or emotional demands. However, these wellness rooms are often static in design, failing to adapt to the diverse and unique needs of individuals. This one-size-fits-all approach dilutes their effectiveness, echoing the idea that, when you design for everyone, you design for no one. It also places the full responsibility of self-regulation on the user, who likely is in a vulnerable state or experiencing heightened mental and emotional strain. Instead, this project proposes a dynamic environment that caters to individuals by externalizing biofeedback into artifacts and interactions. Imagine a breath-responsive visualization that expands and contracts with each inhale and exhale, or a stress ball that pulses in rhythm with your heartbeat and illuminates based on your touch. These elements provide active engagement and quiet support, creating a personalized and immersive pathway to self-regulation and calm. Mental health is a universal need, deserving of care, compassion, and attention. This room acknowledges the importance of addressing the needs of neurodivergent individuals while recognizing that anyone may seek a moment of peace. It offers a welcoming space where invisible challenges are made visible, providing support to all in an often overwhelming world.

How might wellness rooms become dynamic spaces, using biofeedback-driven interactions to ground neurodivergent individuals in high-stimulation events?

wellness spaces, sensory overwhelm, biofeedback, emotional regulation, adaptive systems

Image by author, 2024

DandeLight

Transforming Silent Signals into Compassionate Care

Emily Lee

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

The caregiving system has become so broken that family caregivers often become hidden patients. As caregivers devote themselves to others, they are caught in a cycle of self-neglect and guilt, while their own needs remain unnoticed by society. Caregiving will inevitably touch all our lives—whether caring for aging parents, ill partners, or facing our own future needs. We must challenge the care economy's narrative that seeking support signals inadequacy. Through subtle interactions, ambient technology offers a promising path to illuminate hidden challenges and foster empathy, while simultaneously strengthening social bonds. This project explores supporting caregivers by transforming quiet signs of exhaustion into proactive opportunities of community compassion to create a future where no caregiver shoulders their responsibilities alone.

How might we design systems that transform quiet signals of distress into subtle nudges for proactive, empathetic support?

DandeLight is a bidirectional ambient awareness device in the form of a dandelion-inspired nightlight, which nudges peers to blow "wishes of support" upon detecting prolonged sleep disturbances in the other user. This socio-cultural design investigation challenges the paradigm where caregivers' needs are often the last, sacrificial thought by raising awareness about the multifaceted realities of caregiving. Inspired by the complex interplay between caregiving demands, social structures of friendship, and technological possibilities, this project seeks to redefine support systems through empathy-enhanced nudges that encourage proactive connection during early signs of burnout. Although this is initially targeted to address the emotional needs of family caregivers, DandeLight reminds us that by building these support systems today, we create more compassionate communities that we ourselves may need tomorrow.

caregiving, ambient technology, community compassion, healthcare support, caregiver well-being, social connectedness, empathy

Connect the dots.

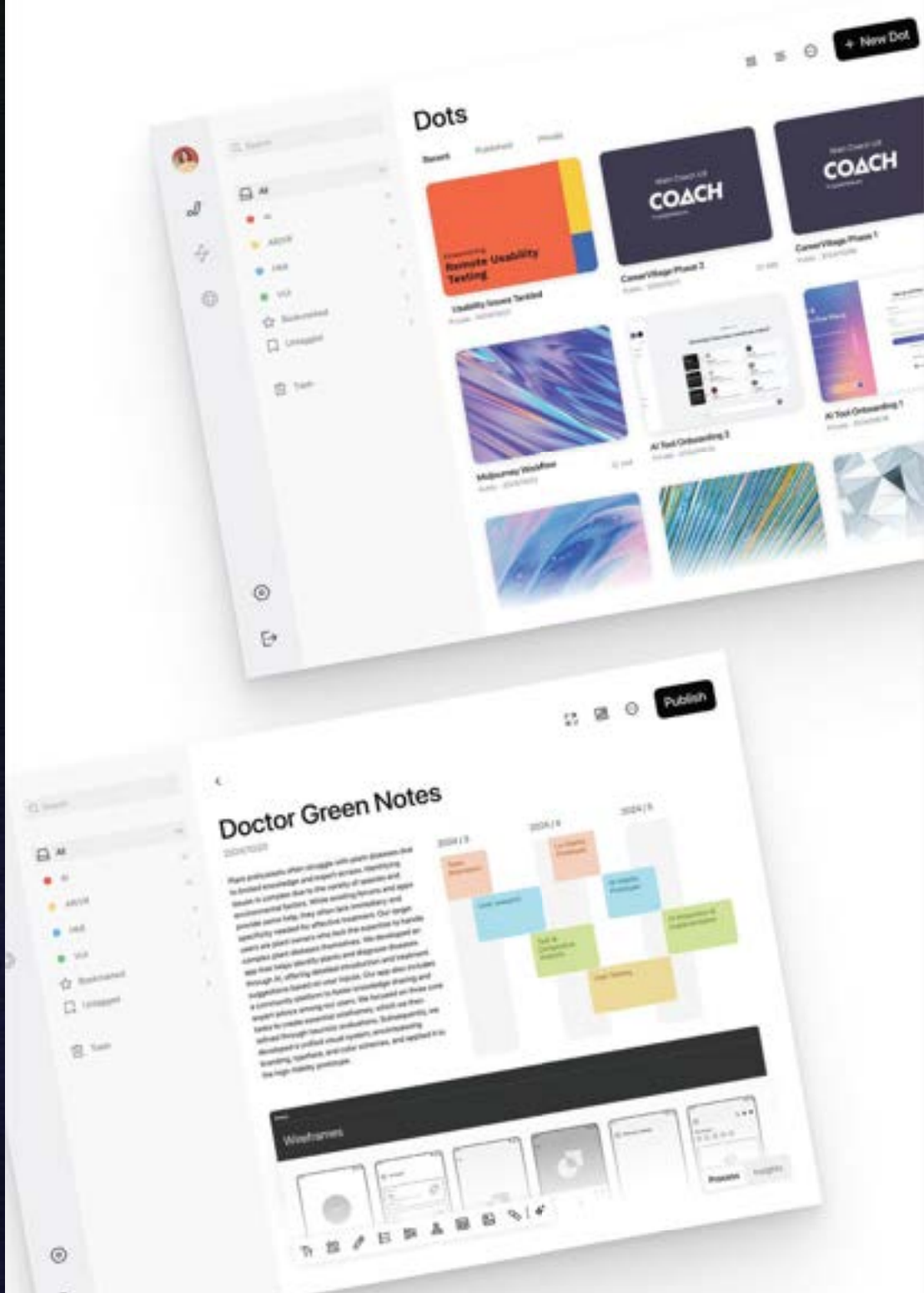


Image by author, 2024

Connecting the Dots

Empowering UX Designers to Navigate the AI Era

Xingchen (Darren) Cao

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

This thesis examines the evolving role of UX designers in an AI-driven world, emphasizing the necessity of adapting to rapid technological advancements.

How might UX designers adapt to their new role and thrive in the AI era by enhancing continuous learning and creative problem-solving?

It introduces a meta-learning framework grounded in reflective practices to help designers bridge emerging technologies with user needs. Central to this research is “Dots,” a digital prototype based on Dr. Roger Greenaway’s Four F’s model—Facts, Feelings, Findings, and Future—that aids designers in analyzing projects, identifying patterns, and generating actionable insights. The thesis provides a roadmap for empowering designers to innovate and ensure that AI-driven technologies remain accessible, empathetic, and human-centered in a constantly evolving landscape.

UX design, artificial intelligence, meta-learning, reflective practices, human-centered design

Image by author, 2024

Identity Archives

Online Resource Forum for Creative Professionals

Marissa Maldonado

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Identity Archives is an open-access online resource forum designed to support creative professionals in navigating the intersection of personal identity and professional growth. This project addresses a critical gap in professional development tools for emerging creatives within the Bay Area music industry, emphasizing self-directed learning, community collaboration, and flexible goal visualization. Rooted in adult education principles, the platform offers tools such as career-focused learning modules, community resource forums, and portfolio templates, fostering both individual reflection and community collaboration. The forum integrates user-friendly submission processes, enabling participants to document their progress through curated personal archives. Reflecting insights from ethnographic research and interviews with industry professionals, Identity Archives emphasizes accessibility and creative autonomy. By blending digital and physical representations of goals, the forum empowers creative professionals to explore their aspirations and connect with their community, providing a personalized framework supporting lifelong learning and artistic growth.

How might we empower creative professionals to navigate personal identity and career growth through accessible tools and community collaboration?

professional development, creative autonomy, music industry, lifelong learning, community collaboration

5.

Image by author, 2024

The Primitive Order of Time

Exploring the interactive relationship between the objective passage of time and individual feelings in modern society.

Anqi Song

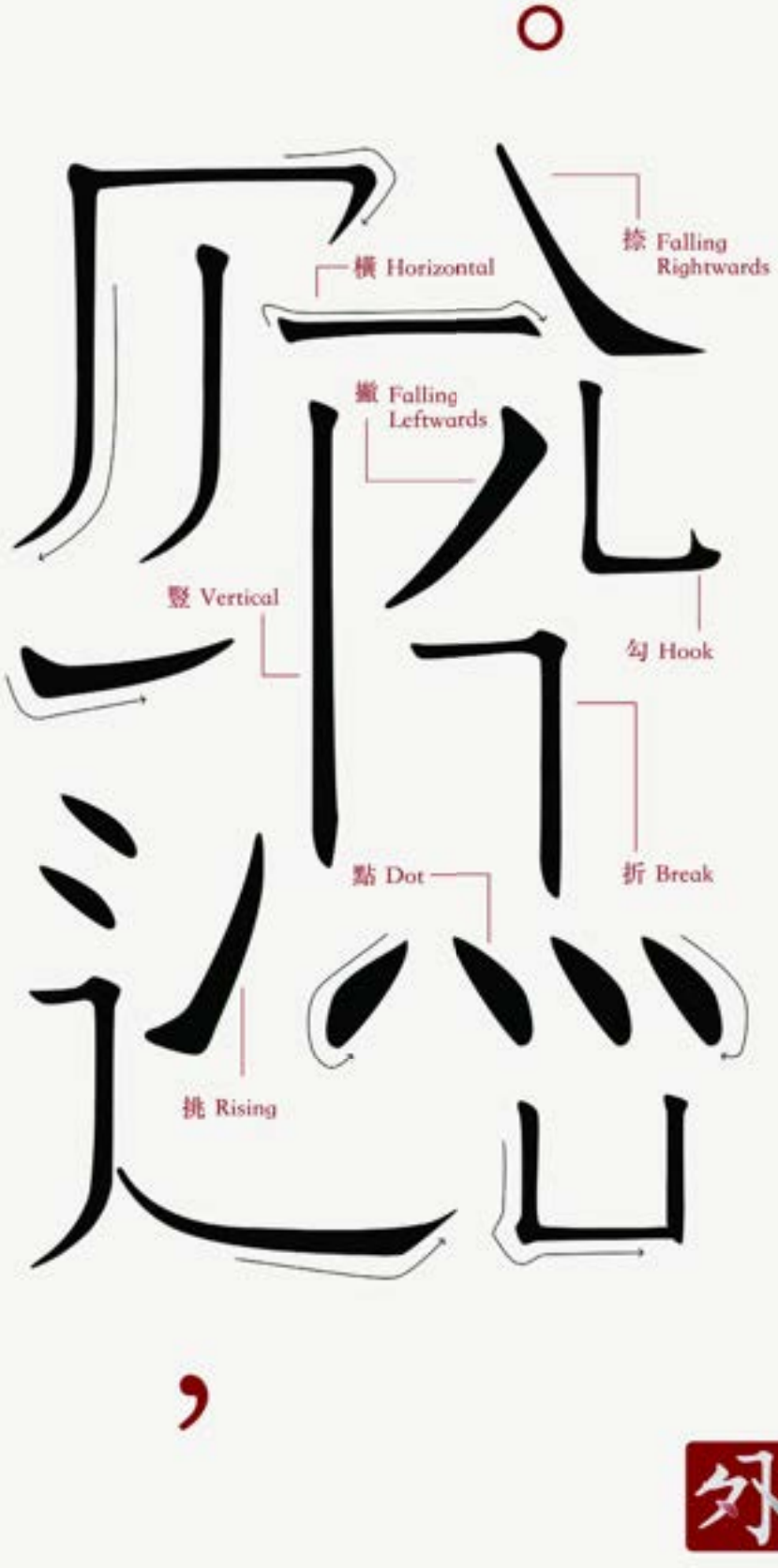
advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

This project aims to enrich individuals' perception of time through interactive art installations, guiding participants to explore time perception approaches distinct from modern society's standardized, productivity-oriented frameworks and rediscover the "primal order" of time. By exploring the interaction between the objective passage of time and individual perception in modern society, the installation encourages participants to reconsider their relationship with time by discussing and synthesizing the conflict between different ways of time perception - the "Working Language" and the "Natural Language". The project allows participants to perceive the synergy between their senses and the passage of time more intuitively and purely, suggesting that sensory clock tools can reshape a person's relationship with time, treating the passage of time as a part of an individual's being rather than simply a manageable resource. This design seeks to not only help enhance people's self-awareness and a sense of agency in life but also offers innovative insights for society in constructing more human-centered approaches to time management.

How can reimagining time perception through interactive, sensory experiences offer new ways to engage with and understand time?

time perception, installation, interactive art, sensory synergy


Image by author, 2024


橫 Horizontal
捺 Falling Rightwards
撇 Falling Leftwards
豎 Vertical
勾 Hook
點 Dot
折 Break
挑 Rising

NeoGlyph

An AI-empowered Platform for Transforming Chinese Character Education

Zhequn Wu

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

NeoGlyph is an innovative dual-interface platform that addresses the challenges of Chinese character (Hanzi) acquisition through a comprehensive, AI-integrated, and user-centric approach. Combining cutting-edge AI, interactive multimodal learning, and real-time analytics, NeoGlyph simplifies the complexity of Hanzi acquisition while enhancing accessibility and engagement. NeoGlyph's dual-interface architecture is central to its functionality. The learner interface offers real-time, adaptive instruction that guides students through character practice, blending traditional handwriting exercises with interactive animations, pronunciation cues, and dynamic feedback. Simultaneously, the instructor dashboard provides powerful data visualization tools, enabling teachers to monitor student progress, identify learning patterns, and deliver targeted instruction.

How can technology simplify learning Chinese characters and provide personalized support with limited resources?

By bridging traditional teaching methods with modern technology, NeoGlyph creates a seamless, engaging learning experience tailored to diverse needs. Its frameworks are scalable to other logographic writing systems, offering valuable insights into the potential of human-AI collaboration in language education. NeoGlyph revolutionizes the journey of mastering Chinese characters.

Chinese characters (Hanzi) acquisition, AI-integrated learning, dual-interface platform, personalized instruction, interactive education

Image by author, 2024

What makes us human?

Future CAPTCHA: from fighting fraud to defining humanness

Hyeryeong (Jade) Kim

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

In an era where AI increasingly blurs the line between human and machine, my research explored what it means to be human.

This journey began with tackling practical challenges related to telephone fraud and authentication systems, leading to the development of three solutions: A community-based intervention system, biometric authentication protocols for secure communication with elders, and shared memory authentication rooted in personal relationships. As I delved deeper, I discovered that scams often exploit imitation, such as deepfakes—a growing threat. This realization extended my work beyond practical solutions to probe deeper philosophical questions about human nature, illustrating how design methodologies can address such fundamental concerns. Through diary studies, campus-wide

How might we identify fundamental traits that distinguish humans from machines as AI evolves, and use these insights to design new CAPTCHA systems?

physical surveys, and interdisciplinary interviews, I gathered insights into aspects central to humanness such as limitations and imperfections, emotions, reproduction and survival instincts, randomness, and both temporal and community memories. Ultimately, this research contributed to imagining future CAPTCHA (Turing test) tools, proposing physical, spectrum-based, and reverse approaches to distinguish humans from machines. This vision extends digital security frameworks, adapting them to future scenarios informed by our evolving understanding of the human-machine distinction. This work invites reflection on preserving the core traits of human essence and establishing universal pillars of human nature as technology evolves and humans and machines increasingly share overlapping characteristics.

artificial intelligence, human authenticity, future authentication, scam prevention, design methodologies, collective intelligence, speculative design

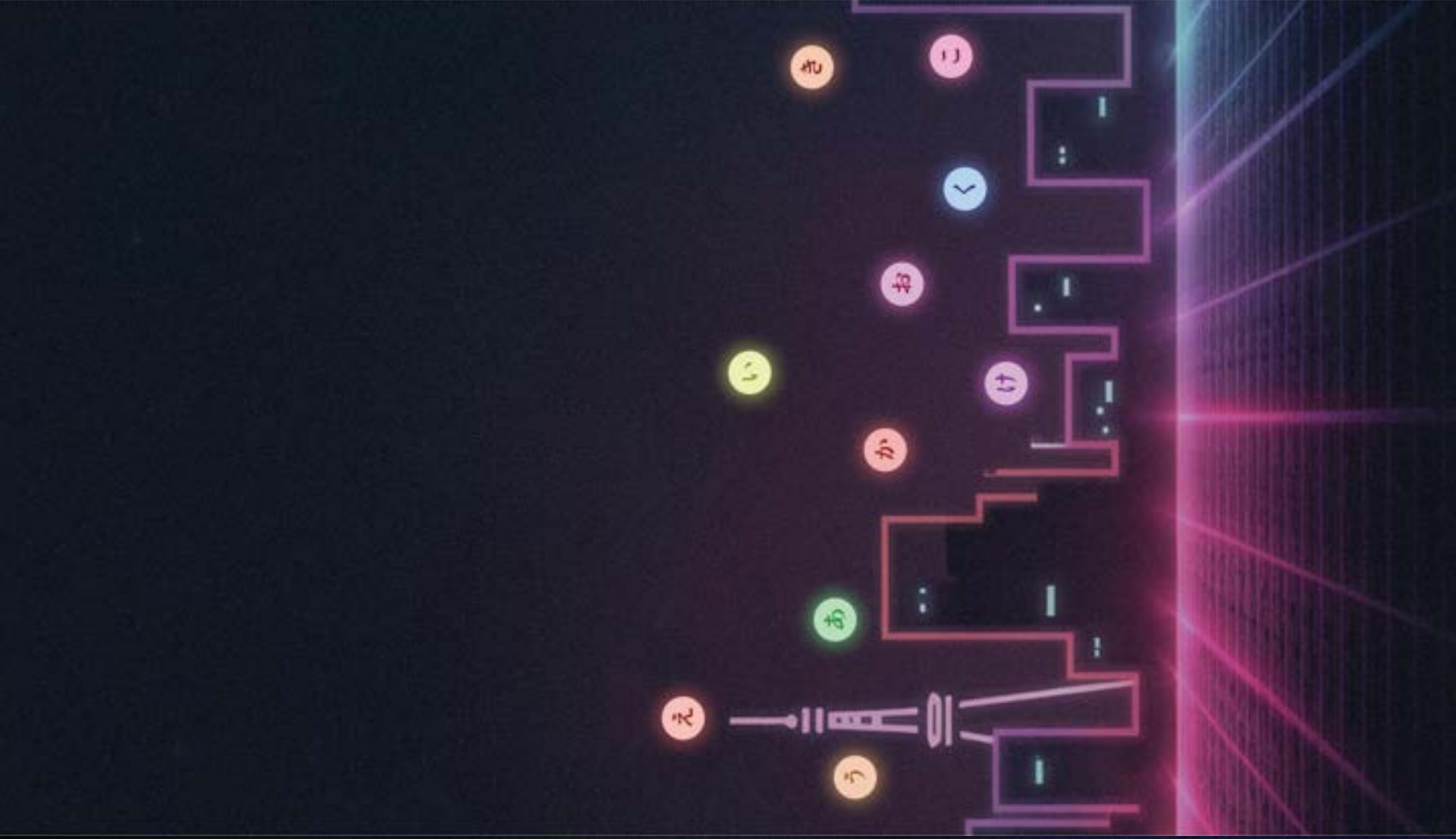


Image by author, 2024

Immersive Language Learning Experience in Virtual Reality

Qingzhu (Rachel) Zhang

advised by Yoon Bahk,
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This project presents a cutting-edge gamified VR experience designed to revolutionize Japanese language learning through immersive and interactive education. By placing users in a highly realistic simulation of Tokyo, the experience enables learners to engage in culturally rich and authentic scenarios, such as ordering meals at local eateries, navigating public transportation systems, and exploring iconic landmarks. These dynamic interactions are facilitated by AI-powered NPCs that simulate natural conversations, fostering organic language acquisition while minimizing dependence on traditional tools like textbooks and flashcards.

How can we create a VR experience that helps users naturally learn Japanese through real-world interactions in a simulated environment?

The project draws on principles from cognitive linguistics, educational psychology, and experiential learning, emphasizing the importance of cultural engagement and context in mastering a new language. By integrating these approaches, the VR experience transforms language learning into an active, engaging journey that bridges the gap between theoretical knowledge and practical fluency. This innovative solution aims to redefine language education, making it more effective, enjoyable, and immersive for learners worldwide.

language learning, VR immersion, Japanese education, AI-driven NPCs, cultural engagement

Each shard reflects a story, a truth, a struggle, and a triumph - fragments of Identity.

Soul Arcade

Immersive Storytelling for Marginalized Communities

Alexx Zaki

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

Step inside Soul Arcade, where stories aren't just told—they are lived. This immersive storytelling project brings marginalized voices to life, allowing participants to step into the first-person perspectives of queer and neurodivergent individuals through virtual reality (VR). By experiencing their unique struggles, triumphs, and everyday moments, Soul Arcade serves as more than just a VR experience—it becomes a bridge to connect with stories often untold or misunderstood. It builds empathy by combining emotional depth with interactivity, promoting solidarity both within and beyond these communities. Whether used in classrooms to inspire young minds, in therapy to deepen understanding, or in workplaces to transform inclusivity practices, Soul Arcade demonstrates how technology can amplify humanity. This project redefines VR as a medium for connection, fostering an emotional ripple effect that challenges perceptions and builds a more compassionate world. Soul Arcade is more than an experience—it's a call to embrace, to listen, and to understand the humanity in us all.

How might an immersive experience help foster empathy and understanding between queer, neurodiverse communities and beyond?

immersive storytelling, virtual reality, marginalized voices, empathy building, inclusivity practices

The camera recording pets. Image by author, 2024

Petnality

Smart cameras record pets' personality, creating dynamic profile to help shelters facilitate adoptions.

Yani Shi, with Xue (Yuki) Han

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This project aims to transform pet adoption experiences by making it easier to showcase the unique personalities of shelter animals. Traditional adoption processes rely heavily on static descriptions and images, which often fail to capture the nuanced behaviors and individual traits of each animal. This mismatch frequently leads to unsuccessful adoptions and high return rates. To address these challenges, this study leverages cutting-edge technology, including wearable sensors and mobile robotic cameras, to create dynamic, behavior-focused profiles for shelter animals. The proposed solution consists of three components: a wearable emotional sensor for pets, a mobile camera, and a smart application. The mobile camera autonomously follows the pet, capturing key behavioral moments during shifts in emotional states. These emotional changes are detected by a wearable

How might we co-create videos that represent animals' perspectives, involving human beings, animals, and AI?

device that monitors the pet's pulse rate, prompting the camera to record video clips highlighting distinct personality traits. These clips are then processed through a mobile APP that compiles a comprehensive personality profile. This innovative system allows potential adopters to view curated video highlights, offering a deeper understanding of each animal's behavior and emotional responses. By showcasing these unique characteristics, the project aims to improve adoption compatibility and reduce return rates.

Camera, Pet Adoption, Animal, Robotics

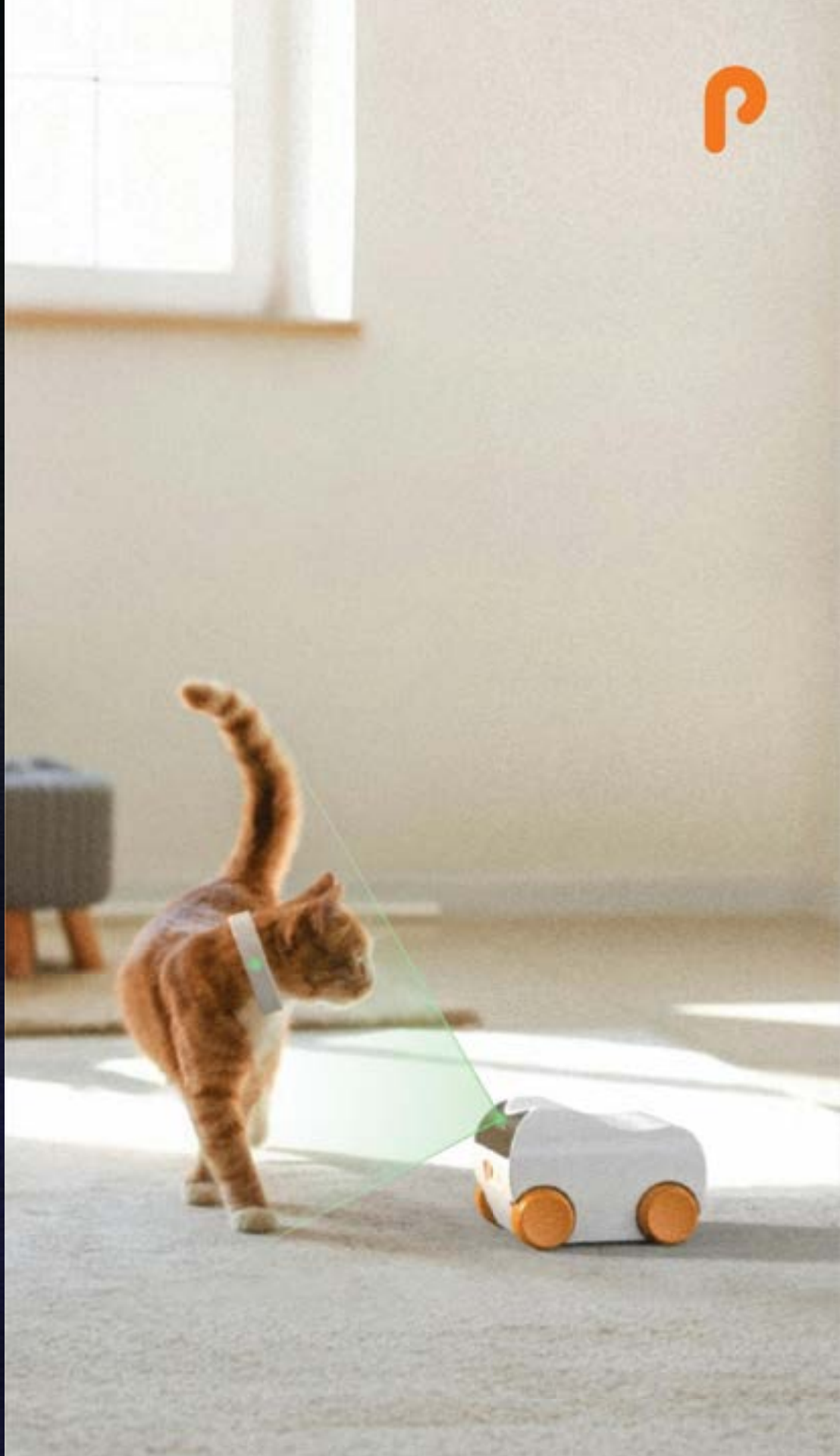

Image by author, 2024

Petnality

Capturing Pets' Emotional Highlights for Dynamic Adoption Profiles

Xue (Yuki) Han, with Yani Shi

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Meet your new companion—on their terms. This project reimagines the pet adoption process by capturing the authentic personalities of adoptable pets, making it easier for potential adopters to connect with their future companions. Traditional adoption methods rely on static descriptions and staged photos, which often fail to convey an animal's unique behaviors and emotional nuances, leading to mismatched adoptions and high return rates.

To address this, the project introduces a system combining wearable emotional sensors, a smart filming robot, and an AI-powered application. The wearable sensor monitors pets' emotional states by tracking data such as pulse rate and activity levels. When emotional changes are detected, the mobile robot autonomously follows the pet, capturing moments that showcase their distinct personality and daily interactions. These moments are then processed through the AI application, which crafts curated video highlights into an engaging, emotion-driven profile.

How can we integrate pets, humans, and AI to create profiles that capture animals' emotional and behavioral perspectives?

This approach gives potential adopters an immersive way to connect with shelter animals, providing a deeper understanding of each pet's emotional and behavioral traits. By fostering meaningful connections from the start, this system enhances adoption compatibility, reduces return rates, and ensures smoother transitions for both pets and their new families.

Emotional Detection, Robotics, Pet Adoption, Animal Behavior

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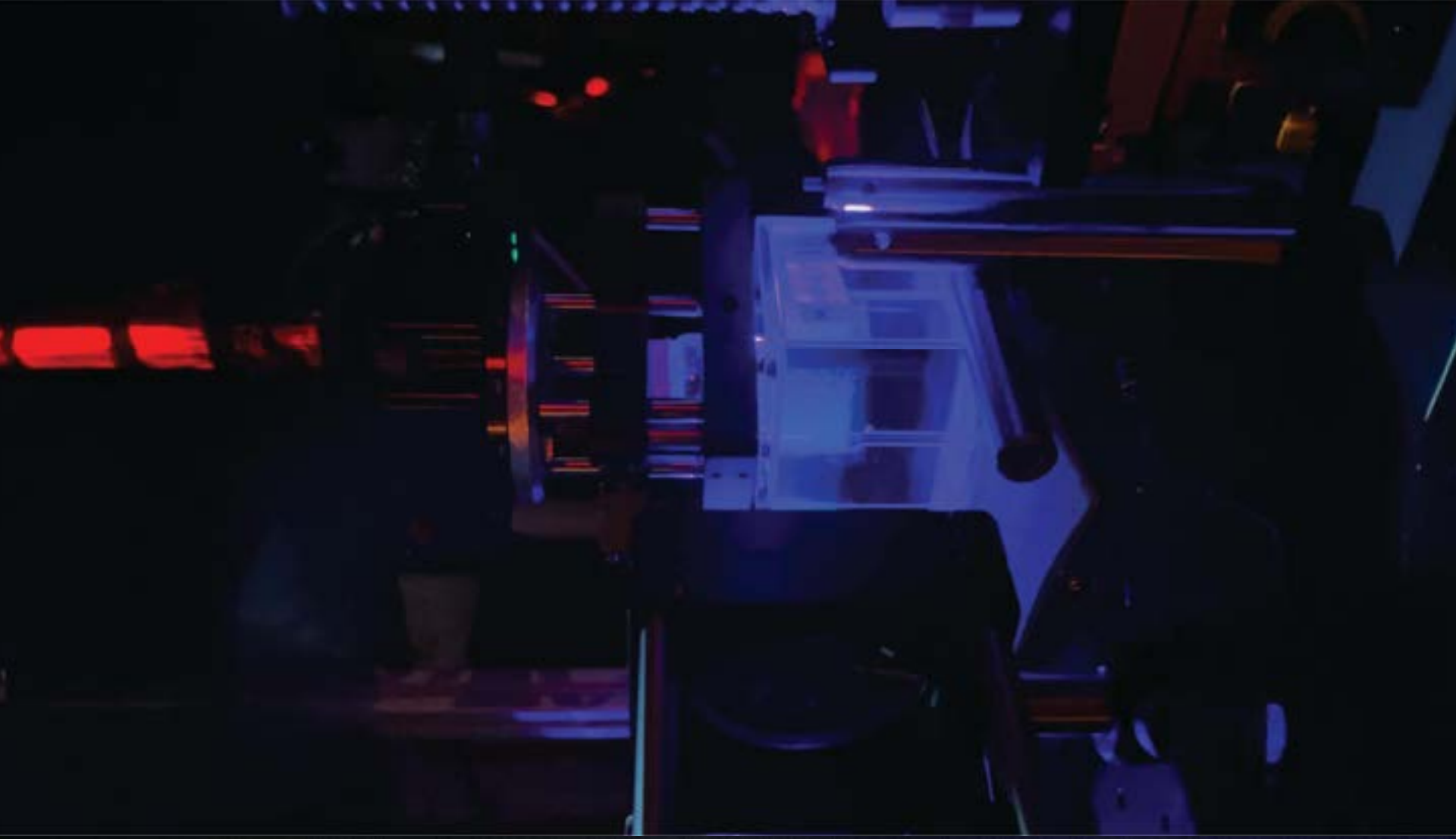


Testing an LED overmold print using the Computed Axial Lithography Printer at Design for Nanomanufacturing at Berkeley.

How We May Make

A vision for producing sustainable hardware

Roshan Mohan

advised by Kristian Simsarian,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kyle Steinfeld

This thesis challenges the unsustainable practices in consumer electronics manufacturing by proposing a shift toward localized, on-demand production anchored in sustainability, using advanced additive manufacturing technologies. Traditional methods, dependent on global supply chains and mass production, significantly contribute to environmental degradation and climate change. The research explores the feasibility of rapid additive manufacturing techniques like Computed Axial Lithography, which can produce customized products directly at the point of sale, thereby minimizing carbon footprints and enhancing supply chain resilience. By reimagining production with sustainability as a foundational principle, this approach aims to transform how electronics are designed and produced. As a vision demonstration for the proposed approach and personalized hardware, I present a prototype—a completely 3D-printed computer mouse with integrated electronics, tailored to the ergonomics of my hand and usage patterns.

How might we rethink the design and production of consumer hardware devices to ensure resilience in the face of climate change disruptions?

personalized devices, local manufacturing, sustainability, hardware production, rapid fabrication

Transforming Habits, One Stamp at a Time

OSKI SATHER GATE

New Stamp Collected!

CAMPANILE

You are a

CHIME CHAMPION

You have prevented

2 0 7 . 1 6 lbs

of trash from ending up in landfills

Bop

Evolving Beyond Disposability, One Reusable Cup at a Time

Kanchan Pathak, with Gia Kirk

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Imagine a world where every single-use disposable cup vanished overnight - a world free from the mountains of waste piling into landfills. What would our consumption look like? How would we fundamentally reimagine convenience and sustainability?

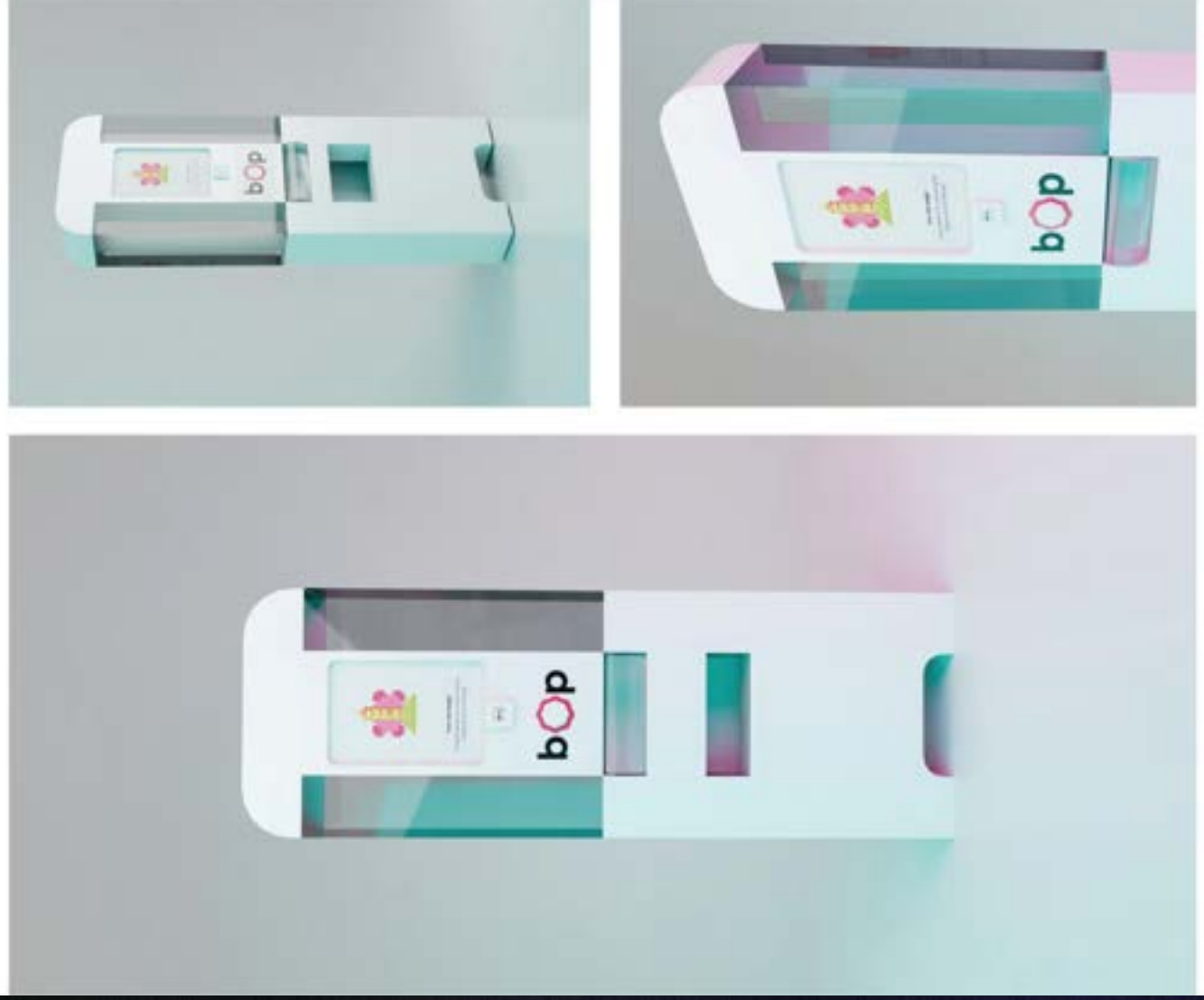
How can a community-centered reusable cup system disrupt single-use consumption habits and drive sustainable behavioral change?

Addressing the root causes of single-use dependency, this thesis leverages behavioral design principles, social incentives, and gamification to transform the act of borrowing and dropping off a cup from a mundane transaction into a meaningful interaction.

Using UC Berkeley as our testbed, an ideal environment to cultivate a culture of sustainability through collective engagement, this thesis proposes a phygital reusable cup system to overcome the logistical, social, and behavioral barriers to sustainable consumption. The playful, low-cost physical vending kiosk enables both clean cup dispensing and dirty cup drop-off at strategic locations across campus, enhancing the convenience of using and returning cups, thereby addressing fundamental barriers to reusable cup adoption. This system is complemented by a digital extension featuring gamified nudges that motivate users to return, track their collective environmental impact, and engage in a community-driven effort toward sustainability, encouraging a behavioral shift where reuse becomes second nature.

Ultimately, this thesis aims to advance reusable cup adoption through a community-centered design, creating scalable pathways for reducing waste and driving meaningful environmental change.

reusable cups, behavioral design, phygital framework, sustainability, gamification



Bop: a reusable kiosk that disrupt single-use culture on UC Berkeley campus.
Bop (verb): A playful, intentional act of choosing reuse to disrupt single-use culture and build sustainable habits.
"Hey, let's Bop a reusable cup" "Bop into reusables"

Bop

Evolving Beyond Disposability, One Reusable Cup at a Time

Gia Kirk, with Kanchan Pathak

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Now, imagine a world where borrowing and returning a reusable cup is as effortless as tossing a disposable one away. Introducing Bop: a phygital (physical + digital) system that contributes to current sustainability on beverage-loving campuses like UC Berkeley. A sleek, strategically placed Bop kiosk sanitizes and dispenses clean cups while also collecting dirty ones. The magic in sustainable habit formation? A digital passport that makes reuse rewarding and community incentivized by offering visually appealing stamps and perks from local cafés. Bop isn't just here to "bop" around; it's creating a movement to make reuse second nature on campuses and far beyond.

"How might we seamlessly integrate reuse into student lives?"

Bop emerged from an extensive behavioral design research conducted at UC Berkeley's Master of Design program. We were inspired by the question: "How might we seamlessly integrate reuse into student lives?"

This inquiry led to exploring the intersection of waste management, sustainable and post-growth Human-Computer-Interaction frameworks, and behavioral models to shift the narrative from reactive recycling to proactive reuse. Instead of producing cups, Bop enhances existing reusable cup services to make them more accessible and efficient. The system aligns with the United Nations Environment Programme's (UNEP) recommendations for Single-Use Beverage Cups. The model is ideally suited for settings like campuses situates in cities like Berkeley, San Francisco, and Alameda, where a culture of sustainability is established and supported by access to renewable energy or cleaning facilities. These locations are primed for Bop's innovative approach, which requires minimal additional infrastructure while offering maximum environmental benefit.

disposable culture, reuse behaviors, low-tech systems, community engagement, environmental sustainability

Image by author, 2024

BioForm

Exploring the Inherent Affordances of Algae Bioplastics

Divya Srinivasan, with Chia-Jung (Charon) Kuo

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Have you ever wondered why crafted bio-based materials often take the shape of a bag, block, or bowl? Or why they're usually positioned as plastic alternatives, despite their inherently different properties? We challenge this narrative, by exploring how we can leverage the unique characteristics of bio-based materials—often dismissed as flaws—and elevate them into desirable traits for creating novel functions, forms, and aesthetics. Through the lenses of hands-on experimentation, material-driven frameworks, & accessible fabrication, this thesis reimagines the potential of algae-based bioplastics. Agar bioplastics exhibit high sensitivity to heat and moisture, which we leveraged as a functional asset.

How might we utilize a material-driven design approach to discover & develop tailored fabrication methods and unique affordances of algae bioplastics?

Laser-cut patterning creates textured designs when heated or reversible actuators in high humidity. Agar's natural shrinkage was utilized in screen printing, creating functional cinching and tactility that can be reversed in high humidity conditions, or easily washed away. To move beyond the material's two-dimensionality, we developed buoyant, lightweight agar foam with cushioning properties. Through agar's quick gelling, we crafted non-uniform and textured surfaces, producing unique light-filtering effects. Through Scanning Electron Microscopy, we examined the material's behavior at the micron scale and explored its performance at larger scales beyond traditional swatch sizes. We found that experimenting with a material without imposing rigid specifications or targeted applications can allow for deeper and more imaginative exploration, uncovering new possibilities. This project offers a bottom-up approach and an alternative perspective on the intersection of materials and design—a call for future designers to experiment with and embrace crafted biomaterials in their work.

Biomaterials; Bioaesthetics; Shape-changing Materials; DIY Practices; Sustainability; Material-Driven Design

Image by author, 2024

Bioform

Introducing New Perceptions of Algae Bioplastics' Materiality

Chia-Jung (Charon) Kuo, with Divya Srinivasan

advised by Yoon Bahk,
with Caseysimone Kennedy Ballestas, Kristian Simsarian, and Kyle Steinfeld

Emerging biomaterials have long been studied as a replacement for petroleum-based materials in response to growing environmental concerns. Specifically, crafted biomaterials, one genre of emerging biomaterials that require the secondary processing of plant-derived ingredients—such as agar, gradually draw more attention since they enable configurations to achieve ideal material properties. However, these biomaterials are processed with unfitting techniques designed for traditional plastics without adapting to their materiality. This misalignment results in stigmas around their perceived inferior performance—such as unreliable strength and inconsistent quality—confining them to only an experimental, craft-based field rather than practical explorations. The underexploration of their materiality further hinders the development of suitable processing techniques, forming a vicious circle.

How might we elevate bioplastics' unique material properties to go beyond existing perception of only the replacement of non-renewable plastics?

Rather than treating emerging biomaterials as only sustainable alternatives, this project seeks to uncover different possibilities for these understudied materials in order to challenge public perceptions. We also argue that fabrication techniques should be developed based on an understanding of materiality first. Thus, we conducted a series of explorations and experiments that revealed their unique affordances, then designed fabrication methods that fulfill aesthetics, functionality, and scalability. By showcasing the versatility of crafted biomaterials to other designers and the public, we hope to share the knowledge and potential of creating functional designs with responsible materials, thereby influencing the product design landscape and shaping a more sustainable future.

Biomaterials; Bioaesthetics; Shape-changing Materials; DIY Practices; Sustainability; Material-Driven Design

1. *Seed Medium Tests*
2. *Greenffiti Spray Nozzle*
3. *Spraying Greens with Water*

Guerrilla Greening

Illegal Acts of Kindness for Environmental Justice

Abigail Chen, with Kirk Mendoza

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

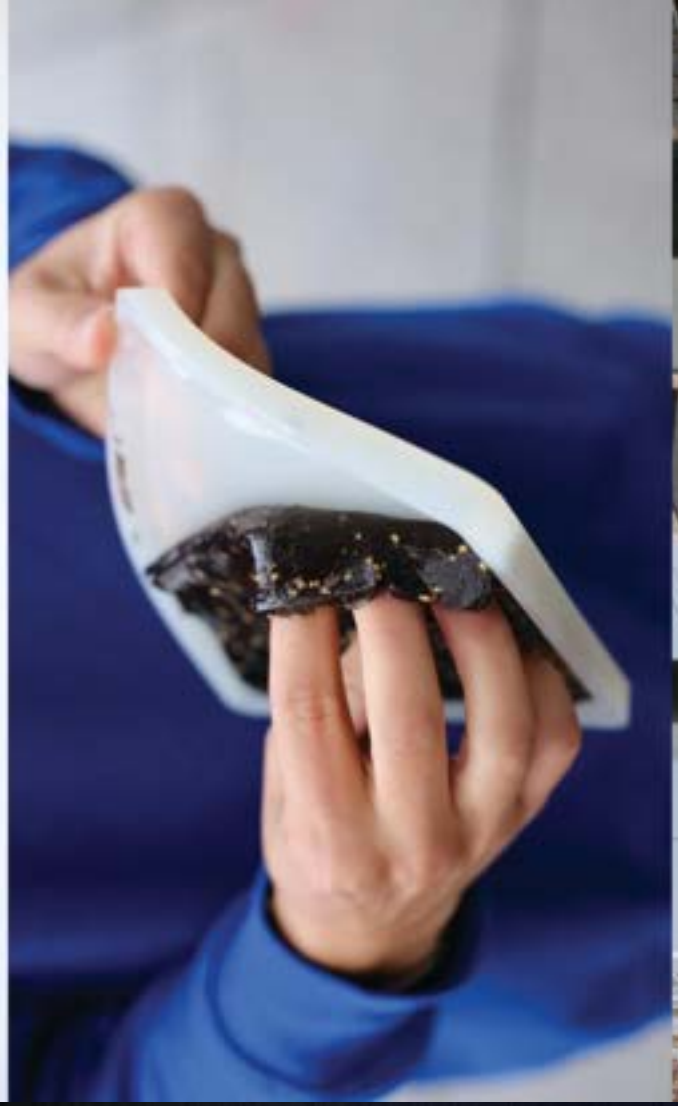
Cities are getting hotter. The Urban Heat Island (UHI) effect—a phenomenon where urban areas experience higher temperatures than their rural surroundings—poses serious threats to public health, equity, and sustainability. Concrete, asphalt, and other heat-absorbing materials dominate urban landscapes, while greenery remains sparse, amplifying local temperatures. As cities grow, so does the UHI effect, compounding public health risks and worsening environmental inequities.

How might we encourage communities to combat the Urban Heat Island effect and advance environmental justice through creative action?

Marginalized and low-income communities bear the brunt of UHI's impacts. Historically underserved neighborhoods lack the green spaces, tree canopies, and cooling infrastructure that wealthier areas benefit from, leaving residents disproportionately vulnerable to extreme heat. This disparity is a direct result of systemic injustices, such as redlining, which have shaped urban landscapes over decades. Rising temperatures amplify existing challenges, contributing to increased rates of heat-related illnesses, reduced labor productivity, and diminished quality of life. While urban initiatives like parks or cool roofs offer partial solutions, these efforts are frequently implemented through top-down processes that fail to consider the needs of those most affected. Worse, they can lead to green gentrification, displacing long-term residents as improved environmental conditions drive up property values. Bureaucratic barriers, such as restrictive regulations, further hinder grassroots attempts to create greener neighborhoods.

The UHI effect is more than a temperature problem—it's a systemic issue rooted in environmental and social inequities. Without intervention, the growing UHI crisis will continue to exacerbate health disparities and deepen the divide between communities that thrive and those left behind.

Urban Heat Island, climate change, environmental justice, speculative design, grassroots interventions



1. *Leaflet in Silicon Mold*
2. *Removing Leaflet from Silicon Mold*
3. *Throwing Leaflet onto Wall*

Guerilla Greening

Illegal Acts of Kindness for Environmental Justice

Kirk Mendoza, with Abigail Chen

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Guerilla Greening empowers individuals to change their environment and push for positive climate futures through illegal acts of kindness. Drawing inspiration from guerilla gardening practices, such as seed bombing, and graffiti culture, we developed tools for individuals to "green" their neighborhoods with sprayable and throwable plant mediums. By repurposing pesticide sprayers with a novel growing medium, we developed Greenffiti, a nutrient-rich paste and spraying system that supports the development of fast-growing microgreens. The throwable version, called Leaflets, is poured into silicon molds so they can be quickly peeled out and thrown onto walls. The final medium is composed of agar, moss, aloe vera, and humic acid. These ingredients keep the seeds moist enough to germinate and provide nutrients for one generation of growth. These acts of eco-vandalism are mapped onto a web platform where others can locate and maintain them through misting. Additionally, the temperature of the sprayed surface is captured in hopes of creating a citizen-science database of the Urban Heat Island effect.

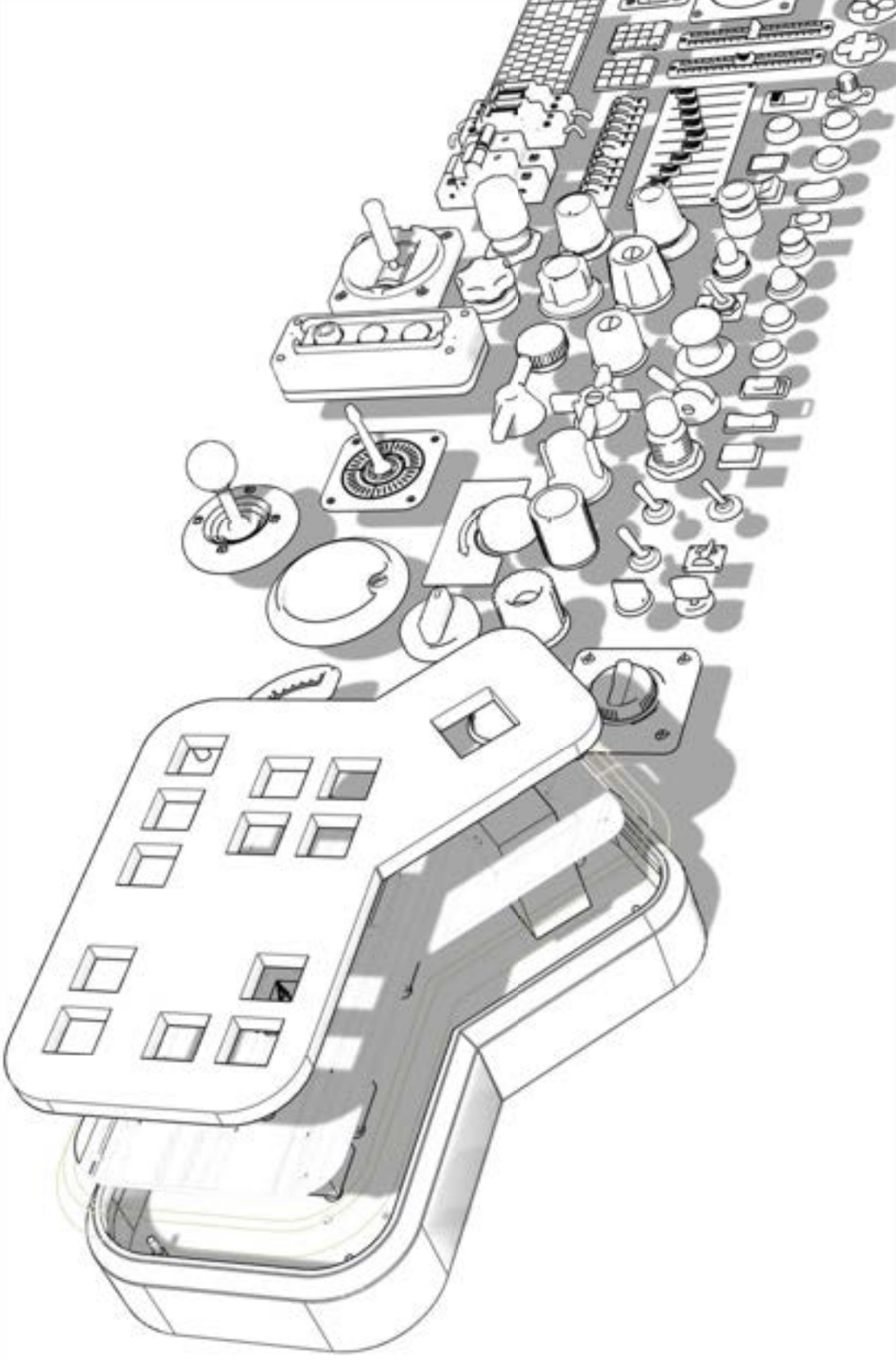
How might communities be encouraged to combat the Urban Heat Island effect and advance environmental justice through creative action?

To help spread awareness, we also created a campaign of heat-reactive posters that change when surface temperatures rise over 88°F. These posters call back to the anti-war screenprinting movement of UC Berkeley in the 1970s when campus buildings were turned into mass production sites for activism. These direct viewers to our mapping platform and serve as the first step in building awareness of the UHI effect.

We know that there is much left to do to combat climate change. This toolkit is not a solution, but an opportunity to inspire shifts in motivations and goals of design from profit-driven to restorative to the environment, ourselves, and future generations.

urban Heat Island, guerilla-greening, climate activism, community empowerment, designer's role

Exploration into hardware for creatives



Dexter

At Your Fingertips: Tactile Interaction on Design Workflows

Stephanie He, with Xinyu (Hiro) Qu

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

This project, Dexter, explores how customized hardware can improve the workflows of product designers by creating a console specifically tailored for software design tools. The research focuses on addressing common challenges designers face, such as repetitive tasks, high cognitive load, and managing stress during demanding projects. By incorporating features like customization, ergonomic design, and tactile feedback, the console is designed to adapt to the unique needs of designers in a professional setting.

How might we customize hardware to enhance workflow efficiency and ergonomics for UI/UX designers?

One of the main goals of the project is to highlight the importance of adaptability in hardware design. By creating a tool that can be personalized and integrated into digital workflows, Dexter provides an opportunity to rethink how physical tools can support and enhance the work of designers. This research serves as a starting point for exploring how hardware can reduce friction in design processes and help designers focus on their creative and analytical work.

This project also opens up questions for future exploration, such as how physical tools can be scaled for broader use and how they might complement existing digital tools.

product design, customized hardware, ergonomic tools, tactile feedback, digital workflows

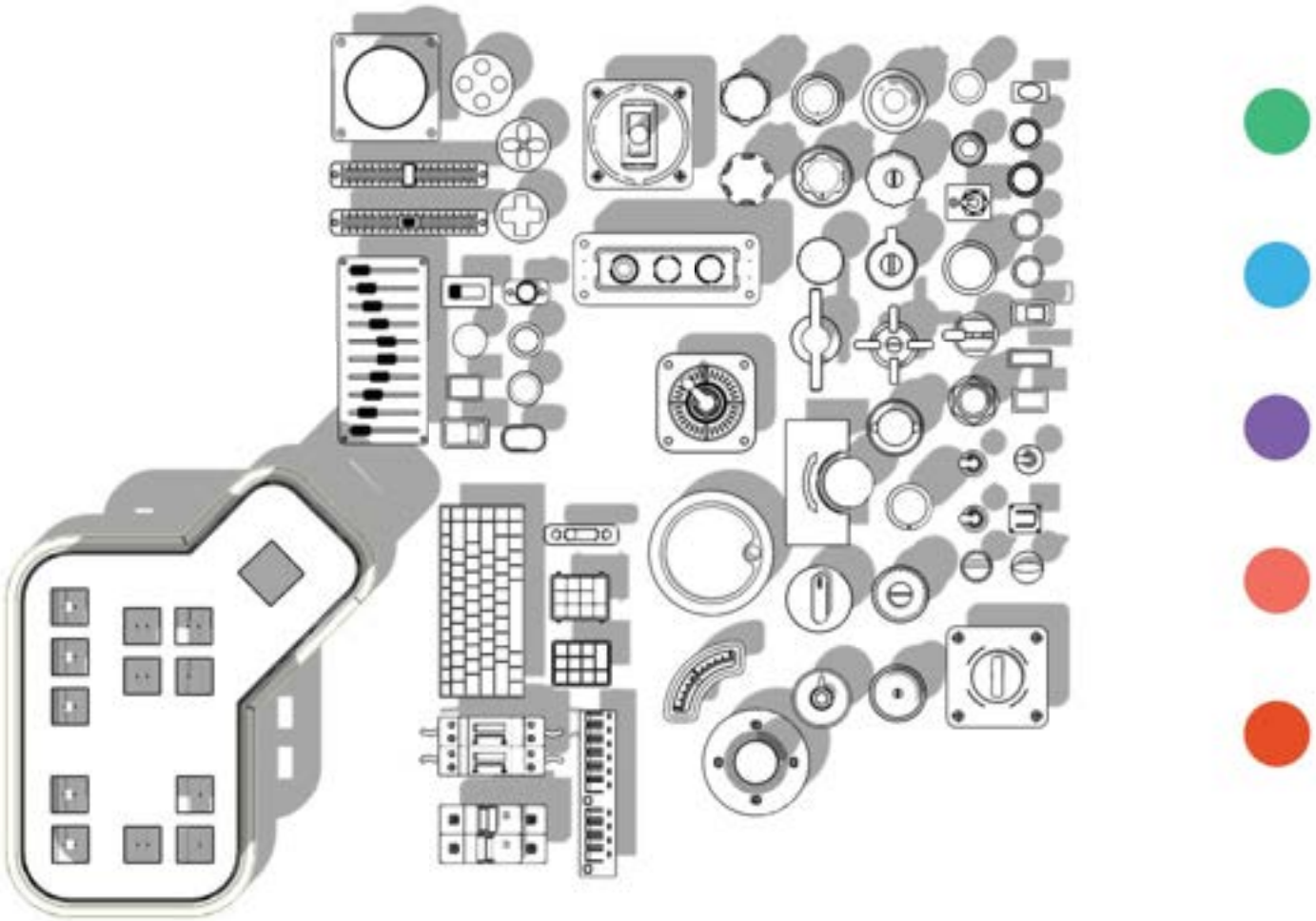


Image by author, 2024

Ctrl

Figma smart console Design

Xinyu (Hiro) Qu, with Stephanie He

advised by Kyle Steinfeld,
with Yoon Bahk, Caseysimone Kennedy Ballestas, and Kristian Simsarian

Whether you're a UX beginner or a professional designer, Control is the new way to optimize your working experience with the most popular design software, Figma, offering more precision and ease. This project introduces a standardized keyboard that replaces the traditional interaction methods between your device and Figma. It becomes more intuitive and features new functions that allow you to work faster. The keyboard includes a dual-axis super button along with 12 other tactile keys. Ctrl is designed to empower you to navigate, resize, align, and customize layouts seamlessly. Its ergonomic key layout is carefully designed to suit natural hand positions. Each button, including the super button, is crafted with perfect resistance, enabling fine-tuning with high accuracy. Moreover, it offers the flexibility to re-customize buttons to suit individual designer habits.

How might we create a keyboard that optimizes UX designers' workflow, reduces repetitive strain, and enhances productivity?

UX design, Figma tools, ergonomic keyboard, precision design, customizable controls

Berkeley MDes

UC Berkeley Master of Design
Fall 2024