

Chenyue “xdd” DAI

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<https://xdd44.xyz>

Education

Massachusetts Institute of Technology	Sep. 2022 - Feb. 2026
Master of Architecture (In progress)	GPA 4.5/5.0
Cornell University Summer Program in Architecture and Design	Jul. 2021
City University of Hong Kong	Sep. 2018 - Jun. 2022
B.Sc. Computer Science (First Honor) + Minor Creative Media	GPA 3.58/4.3

Selected Grants and Honors

The 2025 Harold and Arlene Schnitzer Prize in the Visual Arts, MIT	Apr. 2025
Three recipients annually among MIT students for excellence in a body of work in the visual arts	
Department of Architecture Fellowship, MIT	Sep. 2022 - Present
2 Silver, 1 Bronze, International Collegiate Programming Contest (Asia Regional)	2020 - 2022
Top 50 among 700+ teams from Asia division, the most competitive region	

Publications

Gaze to the Stars: AI and Public Art from Personal Affect and Collective Empathy, NeurIPS Creative AI 2025	2025
Behnaz Farahi, Sergio Mutis, Yalu Wang, Suwan Kim, Chenyue Dai, Haolei Zhang	
Low-Fi vs. High-Fi Spatial Design in VR for Non-professionals, ACM Chinese CHI 2024	2025
Chenyue Dai*, Lan Wei*, Xuening Peng, Xin Tong, Can Liu	
AngleCAD: Surface-based 3D Modelling Techniques on Foldable Touchscreens, ACM ISS 2022	2022
Can Liu, Chenyue Dai, Qingzhou Ma, Brinda Mehra, Alvaro Cassinelli	

Teaching Experiences

TA, Introduction to Photography and Related Media MIT Professional Photographer Hector R. Membreño-Canales	Sep. 2025 - Dec. 2025
- Demonstrated photography techniques including custom fabricated film scanner and software processing workflow	
TA, Design Studio: Objects and Interaction & Design Studio: Interaction Intelligence MIT Prof. Marcelo Coelho	Sep. 2024 - May 2025
- Delivered lectures in camera principles and large language models, and tutorials in fabrication techniques	
- Developed template scripts including camera retrieval, image processing, embedded system communication, web and circuit interaction, and API requests	
- Assisted in teaching courses about designing interfaces, physical AI tools and creative cameras, providing design and technical feedbacks	
Instructor, Non-Credit Class: Algorithmic and Parametric 3D Design MIT Independent Study Period	Jan. 2024
- A workshop style class of parametric 3D modeling in Rhino, Grasshopper, and C#, covering implementation techniques, strategies and design references	
- Designed course content and syllabus include weekly topics, references, and take-home practices and delivered the course with Lingy “Yimmy” Qiu	
TA, Sensing Place: Photography as Inquiry MIT Prof. Anne Whiston Spirn	Sep. 2023 - Dec. 2023
- Delivered tutorials including camera and photography basics and maintained course and project website with vanilla html/css/js	

Research Experiences

Research Assistant Critical Matter Group@MIT Media Lab HCI, Ergonomics, Mechanism, Visualization	Jan. 2025 - Aug. 2025
Project: Gaze to the Stars , AI-mediated participatory public art installation and performance	
Performed @MIT Campus, documentation and data visualization: https://gazetothestars.com	
- Designed and fabricated custom recording pod system (Rhino, Grasshopper, 3D printing, lasercut, screw set, magnets), integrating microscope for eye capturing, audio equipment, and ergonomic components into aesthetically cohesive, portable assembly; iterated eye-rest component design to optimize capture precision and participant comfort, deployed for 200+ participant sessions	
- Engineered modular adjustment mechanisms enabling rapid recalibration between sessions and simplified assembly/disassembly for installation portability	
- Developed automated data processing pipeline (Python) to synchronize biometric and narrative content with video stitching, text overlay, and transition effects	
- Built interactive 3D web visualization (THREE.js) spatially mapping narrative relationships (clustered via UMAP/HDBSCAN) to architectural geometry, enabling public exploration of thematic connections across participant stories	
- Co-author , NeurIPS 2025 Creative AI Track: contributed literature review on Sherry Turkle’s analysis on human-AI interaction and paper writing	
Design Systems Analyst Foster + Partners London, UK Computational Geometry, Material Use Analysis, CAD	Jun. 2023 - Aug. 2023
Project: Kingdom of Saudi Arabia Pavilion , sustainable building showcasing traditional Saudi urban structures and cultural heritage	
Constructed and opened at <i>Expo 2025 Osaka, Japan</i> : https://www.expo2025.or.jp/en/official-participant/saudi-arabia	
- Developed novel geometric hashing algorithm (Grasshopper C#) for real-time tile inventory cataloging, reducing computation time from 10+ seconds to <1 second; enabled systematic tracking of unique facade elements for material reuse across projects, supporting circular economy workflows	
- Designed parametric tiling patterns through iterative computational exploration, selected as finalist in company design board review; translated geometric datasets into parametric frameworks for data-driven facade optimization	
Project: Cyclops , environmental analysis Rhino plugin for accelerating raytracing-based simulations of architectural design	
Released at company website: https://cyclops.fosterandpartners.com	
- Architected integration pipeline connecting Rhino modeling environment with raytracing backend via custom Unity visualization interface and Rhino plugin	
- Created visual communication framework translating environmental simulation data (solar illumination, urban visibility) into intuitive architect-facing visualizations, streamlining analysis workflow from 3D model to actionable design insights	

Project: AngleCAD: Surface-based 3D Modelling on Foldable TouchscreensResearch published @ACM ISS 2022: <https://dl.acm.org/doi/10.1145/3567735>

- **Designed and implemented novel gesture interaction framework** for 3D modeling on foldable touchscreens (Unity C#), translating professional CAD operations (transformations, snapping, cutting, extrusion) into intuitive multi-touch gestures grounded in tangible manipulation metaphors
- **Led iterative design process** from formative studies through prototype validation, balancing discoverability with expressiveness; conducted user research with CAD practitioners and novice users to inform gesture vocabulary and workflow optimization
- **Developed cross-device synchronization system** (TCP, JSON) coordinating interactions between dual touchscreens with real-time visual feedback; integrated simulated perspective shifts and eye-tracking to enhance spatial reasoning of complex 3D geometry
- **Second author**, ACM ISS 2022: contributed interaction design, implementation, user studies, and primary manuscript writing

Project: Low-Fidelity vs. High-Fidelity Spatial Design in Virtual Reality for Non-professionals

Research published @ACM Chinese CHI 2024: <https://dl.acm.org/doi/10.1145/3758871.3758913>

- **Designed and implemented gesture interaction framework** for interior design in VR environment (Unity C#)
- **Conducted novel study in geometry fidelity** with novice users and professional designers to discuss the influence on co-design activities
- **Joint first author**, ACM Chinese CHI 2024: contributed interaction design, implementation, user studies, and primary manuscript writing

Related Projects**Solo Artist, Memory Still | Exhibited at MIT Wiesner Gallery | Media Art, Image Processing, PCB Development**

Nov. 2024 - Mar. 2025

Winner of 2025 Schnitzer Prize: <https://arts.mit.edu/start/wiesner-student-art-gallery/schnitzer-2025>

- Developed **computer vision framework** using C++ openFrameworks to extract kinetic data from street footage and drive dynamic visual synthesis algorithm
- Prototyped and fabricated custom **hardware interface** integrating microchip and motor driven projection system through **printed circuit board**, with 3D-printed mechanical components, cooling fans, and laser-cut aluminum housing, to create novel film-based display experience
- Executed pipeline from computer vision, through physical media, to custom hardware development, bridging digital synthesis with analog presentation

Design Engineer, Momo: a Lunar Habitat | Exhibited at MIT Museum | Computational Geometry, Mechanism, Fabrication

Feb. 2024 - May. 2024

Featured in school media: <https://www.media.mit.edu/articles/momo-a-self-assembling-lunar-habitat-featured-in-designboom>

- Engineered mechanics for collapsible dodecahedral habitat, designing and simulating **custom linkage systems** in C# to enable compact transport
- Innovated **curved folding fabrication methodology** to overcome size constraints of material resources for room-size prototype, seamlessly joining laser-cut PETG components while transforming necessary structural seams and rivets into aesthetically enhanced design features
- Created staged photography series for immersive narrative, using lighting and composition techniques to elevate prototype to compelling design communication

Project Lead & Lead Developer, Impact of Boston Housing Speculation on Individuals | Data Visualization

Feb. 2025 - May 2025

Featured in department media: <https://dusp.mit.edu/news/leveraging-interactive-data-visualization-housing-affordability>

- Led the project as **coordinating cross-functional team of 4**, managing timelines while adapting project direction based on feedback analysis
- Full-stack implemented interactive data visualization platform using **D3.js**, creating playable data visualization and educational game component
- Led interaction and visual design decisions, translating complex housing data into accessible user experiences for public participation

Founder and Lead Game Designer | Arkala: AI-Powered Interactive Narrative Game | Unity, C#, Figma, GPT APIs

May 2024 - Sep. 2024

Secured \$50k seed funding | Exhibited at Beijing 798 Art District

- **Led end-to-end product design as solo designer-developer**, translating ambiguous creative vision into cohesive user experience for a text-based RPG featuring AI-driven NPCs, virtual economy systems, and emergent storytelling, demonstrating ability to scope and prioritize across multiple interdependent features
- Designed **AI agent interaction patterns** for multi-NPC conversations as well as **LLM-driven game mechanics**, architecting structured prompt engineering systems that enabled natural dialogue, procedural inventory generation, social platform simulation, and adaptive narrative while maintaining user agency
- **Prototyped and implemented full product in Unity/C#**, creating complete UI ecosystem, directing complex prompt and information, and managing API communications and data flow architecture, bridging design and engineering to rapidly iterate on complex interaction prototypes

Skills**Languages:** C#, C++, Python, Javascript, Java, Shell Script, Swift, SQL**Technologies:** Rhino, Grasshopper, Unity, openFrameworks, THREE.js, D3.js, Embedded Programming, Hugging Face, Node, Git, Linux, Adobe Suite**Concepts:** Computational geometry, interactive data visualization, algorithms, data structure, game design and development, computer graphics, machine learning**Fabrication Techniques:** 3D printing, lasercut, metal lasercut, CNC, spraypainting, printed circuit board, robotic arm**Activities:** Photography, drone operating, sim racing, ski, volleyball