

# Chenyue “xdd” DAI

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## 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, <i>NeurIPS Creative AI 2025</i>	2025
Behnaz Farahi, Sergio Mutis, Yaluo Wang, Suwan Kim, Chenyue Dai, Haolei Zhang	
Low-Fi vs. High-Fi Spatial Design in VR for Non-professionals, <i>ACM Chinese CHI 2024</i>	2025
Chenyue Dai*, Lan Wei*, Xuening Peng, Xin Tong, Can Liu	
AngleCAD: Surface-based 3D Modelling Techniques on Foldable Touchscreens, <i>ACM ISS 2022</i>	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. Membreno-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 Lingyi “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   <i>Critical Matter Group@MIT Media Lab</i>   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: <a href="https://gazetothestars.com">https://gazetothestars.com</a>	
- 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   <i>Foster + Partners</i>   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 Expo 2025 Osaka, Japan: <a href="https://www.expo2025.or.jp/en/official-participant/saudi-arabia">https://www.expo2025.or.jp/en/official-participant/saudi-arabia</a>	
- 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: <a href="https://cyclops.fosterandpartners.com">https://cyclops.fosterandpartners.com</a>	
- 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	

**Research Assistant** | *ERFI Lab@City University of Hong Kong* | HCI, Computational Geometry, Touchscreen, VR Feb. 2021 - May 2022  
**Project: AngleCAD: Surface-based 3D Modelling on Foldable Touchscreens**  
*Research 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