Daoxin Chen

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EDUCATION

Columbia University   New York, the U.S.
09/2021-05/2024
- Master of Science in Historic Preservation in Graduate School of Architecture, Planning and Preservation
- Thesis: Merging the Digital and the Physical: Augmented Reality for Digital Heritage Interpretation
- Courses: 3D User Interface and Augmented Reality, Project in Computer Science, Human-centered Design and Innovation, Spatial UX, Urban Sensing & Data, Machine Learning, Digital Heritage,

New York University   New York, the U.S.
09/2019-12/2020
- Master of Arts in Teaching English to Speakers of Other Languages in Steinhardt School of Education

Nankai University   Tianjin, China
09/2015-07/2019
- Bachelor of Arts in English Language and Literature
- Honors: First-Class Scholarship & Merit Student in Nankai University, 2017&2018&2019

Others: International Summer School in British Cultural Heritage in University of Birmingham; Summer School in Western Architecture in Harvard University

VR/AR EXPERIENCES

Virtual Reality Experience for Architectural Heritage   New York, the U.S.
XR Designer & Prototyper   03/2024-Current
- Participated in the full development cycle of a Virtual Reality (VR) product for cultural learning, using Columbia University's Low Memorial Library as a case study for designing the VR experience.
- Designed interaction and navigation through sketching and collaborated with my team to develop the VR experience using Unity and C#, which included reconstructing historic scenes and observing the space from various heights.

Computer Graphic and User Interfaces Laboratory, Columbia University   New York, the U.S.
XR Designer   02/2024-05/2024
- Engaged in the "Vision-Sweyepe" project, which pioneers a novel approach to typing in Virtual Reality utilizing eye tracking and finger taps. Redesigned the user interface (UI) of the keyboard to enhance interaction and provide more intuitive visual cue feedback, thus optimizing the virtual keyboard for eye typing.
- Actively involved in the development of PhysioLabXR, a cutting-edge software designed to visualize diverse physiological data for cognitive science research. Conducted comprehensive interviews with cognitive science researchers to gather insights into their methodologies and needs, and used Figma to create an intuitive, user-centric interface design that enhances the user experience and aligns with their workflow.

MIT Context + Intelligence Workshop   Online
Researcher   06/2023-07/2023
- Utilized VR headsets as a research tool to investigate how environmental richness, including ambient sound and material expression, influences participants' attentional focus while reading an article.
- Designed an experiment with two exterior contexts (Chinatown, NYC and Saudi Arabia) and two interior settings (a brick room and a concrete room), executed 3D reconstruction of the areas using Agisoft Metashape and Unity.
- Conducted qualitative research and gathered critical data from users through Arduino GSR during the VR experience, think-aloud interviews and questionnaires before and after the experience.

CIPA (International Committee of Architectural Photogrammetry) Symposium   Florence, Italy
First Author & Presenter   06/2023-07/2023
- Wrote and presented the paper, "The Survey of the Use of Virtual Reality and Augmented Reality at Immovable Tangible Cultural Heritage Tourism in China", on CIPA International Symposium.
- Developed a framework to analyze VR and AR applications for immovable tangible cultural heritage, including the purpose of using the technology, hardware, software, and user experience to have an overall understanding of VR/AR applications.

- Conducted interviews for case studies and answered questions: under a certain heritage context, what is the commonly used technology, what is a correlation between the purpose of using VR/AR, the enabling technology, and the user experience, and is there a difference in the concentration point between academia and the XR industry.

Immersive Exhibition in Chinese Ancient Architecture   Beijing, China

Assistant Designer Tsinghua Heritage Institute Digitization   10/2022-01/2023
- Conducted meetings and interviews with the managers of the cultural site, Zhengyang Gate in Beijing, to gather their specific requirements for designing an exhibition.
- Constructed and rendered 3D digital models, preparing the conceptual design for a cultural exhibition at Zhengyang Gate, utilizing holographic display technology, while also collecting historical materials and organizing the narrative structure for the exhibition.

UX DESIGN PROJECTS

LuminLeaf: for Emotion Recognition and Regulation   05/2024

Group Project Instructor: Anthony Vanky
- Focused on the issues of emotion recognition and regulation, developed a prototype of a digital plant that visualizes emotional states through dynamic lighting, aimed at fostering emotional awareness. Utilized Arduino and laser cutting technologies for hardware implementation.
- Integrated galvanic skin response (GSR) sensors to capture emotional data, enhancing the device's ability to reflect real-time emotional states.
- Conducted experimental tests to validate the prototype's functionality, investigating potential scalability and application within urban environments.

Green Reminder for a Healthier Lifestyle in NYC   12/2023

Group Project Instructor: Harry West
- Focused on addressing the concern that NYC residents lack access to sufficient green spaces for health benefits. Conducting user interviews to identify the specific issues faced by residents in this regard.
- Following the human-centered design process, generated design concepts to tackle the issue, prototyped products for user testing, actively gathered user feedback to assess the effectiveness of the solutions, and iterated on the designs collaboratively with teammates.
- Selected promising design concepts, then proceeded to develop and prototype a green reminder ring utilizing 3D printing technology, in addition to creating an accompanying mobile application using Figma.

Spatial User Experience Design for "Notion" Software   11/2023

Group Project Instructor: Violet Whitney
- Conducted an analysis of the current version of Notion, assessing both positive and negative aspects.
- Utilized sketching and storyboard to design a spatial interface for Notion, which aimed at enhancing its "presence" feature. Technically prototyped the design concepts using Processing, reacTIVision, and a projector.

ARCHITECTURE TECHNOLOGY PROJECTS

AI Tool for a Solar Panel Installation Feasibility Plan for Historic Districts   12/2023

Group Project Instructor: Kivanc Kose & Bilge Kose
- Implemented an AI-driven solution to optimize the placement of solar panels on building rooftops in accordance with regulations, ensuring maximum efficiency in energy harnessing.
- Developed and tested the AI-based tool through programming in Google Colab, and summarized the technical procedure.

Building Condition Assessment through 3D Scanning Model and Photogrammetry   04/2022

Coursework Instructor: Bilge Kose
- Produced the model of The Malcolm X & Dr. Betty Shabazz Memorial and Educational Center with 3D scanning and photogrammetry, dealt with the data with Faro Scene and Reality Capture and uploaded the 3D model to SketchFab.
- Wrote the technical articles to summarize the workflow of using 3D scanning and photogrammetry in documenting heritage and reflected the advantages and disadvantages of digital documentation tools and traditional counterparts.

SOFTWARE SKILLS

- **UX design and prototype** (Figma, Audrino)
- **Coding (**C#, Java p5.js, Processing**)**
- **3D software** (Unity, Faro Scene, Reality Capture, SketchUp, Enscape)
- **2D software** (Photoshop, Illustrator, InDesign, AutoCAD, ArcGIS)