

QIUYU ZHANG

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EDUCATION

McGill University

Montreal, Quebec, Canada

Major: Architecture

Sep 2017 - Feb 2022

GPA: 3.72/4.0

Core Courses: Design and Construction; Structural Engineering; Architectural Modelling; Energy, Environment, & Buildings; Linear Algebra and Geometry

Minor: Computer Science

Jan 2020 - Feb 2022

GPA: 3.88/4.0

Core Courses: Foundations of Programming; Algorithms and Data Structures; Programming Language & Paradigms; Software Design

Honors and Awards:

Rio-Tinto International Exchange Awards of McGill University; Critics Favorite Design of Quebec Ice Hotel 2019

PUBLICATIONS

The Influence of City Streetscape on Emotion Perception of City Walk: Street Regeneration Based on EEG Data and Computer Vision

Conference: CEB-ASC, accepted, 2024

Authors: **Qiuyu Zhang**, Shengyao Tan, Xinyan Qian, Runjiao Liu*

Urban New Landmark - Analysis and Generation of Social Media Images Based on Multi-Scale Cognition with Image Classification and Recognition in Shanghai, China

Conference: ASCAAD, preliminary accepted, 2024

Authors: Jiajing Gao, **Qiuyu Zhang**, Yinjia Zhou, Xueyi Zhao

lolEpop: A Multisensory Electronic Lollipop for Enhanced Tongue Training and Behavior Analysis

Conference: UbiComp-ISWC, accepted, 2024

Authors: Cheng Xue, Hua Gu, Jingyi Li, **Qiuyu Zhang**, Chenxi Su, Jihong Jeung*

RESEARCH PROJECTS

3D Food Print Based on Sensory Evaluation Model and Food Structure Design May 2024 - Present

- Created an oral processing evaluation model to evaluate food breakdown and its relation to sensory experience.
- Automated analysis with 94% accuracy using QR code, image segmentation, and ResNet-50 classification.
- Explored food material printability and optimized print paths with Rhino-Grasshopper for GCode generation.

The Influence of City Streetscape on Emotion Perception of City Walk Mar 2023 - Oct 2023

- Harvested social media data, employing Jieba for preprocessing and BERT-based NLP to correlate emotional sentiments with geographic points of interest.
- Developed VR simulations and conducted EEG experiments to explore emotional responses to virtual urban environments, integrating environmental psychology insights.
- Analyzed video data for emotional mapping, extracting color and spatial data using MMCQ and Cityscapes-based segmentation.
- Created a program that correlates emotional data with urban elements to generate street pavilion designs enhancing city walk experiences.

RESEARCH PROJECTS

Urban Landmark and Social Media Population Study Based On Image Classification

Mar 2023 - Oct 2023

- Assembled social media posts from Shanghai Travel, geolocating data using the Gaode API and NLP.
- Built a model on ResNet-50 to categorize 5,000 images and 45,762 check-in photos into intimacy groups, and profiled users into six groups through hot-word analysis.
- Linked photo preferences to user identities and locations, revealing connections between identity, street popularity, and photo intimacy.
- Used Google Vision to extract labels for photos of varying intimacy levels, aiding in the creation of an AR game.

Analysis of Dance Infectiousness Based on Eye Movement and Motion Data

July 2024

- Identified visual focus points in dance by analyzing joint localization from online videos and mapping to gaze heatmaps.
- Examined posture similarity and muscle exertion in synchronized dance movements through joint comparison and EMG peak force measurement.
- Pinpointed dance moves with minimal motion variance and visualized dance "infectiousness" with motion trajectories using Rhino-Grasshopper.

Interactive Generative Art on Brain-Computer Interface

July 2023

- Developed four distinct Processing algorithms for flow, collage, and vibration, responsive to EEG-based meditation and focus levels.
- Integrated EEG device with Processing for live art creation, using mean signal processing for continuous visual pattern generation.

INTERNSHIP AND PROFESSIONAL

Tsinghua University Future Lab

May 2024 - Sept 2024

Aging User Experience and Service System Design

- Led a 3D food printing project centered on sensory evaluation, assessing the printability of food materials and designing optimized print parameters and paths for complex food structures.
- Assisted in Virtual Reality user experiments, focusing on the collection and analysis of human factors data to enhance user experience.
- Conducted demonstrations and testing for a tongue training device, contributing to its development and ensuring its effectiveness.

Yili Art

Sept 2022 - April 2024

Interactive Art Design and Technical Tutor

- Assisted in the creation and installation of interactive art pieces, specializing in devices powered by various sensors and Arduino.
- Provided tutorials on generative design software, including Processing and Rhino-Grasshopper, guiding students and artists in developing their technical skills.

Zhixing Architects

May 2022 - Sept 2022

Architectural Design and Animation Produce

- Contributed to project proposals through preliminary research and form development, supporting the design process from concept to execution.
- Produced analytical drawings and architectural animations, creating compelling media content to effectively communicate design ideas.