


NIQI LIU

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🔗 <https://github.com/Nicki-Liu/LearningData>

Python 

C++ 

Java 

Javascript 

📌 OBJECTIVE

Summer Research Project, PhD student

🎓 EDUCATION

Tsinghua University (THU), Beijing, China

2018 – Present

Candidate for Bachelor of Computer Science (CS), expected July 2022

👤 EXPERIENCE

Major Grade

2018 – Present

- GPA: 3.73
- Rank: 38.5% (82/213)
- Transcript is included in the same compressed package

Research

2020 – Present

Currently I am in the lab of [Dr. & Prof. Yong-jin Liu](#) in Institute of HCI and Media Integration of Tsinghua. I have been participating in a few programs, and am a co-author of paper “Influences of Facial Features on the Emotion Recognition of Cartoon Faces”, which is being considered for publication in Frontiers in Psychology. Brief introduction to this program is as follows:

- **Emotion Recognition of Cartoon Faces:** a project trying to figure out the recognition process of cartoon emotional facial expression. Individually, I built a [web-site](#) for pre-experiment to test the arousal of a image subset(needs [Django back-end](#) to correctly perform). In the formal experiment, we showed modified images of cartoon faces(already had emotion labels as ground truth) to participants and recorded their feelings. We then concealed certain facial parts(eyebrows, mouth, eyes etc.) respectively and repeated the experiment to explore the contribution of each feature. When analyzing, we computed the accuracy of subjective judgments and compared the results among stimuli with different features. The comparison showed that the recognition of 'Happiness' advantaged over other emotions and that a single feature, 'mouth', is sufficient to express this emotion.

Curriculum Projects

April, 2020 – Present

- **Device Switching Mechanism in the Scene of Smart Home** Group Project-C#

An HCI project which compares the naturalness and efficiency of different trigger method: gesture, sight, distance, and touch button, through constructing a house setting on Unity and having the participant, wearing Oculus, turn off a TV in one room and turn on one undertaking the same content in another room when

you shift your space there. We counted the time of shifting and investigated user experience, finding that our design of gesture had the best performance. I took major response in the code implementation of gesture recognition algorithm.

[Code](#) [Demo](#)

- ***Optimization of Cartoon Face Conversion Algorithm Based on Expression Analysis*** Group Project–python

A project I'm currently working on as group leader. The project aims to specify the Image Style Conversion algorithms to pictures presenting facial expressions, mainly used for emotion extracting.

- ***Morphing Tasks in Digital Image Processing*** Individual Project–python

- Typical face morphing: extract feature points, build triangle mesh, and get affine matrix of each triangle.

[Code](#) [Demo](#)

- Image Fusion: fuse part of a source picture into an assigned position in a target picture; use Poisson Image Editing Algorithm to maintain the area edge color of target and minimize inner color gradient variation of source part.

[Code](#) [Demo](#)

- ***Ray Tracing in Computer Graphic*** Individual Project–C++

The pictures were rendered using the classic Ray Tracing algorithm - compute the brightness of non-shaded points, direction and attenuation of reflected and refracted light. All demo pictures were generated from text files, containing the positions and texture of objects, lights, and cameras. And the basic geometric patterns were cubic, ball, triangle mesh, and Bezier surface of resolution.

[Code](#) [Demo-vase](#) [Demo-rabbit](#)

Minor in Bio-medicine

2019 – Present

I have great interest in neural science, especially the cognitive system, which mechanism has been intriguing me to get hang of. Thus I take biomedical as my minor and have taken the courses below:

- Foundations of Neural Science and Neural Engineering
- Human Anatomy and Physiology

Courses to take:

- Systems and Computational Neural Science
- Neural modeling and data analysis

i CHARACTERISTICS

- Personality: Hardworking, can keep long-term enthusiasm

- Languages: English - Fluent(SET4:627, Literature Review:A+), Mandarin - Native speaker