YINING SHE

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OBJECTIVE

Application for enrollment as a Ph.D. student in Computer Science.

EDUCATIONAL BACKGROUND

ShanghaiTech University *Shanghai, China*
School of Information Science and Technology *Sep.2018-Jun.2022 (expected)*
Bachelor of Engineering in Computer Science and Technology
Cumulative GPA: **3.83/4.0** | Rank: **4/252**

RESEARCH INTEREST

Software Engineering, Cyber-Physical-System, Machine Learning, Formal Method

RESEARCH EXPERIENCE

Human-Cyber-Physical-System Lab | ShanghaiTech University *2021-Present*

Project One: Cognitive Modeling for Driving Assistance
Advised by Prof. Zhihao Jiang & Prof. Yash Vardhan Pant (University of Waterloo)
Objective: Propose a model that can represent the driver's perception based on the surrounding environment information and the driver's actions.
Core Contents:

- Analyzed how a driver updates his perception during driving a car;
- Proposed a method to predict driver's perception;
- Implemented a lifelike driving environment to collect data of human driver by Unity.

Project Two: Model-checking-based Diagnosis Assistance for Cardiac Ablation
Advised by Prof. Zhihao Jiang & Prof. Eunsuk Kang (Carnegie Mellon University)
Objective: Use a model-checking-based diagnosis assistance system to improve accuracy and efficiency of diagnosis in cardiac ablation.
Core Contents:

- Introduced a kind of heart model to represent heart conditions and implemented it using UPPAAL;
- Introduced a model-checking-based method to enumerate ambiguity using heart model refinements;
- Proved the soundness and completeness of the method;
- Designed and implemented clinical case experiments for analysis.

Virtual Reality and Visual Computing Center | ShanghaiTech University *2019-2021*

Project One: High-Resolution Neural Face Swapping for Visual Effects
Advised by Prof. Jingyi Yu & Prof. Lan Xu
Objective: Swap the appearance of a target actor and a source actor while maintaining the target actor's performance using deep neural network.
Core Contents:

- Improved and refined the method introduced in the paper "High-Resolution Neural Face Swapping for Visual Effects";
- Designed and captured the data set for face swapping to prove the robustness;
- Improved the efficiency by taking advantage of multi GPUs.

Project Two: Portrait Shadow Manipulation
Advised by Prof. Lan Xu
Objective: Remove foreign shadows and soften facial shadow in a portrait photo based on GridNet.
Core Contents:

- Implement a Neural Network to removed the foreign shadow on human face in a portrait image based on the paper "Portrait Shadow Manipulation";
- Generated training data using GAN-generated portrait images and a foreign shadow synthesis algorithm.

Project Three: The Image-Based Relighting
Advised by Prof. Jingyi Yu
Objective: Generate images of object under arbitrary illumination using the data captured by a light stage
Core Contents:

- Implement the paper "Acquiring the Reflectance Field of a Human Face" and putted it into the use of the newly built light stage in the lab.

PUBLICATIONS

Guangyao Chen, **Yining She***, Renzhi Tang, and Yutong Wu, **"Model-checking-based Diagnosis Assistance for Cardiac Ablation"**, Submitted to *Transactions on Cyber-Physical Systems (TCPS) 2021.*

HONORS & AWARDS

Outstanding Teaching Assistant | ShanghaiTech University *2021*
Merit Student | ShanghaiTech University *2019*
Outstanding Student in Social Practice | ShanghaiTech University *2019*
Second-Prize of Undergraduate Special Scholarship | ShanghaiTech University *2019*
Second-Prize of Undergraduate Special Scholarship | ShanghaiTech University *2018*

COURSEWORK EXPERIENCE

Design and Build a Compiler for the Classroom Object-Oriented Language
Course of Programming Languages and Compilers

- Completed all components of a compiler, covering lexical analysis, parsing, semantic analysis, and code generation.

Intelligent Player | Course of Artificial Intelligence

- Implemented Q-Learning and Deep Q-Network to play a pixel game called BB-TAN.

Single Image Portrait Relighting | Course of Computer Vision

- Took in a single-view portrait and generated a relighted portrait under target environment using deep NN.

Pintos | Course of Operating System

- Strengthened several core functions of a simple operating system framework, including kernel threads, loading and running user programs, and a file system.

EXTRACURRICULAR ACTIVITIES

Teaching Assistant | ShanghaiTech University
Course of Algorithms and Data Structure *Sep.2021-Present*
Course of Software Engineering *Feb.2021-Jun.2021*
Course of Algorithms and Data Structure *Sep.2020-Jan.2021*

PROFESSIONAL SKILLS

Programming Languages	C/C++, C#, Python, MATLAB, RISC-V
Software	Unity, Unreal, UPPAAL
Miscellaneous	PyTorch, OpenCV