

YINING SHE

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OBJECTIVE

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

EDUCATIONAL BACKGROUND

ShanghaiTech University
School of Information Science and Technology
Bachelor of Engineering in Computer Science and Technology
Cumulative GPA: **3.83/4.0** | Rank: **4/252**

Shanghai, China
Sep.2018-Jun.2022 (expected)

RESEARCH INTEREST

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

RESEARCH EXPERIENCE

Human-Cyber-Physical-System Lab | ShanghaiTech University

2021-Present

Project 1: Cognitive Digital Twin for Driving Assistance

Advised by Prof. Zhihao Jiang & Prof. Yash Vardhan Pant (University of Waterloo)

Objective: A cognitive digital twin framework that models and learns the driver's decision process.

Core Contents:

- Analyzed how a driver updates his perception during driving a car;
- Proposed a method to calculate driver's utilities and predict their strategies;
- Use Unity to create a virtual driving environment to simulate arbitrary driving scenery for running the digital twin system.

Project 2: 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.

Project 3: Driving Simulator for Autonomous Vehicle Platoon

Advised by Prof. Yash Vardhan Pant & Prof. Zhihao Jiang

Objective: Develop a first-person driving simulator for research of Stable Interaction of Autonomous Vehicle Platoons with Human-Driven Vehicles.

Core Contents:

- Implemented a driving simulator to collect data of human driver in Unity;
- Designed and held experiments for identifying the human behavior model.

Virtual Reality and Visual Computing Center | ShanghaiTech University

2019-2021

Project 1: 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 2: 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 3: 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

- Mohammad Piran, **Yining She**, Renzhi Tang, Zhihao Jiang, Yash Vardhan Pant “**Stable Interaction of Autonomous Vehicle Platoons with Human-Driven Vehicles**”, Submitted to *2022 American Control Conference (ACC)*.
- Guangyao Chen, **Yining She***, Renzhi Tang, Yutong Wu, Eunsuk Kang, Zhihao Jiang “**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

Compiler for the Classroom Object-Oriented Language | Course of 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

Course of Software Engineering

Course of Algorithms and Data Structure

Sep.2021-Present

Feb.2021-Jun.2021

Sep.2020-Jan.2021

PROFESSIONAL SKILLS

Programming Languages

C/C++, C#, Python, MATLAB, RISC-V

Software

Unity, Unreal, UPPAAL

Miscellaneous

PyTorch, OpenCV