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, Artificial Intelligence, 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.
  - Analyzed how a driver updates his perception during driving a car;
  - Proposed a method to calculate driver's utilities and predict their strategies;
  - Validate the model and design corresponding experiments;
  - 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.
  - 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.
  - 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.
  - 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.

  - 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
  - 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.

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.

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.

Linear Programming Solver | Course of Numerical Optimization
- Used python to implement a linear programming solver through the two-phase method of the simplex algorithm.

Chrome Dinosaur Game in RISC-V | Course of Computer Architecture I
- Use RISC-V to implement the Chrome Dinosaur Game on Sipeed Longan Nano development board.

Intelligent Player | Course of Artificial Intelligence
- Implemented Q-Learning and Deep Q-Network to play a pixel game called BB-TAN.

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
Tools and Frameworks	Unity, Unreal, UPPAAL, PyTorch, OpenCV, Git, LaTeX, Markdown