WENDA CHU

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EDUCATION

Tsinghua University, Beijing, China — *September 2019 - Present*
Bachelor of Computer Science, Yao Class, IIIS — **Overall GPA: 3.88**

RESEARCH EXPERIENCE

Physical world attacks on object detection algorithms — Tsinghua University
Mentor: Xiaolin Hu — *June 2021-present*

- Attack object detection models by T-shirts textures that conceal people wearing them from the detection.
- Design a pipeline that attacks the three dimensional physical world in two dimensional digital space of textures.
- Texture datasets for fashionable T-shirts are collected. Generative methods are applied to generate smooth and fashionable textures that evade the detection. (See My Notes on Adversarial Machine Learning.)

SELECTED COURSE PROJECTS

1. Traffic at Peak Hours: A Game Theory View — Paper Code

- Models the unusual concentration of passengers on one direction of the subway during peak hours as a game.
- The existence of a Nash equilibrium was proved and an $\epsilon-$approximate equilibrium was found by simulation.
- Analyzes the detouring actions of passengers that they travel in the reverse direction to assure getting on train.
- The result shows how excessive competition on limited resources such as transportation may cause a huge decrease on social welfare.

2. A Survey on Differential Privacy — Paper

- Surveys over differential privacy algorithms and their applications.
- Gains insights of the power of randomness towards provable security.

3. Diversifying Options in Option-Critic Framework of Hierarchical Reinforcement Learning — Paper

- Implement Option-Critic architecture and reproduce its result on maze problems
- Introduce intrinsic rewards to option level and enhance option specialization on termination probability.
- Our methods diversify the options in the higher level of hierarchical reinforcement learning.

SKILLS

Programming Skills: Python, PyTorch (proficient), C, C++, Go, SQL, MATLAB, Verilog, LaTeX.
Language Skills: Chinese(native), English(TOEFL 111: R30 L30 S24 W27).
GRE: Verbal Resoning 159, Quantitative Reasoning 169, Analytical Writing 4.0.

HONORS AND AWARDS

- **2nd** place in the 35th Chinese Physics Olympiad (CPhO) 2018
- Scholarship for Freshmen - Tsinghua University 2019
- Sports Excellence Award - Tsinghua University 2020

SELECTED MAJOR COURSES

Artificial Intelligence: Principles and Techniques (A-, 4.0), Mathematics for Computer Science (A, 4.0), Mathematics for Artificial Intelligence (A-, 4.0), Game Theory (A+, 4.0), Introduction to Data Science (A, 4.0), etc.

School Report