

Zijian HUANG

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EDUCATION

University of Illinois at Urbana-Champaign, the USA

Master of Science in Computer Science

01/2021-present

GPA: 4.0 / 4.0

The Hong Kong University of Science and Technology, Hong Kong

B.Sc in Computer Science, double major in General Math

09/2016-07/2020

Major GPA: 3.838

Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

02/2019-06/2019

Exchange Student in Computer Science (Informatique)

GPA: 5.34 / 6.0

PUBLICATIONS

- **Zijian Huang**, Linyi Li, Chejian Xu, Wenda Chu, Bo Li, “Certified Robustness for Multi-Sensor Fusion Systems”, to be submitted
- Fan Wu, Linyi Li, **Zijian Huang**, Yevgeniy Vorobeychik, Ding Zhao, Bo Li. “CROP: Certifying Robust Policies for Reinforcement Learning through Functional Smoothing”, accepted at *the Tenth International Conference on Learning Representations (ICLR 2022)* (PDF) (Website) (code)
- Xuanchi Ren, Haoran Li, **Zijian Huang**, Qifeng Chen. “Self-supervised dance video synthesis conditioned on music”, accepted at *the 28th ACM International Conference on Multimedia (ACM MM 2020)* as Full Oral Presentation (PDF)

JOB EXPERIENCE & RESEARCH EXPERIENCE

Research Assistant at UIUC Secure Learning Lab, Urbana-Champaign, IL

02/2021-present

- Propose the first framework for certifying the robustness of 3D object detection fusion models against transformation
- Propose two robustness certification criteria for object detection models, together with corresponding certification algorithms based on median smoothing
- Theoretically prove the certification radius for inputs and lower bound of detection confidence score and IoU between prediction and ground truth under bounded physical transformation

Software Development Engineer Summer Intern at Meta, Menlo Park, CA

05/2022-08/2022

- Build a human face expression classifier to improve the performance of face tracker

Research Assistant at UIUC Secure Learning Lab, Urbana-Champaign, IL

01/2021-02/2022

- Propose the first framework for certifying the robustness of Q-learning algorithms against adversarial attacks
- Propose two robustness certification criteria for Q-learning algorithms, together with corresponding certification algorithms based on global and local smoothing strategies
- Theoretically prove the certification radius for input state and lower bound of perturbed cumulative reward under bounded adversarial state perturbations

Machine Learning Researcher at AI Lab in ByteDance, Beijing

09/2020-12/2020

- Propose an unsupervised Machine Learning model to generate a sequence of 3D human poses with the given human video, using the idea of SMPLify and Auto-Encoder

Research Assistant in HKUST Photorealistic Image and Video Synthesis (FYP), Hong Kong

06/2019-05/2020

- Propose a pipeline to generate dance video, given music
- Propose a creative GAN model with modified Local Temporal Discriminator
- Propose Pose Perceptual Loss to generate verisimilitude dance pose sequence
- Propose a metric to assess the difference between dance pose sequences using MMD-NCA loss and K-means
- Paper named ‘Music-oriented Dance Video Synthesis with Pose Perceptual Loss’ Accepted in ACM MM 2020

Research Assistant at Computer Vision lab in EPFL, Switzerland

02/2019-06/2019

- Propose a GAN model to generate a specific type of Chinese characters, given basic components of that style
- Propose a new ‘XOR’ layer and ‘Edge loss’ to generate fine characters without blurring

Machine Learning Researcher in YouTu X-lab in Tencent, Shenzhen

12/2018-01/2019

- Propose an Attentive Speech Enhancement GAN model to restore the voice with bad quality
- Create a big dataset of several kinds of destroyed speech audio

Machine Learning Researcher in HKUST RIPS-HK Project, Hong Kong

06/2018-08/2018

- Propose a Music Generation GAN to generate different genres of music
- Propose a LSTM-CNN based music genre classification model

TEACHING

Teaching Assistant for CS 562 Advanced Topics in Security, Privacy, and Machine Learning

08/2022-12/2022

Teaching Assistant for AE 504 Optimal Aerospace Systems

02/2022-05/2022

AWARDS & SCHOLARSHIPS

- University's Scholarship Scheme for Continuing Undergraduate Students from **The Hong Kong University of Science and Technology**, 2016, 2017, 2018 and 2019
- Dean's List from **The Hong Kong University of Science and Technology**, 2016, 2017, 2018, 2019 and 2020
- Reaching Out Award from **HKSAR Government Scholarship Fund**, 2019
- Study Abroad Sponsorship from **The Hong Kong University of Science and Technology**, 2019
- Admission Scholarship from **The Hong Kong University of Science and Technology**, 2016

LANGUAGE & TECHNICAL SKILLS

- **English**: TOEFL: 102 out of 120, GRE: 330 out of 340 (verbal: 160 out of 170)
- **Programming Skills**: Python, R, C++, JAVA, JavaScript, HTML, CSS