HANXUN YU

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RESEARCH INTERESTS

My research interests mainly lie at the intersection of computer vision and machine learning, specifically on attacking object detection model by using kinds of adversarial examples, under the supervision of Prof. Zheng Wang. Currently I am doing my summer research about developing unsupervised learning methods to conduct program repair tasks automatically in McGill University, Canada, under the supervision of Prof. Xujie Si. Another project I am doing now is about generating aesthetic and well-attacking QR code for digital and physical attack. I am always open to new topics!

EDUCATION

Nanyang Technological University (NTU) *Jan. 2022 - Mar. 2022*
Artificial Intelligence Internship Programme about Computer Vision and Data Science
Grade: The final winning team (as a leader) [Commendation Letter]

Wuhan University (WHU) *Sep. 2019 - Jul. 2023(expected)*
B.Eng, Computer Science and Technology, School of Computer Science.
Grade: 3.77/4.0 (89.6/100) Rank: 24/292

PUBLICATIONS

Aesthetic Yet Customizable Adversarial Patches Towards Physical Attacks. *IEEE Transactions on Multimedia*, under review.
Hui Wei, **Hanxun Yu**, Zhixiang Wang, Shin'ichi Satoh, Hao Tang, Zheng Wang.
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A Survey of Physical Adversarial Attacks in Computer Vision. *ACM Computing Surveys*, under review.
Hui Wei, Hao Tang, Xuemei Jia, **Hanxun Yu**, Zhubo Li, Zhixiang Wang, Shin'ichi Satoh, Zheng Wang.
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RESEARCH EXPERIENCE

Unsupervised Learning Methods for Program Repair Tasks Automatically *Jul. 2022 - Sep. 2022(expected)*
Research Intern. Advisor: Prof. Xujie Si *McGill University, Canada*

- Learn Graph Transformations to detect and fix bugs in programs automatically by using Graph Neural Network(GNN).
- Test our frameworks on real-world datasets, which are consist of homework Ocaml codes in CS 302(one class of McGill University) to demonstrate their superiority compared with existing methods.

Generating Stylized Adversarial Patches towards Physical Attacks *Oct. 2021 - Current*
Research Intern. Advisor: Prof. Zheng Wang *Wuhan University, China*

- Propose an end-to-end method to generate aesthetic adversarial patches that are stylized, diversified, and attacked.
- Conduct numerical experiments to show visual aesthetics and effective attackness of our stylized patches.

Study of Uncertainty in Bayesian Neural Network Prediction *Dec. 2021 - Feb. 2022*
Remote Visit Student. Advisor: Prof. Chang D. Yoo [Certificate] *KAIST, Korea*

- Study Bayesian Neural Network and Gaussian Process. Apply GP&BNN for regression and classification on Benchmark Dataset.
- Examine the correspondence between deep Bayesian Neural Network and Gaussian Process.

AWARDS & HONORS

National Scholarship *2022*
(国家奖学金)
First-Class Scholarship of Wuhan University (**5%**) *2020,2021,2022*
(武汉大学优秀学生甲等奖学金)
Mitacs-CSC Globalink Research Internship Scholarship for 3 Months *2022*
(加拿大Miatcs-CSC合作国家公派留学实习项目-3个月)
First Prize in Chinese Undergraduate Computer Design Contest *2022*
(中国大学生计算机设计大赛中南地区一等奖)
Provincial Silver Award of 'Internet+' Innovation and Entrepreneurship Competition *2022*
("互联网+"创新创业大赛湖北省银奖)
Provincial Silver Award of The "Challenge Cup" *2022*
("挑战杯"大学生创业竞赛湖北省银奖)
Second Prize in National University IOT Contest *2022*
(全国大学生物联网设计竞赛华中地区二等奖)
Honorable Mention in Mathematical Contest in Modeling *2022*
(美国大学生数学建模竞赛H奖)

SKILLS

Programming Languages Python, Java, C++, etc.
Python Libraries Pytorch, Numpy, Scikit-learn, etc.
Familiar OS Linux, Windows

HOBBIES

Animals, Music, Basketball, Hot food