Shoubin Yu

+86 175-0162-1205 | shoubin.yu@outlook.com

EDUCATION

Shanghai Jiao Tong University (SJTU) **Shanghai, China**
B.S. in Information Security | GPA 3.54/4.0 Sept. 2017 – July 2022 (Expected)

- Relevant Courses: Thinking and Approach of Programming, Linear Algebra, Discrete Mathematics, Software Engineering, Principles of Dataset, Operating System, Communication Fundamentals, Data Communications

University of Washington **Seattle, USA**

- *Summer Courses:* Introduction to Circuit Theory, Embedded Principles July 2018 – Aug. 2018

PUBLICATIONS & PATENT

- Bo Wu*, Shoubin Yu*, Zhenfang Chen, Joshua B. Tenenbaum, Chuang Gan, "*STAR: A Benchmark for Situated Reasoning in Real-World Videos*" ***NeurIPS 2021 Track Datasets and Benchmark***, under open review, *project homepage*
- Shoubin Yu*, Bo Wu*, Ke Xu, Tanfeng Sun, Jian Zhao"*Adversarial Video Anomaly Detection via Gradient-Embedded Substitute*" ***TCSVT***, under review.
- Yi Dong. Shoubin Yu. Ke Xu. Tanfeng Sun. Xinghao Jiang, "Analysis Method of Bird Category Based on Yolov3 and GoogLeNet Network Model" CN Patent Application 201911165623.3, August 2019.

PROFESSIONAL EXPERIENCE

UCG Video, SenseTime **Shanghai, China**
Research Intern (Advisor: Haisheng Su) Jan. 2021 – Present
Project1: Anomaly Region Proposal for Real-world Anomaly Event Detection

- Employed Anomaly Region Proposal to improve the low-recall in real-world abnormal event detection, achieving a raised recall rate from 52% to 84% on the defined fight class and 62% to 94% on the defined climb class

IBM-MIT Watson AI Lab **Remote**
Research Assistant (Advisor: Bo Wu) Jan. 2021 – Present
Project: Benchmark for Situated Reasoning in Real-World Videos

- Constructed a well-controlled benchmark STAR for situated reasoning, which contains 4 types of questions and 61K video QAs with corresponding situation hyper-graphs and functional programs that specify the explicit reasoning steps to answer the question
- Evaluated various state-of-the-art methods on STAR (e.g. HCRN, ClipBERT) and discovered the remaining mistakes in situations that are trivial for humans
- Designed a diagnostic neuro-symbolic framework for situation reasoning and provided insights on this challenge

Machine Vision and Intelligence Group, SJTU **Shanghai, China**
Research Assistant (Advisor: Cewu Lu) Dec. 2020 – Present
Project: Multi-Tasking Transformer for Pose-based Video Anomaly Detection

- Researched the large pretrained self-supervised framework of human-pose reconstruction and prediction, which is designed to explore the hard-mining anomaly cases in massive undefined video data.

National Engineering Laboratory for Information Analysis Technology, SJTU **Shanghai, China**
Research Assistant (Advisor: Tanfeng Sun, Xinghao Jiang) Oct. 2018 – Dec. 2020
Project 1: Shanghai Dongtan Wetland Bird Protection System

- Formulated a system that automatically detects and categorizes pictures of birds in surveillance cameras; improved efficiency and accuracy of the object segmentation algorithm
- Achieved 98% accuracy of bird recognition and 75% average accuracy of bird classification using object detection algorithms (YOLO Series, SSD)

Project 2: Video Anomaly Detection Based on GAN

- Proposed gradients perturbation embedding for efficient motion representation in a single frame, dedicated to the problem of redundant motion information input for reconstruction based VAD
- Introduced a new network GES-GAN to generate substitute frames from gradient-embedded frames; achieved state-of-the-art performance (average 2.7% AUC higher)

AWARDS & LEADERSHIP

2019 Mathematical Contest in Modeling, *Team Leader* Oct. 2019

- Won the Meritorious Award in 2019

2019 China Undergraduate Mathematical Contest in Modeling (CUMCM), *Team Leader* Sept. 2019

- Won the Second Prize at CUMCM in Shanghai

Young Volunteer Association in SEIEE of SJTU, *Leader of Human Resource Department* Mar. 2018 – Present

- Organized 5 Shanghai International Marathon volunteer activities with more than 4000 enrolled volunteers and served over 100,000 marathon runners

SKILLS

Computational Skills: C++, C, Python (PyTorch, Matplotlib, etc.), R, MATLAB, HTML, CSS, PS, AI, PR, TOEFL 100.