Shoubin Yu

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EDUCATION

Shanghai Jiao Tong University (SJTU)   **Shanghai, China**
B.S. in Information Security | GPA: 3.52/4.0   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
- **Awards**：The Hui-Chun Chin and Tsung Dao Lee Scholar (2020); Meritorious Award for Mathematical Contest in Modeling (2019); 2nd prize in China Undergraduate Mathematical Contest in Modeling, Shanghai (2019)

University of Washington   **Seattle, WA, USA**
- *Summer Courses:* Introduction to Circuit Theory, Embedded Principles   July 2018 – Aug. 2018

PUBLICATIONS & PATENTS

- Bo Wu, **Shoubin Yu**, Zhenfang Chen, Joshua B., Tenenbaum, Chuang Gan. "STAR: A Benchmark for Situated Reasoning in Real-World Videos" *Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS 2021)*
- **Shoubin Yu**, Zhongyin Zhao, Haoshu Fang, Andong Deng, Haisheng Su, Dongliang Wang, Cewu Lu, Wei Wu. "Regularity Learning via Explicit Distribution Modeling for Skeletal Video Anomaly Detection", *under review*
- **Shoubin Yu**, Bo Wu, Ke Xu, Tanfeng Sun, Jian Zhao. "Adversarial Video Anomaly Detection via Gradient-Embedded Substitute", *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, 2019*

PROFESSIONAL EXPERIENCE

***Research Intern*, UCG Video, SenseTime (**Advisor: Haisheng Su**)**   **Shanghai, China**
Project: Anomaly Region Proposal for Real-world Anomaly Event Detection   Jan. 2021 – Present
- Proposed an Anomaly Region Proposal (ARP) to improve the recall of abnormal cases and detection speed; designed single-person and multi-person mode ARP to adapt different levels of inputs (video or image patch)
- Improved average recall from 70% to 80% and speed to 300% on 4 anomaly classes; deployed ARP into production

***Research Assistant*, IBM-MIT Watson AI Lab** (Advisor: Bo Wu)
Remote
Project: Benchmark for Situated Reasoning in Real-World Videos   Jan. 2021 – Present
- Constructed a large-scale, well-controlled benchmark STAR for situated reasoning, which contained 4 types of questions and 60K video QAs with corresponding situation hyper-graphs and functional programs
- Specified and designed explicit reasoning steps to answer the question by logical functional programs
- Evaluated state-of-the-art methods on STAR; implemented a novel diagnostic neuro-symbolic framework for reasoning

***Research Assistant*, Machine Vision and Intelligence Group, SJTU** (Advisor: Cewu Lu)   **Shanghai, China**
Project: Distribution Guided Human Pose Regularity Learning.   Dec. 2020 – Present
- Proposed an explicit distribution guided transformer model for self-supervised human pose regularity learning
- Recommended a novel probability-based representation for pose dynamic features
- Achieved state-of-the-art AUC performance on main-stream dataset (4.7% higher)

***Research Assistant*, Intelligent Content Group, SJTU**   **Shanghai, China**
Project: Multi-Modality Video Anomaly Detection Based on GAN (Advisor: Tanfeng Sun)   Oct. 2019 – Sept. 2020
- Proposed gradients perturbation embedding for efficient motion representation in a single frame, dedicated to the problem of redundant motion input for reconstruction based VAD
- Introduced a new architecture named GS-GAN, which achieved state-of-the-art performance (average 2.7% AUC higher)

***Research Assistant*, National Engineering Laboratory for Information Analysis Technology**   **Shanghai, China**
Project: Shanghai Dongtan Wetland Bird Protection System (Advisor: Xinghao Jiang)   Sep. 2018 – Oct. 2019
- Formulated a system of high efficiency and accuracy that automatically detects and categorizes pictures of birds
- Achieved 98% recall of bird recognition and 75% average accuracy of bird classification by applying data domain adaption

SKILLS

Language & Computational Skills: TOEFL 100, GRE 328**,** C++, Python (PyTorch, Matplotlib, etc.), MATLAB, PS, AI