Liang Shi

Curriculum Vitae

ICT, CAS
Beijing, China
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shiliang26.github.io

Education

2021 - Present **Institute of Computing Technology, Chinese Academy of Sciences**, *Master of Engineering in Computer Science*
Advised by: Prof. Jie Zhang

2017 - 2021 **University of Chinese Academy of Sciences**, *Bachelor of Engineering in Computer Science and Technology*
Thesis advised by: Prof. Jie Zhang, Prof. Shiguang Shan

Experience

2020 - Present **Research Assistant**, *Visual Information Processing and Learning Group (VIPL), Institute of Computing Technology, CAS*
- Advised by Prof. Jie Zhang and Prof. Shiguang Shan
- Defending against deepfakes, including:
  - **Visual foundation models** for OOD robustness in deepfake detection.
  - **Model alignment** for T2I diffusion models against fake face generation.

Aug. 2020 - Dec. 2020 **Visiting Student**, *University of California, Berkeley*
- Completed graduate-level courses on Reinforcement Learning (CS285) and Neural Computation (VS265).

Aug. 2019 - Apr. 2020 **Research Assistant**, *National Laboratory of Pattern Recognition, Institute of Automation, CAS*
- Advised by Prof. Shan Yu. Led a project that studied group decision-making behaviors using the theory of self-organized criticality. Developed an online platform for real-time data collection.

Publications & Manuscripts

Under review **Real Face Foundation Representation Learning for Generalized Deepfake Detection.**
Liang Shi, Jie Zhang, Zhifeng Ji, Jinfeng Bai, Shiguang Shan. *In Submission.* [Link]
We leverage large unlabeled datasets to learn a real face distribution, in hope to identify deepfake images of various forms outside of this distribution.

Under review **An Adapter-based Method and Model for ID-Specific Deepfake Detection**
Liang Shi, Jie Zhang, Shiguang Shan, et al. *Patent In Submission.*
We adapt a general deepfake detection model with ID-LoRA, enabling stronger detection performance on designated identities

FG 2021 **Unknown Aware Feature Learning for Face Forgery Detection.**
Liang Shi, Jie Zhang, Chenyue Liang, Shiguang Shan. *International Conference on Automatic Face and Gesture Recognition, 2021.* [Link]
We improve generalization of deepfake detectors by encouraging it to learn from non-salient areas with subtle artifacts.

In Preparation

In prep **A Face-blind Diffusion Model: Text-to-Image Diffusion Model Alignment against Fake Face Generation**
Liang Shi, Jie Zhang, Shiguang Shan.
We align text-to-image models so that they fail to generate accurate face identities and fail to learn new face identities with fine-tuning methods like Dreambooth.

In prep **Large Deepfake Detection Model**
Liang Shi*, Zonghui Guo*, Jie Zhang, Shiguang Shan.
We collect over 50 different types of deepfakes to train a unified model for general-purpose in-the-wild deepfake detection.

In prep **One-shot ID-Specific Deepfake Detection**
Liang Shi*, Yuheng Zhang*, Jie Zhang, Shiguang Shan.
We explore the possiblility to directly predict the weights of ID-LoRAs, enabling one-shot learning of identity-specified deepfake detection.

Honors & Awards

2023 **First-class Scholarship**
Institute of Computing Technologies (Top 14/69)

2022 **First-class Scholarship**
Institute of Computing Technologies (Top 12/61)

2021 **E Fund Scholarship for Incoming Graduate Students**
Institute of Computing Technology, Chinese Academy of Sciences (Top 12 / 400)

2021 **Outstanding Undergraduate Thesis**
University of Chinese Academy of Sciences (Top 9 / 112)

2017 - 2021 **Annual Scholarship for Students with Disabilities**
Haidian Disabled Persons' Federation, Beijing, China

Standard Tests

2023 **TOEFL iBT**, 113
Reading 30, Listening 29, Speaking 26, Writing 28

2019 **Graduate Record Examinations (GRE)**, 325 + 4.0
Verbal 155, Quant 170, Writing 4.0