Lingyu Zhang

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EDUCATION

Columbia University, New York, NY
Master of Science, Electrical Engineering   Sep 2021 — Dec 2022 (Expected)
GPA: 3.92/4.0
Relevant Coursework: Representation Learning, Computer Vision II, Advanced Deep
Learning, Unsupervised Learning, Natural Language Processing, Reinforcement Learning

Nanjing University, Nanjing, China
Bachelor of Engineering, Microelectronic Science and Engineering   Sep 2017 — June 2021
GPA: 4.16/5.0
Relevant Coursework: Computer Vision, Engineering Fundamental of AI, AI & project
practice, Data Structure and Algorithms

University of California, Berkeley, Berkeley, CA
Berkeley International Study Program   Aug 2019 — Dec 2019
Relevant Coursework: Introduction to Machine Learning, Efficient Algorithms and Intractable
Problems, Optimization Models in Engineering.

PAPER UNDER REVIEW

Lingyu Zhang, Chengzhi Mao, Junfeng Yang, Carl Vondrick. Adversarially Robust Video
Perception by Seeing Motion. Submitted to CVPR 2023.

Chengzhi Mao, **Lingyu Zhang**, Abhishek Vaibhav Joshi, Junfeng Yang, Hao Wang, Carl
Vondrick. Robust Perception through Equivariance. Submitted to CVPR 2023.

PUBLICATIONS

Bangpeng Xiao, Shenyuan Ye, Xicai Li, Min Li, **Lingyu Zhang**, Yuanqing Wang. A Stereo
Matching Method for Three-Dimensional Eye Localization of Autostereoscopic Display. ICIG
2021.

Lingyu Zhang, and Gang Song. Improved antireflection based on biomimetic nanostructures
at material interface. Journal of Optics 2018.

Lingyu Zhang, and Gang Song. Thermo-responsive plasmonic nanohybrids with tunable
optical properties. Journal of Modern Optics 2017.

RESEARCH EXPERIENCE

Columbia University, Fu Foundation School of Engineering and Applied Science

Research Assistant: Robust Action Recognition with Motion
Advisor: Prof. Junfeng Yang & Prof. Carl Vondrick, June-Nov 2022
Designed a novel test-time adaptive adversarial defense for action recognition models using
motion consistency. Based on the observation of adversarial examples collaterally disrupting
intrinsic temporal structures of videos, proposed to repair inputs by restoring motion.
Consistently improved robust accuracy against a variety of attacks. Paper under review.

Research Assistant: Robust Perception Through Equivariance
Advisor: Prof. Junfeng Yang, Feb-Sept 2022

Conducted experiments on the performance of a novel adversarial purification method based on dense equivariant properties of neural networks. Paper under review.

Nanjing University, School of Electronic Science and Engineering

Undergraduate Thesis: Learned Multi-scale Image Compression
Advisor: Prof. Qiu Shen, Dec 2020 -June 2021
Implemented an end-to-end optimized image compression model based on an entropy-constrained variational autoencoder. Integrated a multi-scale encoder, achieving state of art compression performance. Investigated potential for latent space vision tasks without decoding.

Research Intern: Designing Materials with Improved Optical Properties
Advisor: Dr. Gang Song & Dr. Haodong Wu, 2016-2018
Designed nanomaterials with desirable optical properties based on the effective medium theory.

HONORS/AWARDS

Renmin Scholarship, 2018
Renmin Scholarship, 2019
FlyAI Excellent Algorithm Award, 2021

LEADERSHIP/SERVICE

Graduate Electrical Engineering Council, Columbia
Career Chair, Jan 2022 - present

Engineering Graduate Student Council at Columbia Engineering
Lead Department Representative of EE, Jan 2022 - present

Nanjing University Summer Social Practice Project
Team Leader, June-Aug 2020

The Berkeley Project
Site Leader & Volunteer, Oct 2019

Nanjing University Hip-Hop Association
President, Aug 2018-June 2019

PROFESSIONAL TRAINING

Karlsruhe Institute of Technology, Virtual
Industry 4.0 Training for Young Talent, Sep-Oct 2020
Training covering Lean Production, Lean Line Design, Machine Learning, Data Analysis and Industry 4.0 of Production Planning and Control.

TECHNICAL SKILLS

Programming Language: Python, Matlab, C
Frameworks / Tools: PyTorch, PyTorch Lightning, OpenCV, Numpy, Matplotlib, Advertorch