Hang Zhou

CONTACT INFORMATION

School of Computing Science
Simon Fraser University
Burnaby, BC V5A 1S6
CANADA

Phone: (778) 316-9862
E-mail: zhouhang2991@gmail.com
URL: https://ryanhangzhou.github.io/
Google scholar: YrQxT8cAAAAJ

RESEARCH INTERESTS

Scene understanding, compositional modelling, shape analysis, generative models, large language models (LLMs), 3D vision, and multimedia security.

EDUCATION

University of Science and Technology of China (USTC) — Hefei, China
PhD (Hons) in Electronic and Information Science — *Sep 2015 – Jul 2020*

Shanghai University — Shanghai, China
BSc (Hons) in Communications and Information Engineering — *Sep 2011 – Jul 2015*

EMPLOYMENT & EXPERIENCE

Simon Fraser University — Vancouver, Canada
Postdoctoral Fellow — *Jan 2021 – Jun 2023, Full-time*

- Worked on the "Generating Diverse and Controllable 3D Street Scenes for Auto-driving" project under the supervision of Prof. Hao (Richard) Zhang in GRUVI LAB.
- Designed a semantic layout-aware conditional VAE-GAN for street scene object placement for synthesizing composite images, with the goal of boosting downstream vision tasks including semantic segmentation and object detection. Collaborated with Dr. Ali Mahdavi-Amiri and Dr. Rui Ma.
- Designed a detection transformer network with object patches as queries for object placement learning, and a diffusion network for spatial transformation.
- Engaged in collaboration research with PhD students Qimin Chen and Zhiqin Chen on two projects: geometry and texture generation for 3D shapes, and unsupervised 3D shape co-segmentation.

Microsoft Research Asia — Beijing, China
Research Intern — *Oct 2017 – Jan 2018, Full-time*

- Worked on the "Generative Adversarial Deep Hiding Network" project at Machine Learning Group under the supervision of Taifeng Wang.
- Research in generative adversarial networks (GANs) for deep embedding. Designed a steganographic generative network to embed data into the least-significant bit plane for uncompressed grayscale images.

AWARDS & ACHIEVEMENTS

Best Paper Award, 2021 International Workshop on Safety & Security of Deep Learning, first-authored by my collaborator Jiaying Lin.

Outstanding Doctoral Dissertation, Chinese Academy of Sciences (CAS), 2021.

SIGWEB Outstanding Doctoral Dissertation, ACM China, 2021.

DMFS Outstanding Doctoral Dissertation, China Society of Image and Graphics (CSIG), 2020.

The President Scholarship, Chinese Academy of Sciences (CAS), 2020.

Cyberspace Security Scholarship, China (72 nationwide), 2018.

RESEARCH FUNDING

- "Research on 3D Steganography Model and Method", Fundamental Research Funds for the Central Universities, **RMB 40,000**, 2019-2020.

Preprints

1. **Hang Zhou**, Xinxin Zuo, Rui Ma, "Bootstrapping Object Prompts with Detection Transformers for Image Composition", preprint, 2024.

2. Qi Sun, **Hang Zhou**, Wengang Zhou, Houqiang Li, "Forest2Seq: Revitalizing Order Prior for Sequential Indoor Scene Synthesis", preprint, 2024.

3. Kui Zhang, **Hang Zhou**, Jie Zhang, Wenbo Zhou, Weiming Zhang, Nenghai Yu, "Transferable Facial Privacy Protection against Blind Face Restoration via Domain-Consistent Adversarial Obfuscation", preprint, 2024.

4. Jiacheng Liu, **Hang Zhou**, Shida Wei, Rui Ma, "Diffop: Object Placement via Rationality Diffusion Guidance for Image Composition", preprint, 2023.

Featured Publications

Citation: 1461; h-index: 21 (last accessed 22 Apr 2024)

Books

1. **Hang Zhou**, Kejiang Chen, Zehua Ma, Feng Wang, Weiming Zhang, "Triangle Mesh Watermarking and Steganography", *Springer Nature Press, 2022.*

Conference papers

1. Zhiqin Chen, Qimin Chen, **Hang Zhou**, Hao Zhang, "DAE-Net: Deforming Auto-Encoder for Fine-grained Shape Co-segmentation", *ACM SIGGRAPH*, 2024.

2. Qimin Chen, Zhiqin Chen, **Hang Zhou**, Hao Zhang, "ShaDDR: Interactive Example-based Geometry and Texture Generation via 3D Shape Detailization and Differentiable Rendering", *ACM SIGGRAPH Asia*, 2023.

3. Kui Zhang, **Hang Zhou**, Jie Zhang, Qidong Huang, Weiming Zhang, Nenghai Yu, "Ada3Diff: Defending against 3D Adversarial Point Clouds via Adaptive Diffusion", *ACM Multimedia*, 2023.

4. Zehua Ma, **Hang Zhou**, Weiming Zhang, "AnisoTag: 3D Printed Tag on 2D Surface via Reflection Anisotropy", *ACM Conf. on Human Factors in Computing Systems (CHI)*, 2023.

5. Qidong Huang, Xiaoyi Dong, Dongdong Chen, **Hang Zhou**, Weiming Zhang, Nenghai Yu, "Shape-invariant 3D Adversarial Point Clouds", *CVPR*, 2022.

6. Qichao Ying, Zhenxing Qian, **Hang Zhou**, Haisheng Xu, Xinpeng Zhang, Siyi Li, "From Image to Imuge: Immunized Image Generation", *ACM Multimedia*, 2021.

7. **Hang Zhou**, Dongdong Chen, Jing Liao, Kejiang Chen, Xiaoyi Dong, Kunlin Liu, Weiming Zhang, Gang Hua, Nenghai Yu, "LG-GAN: Label Guided Adversarial Network for Flexible Targeted Attack of Point Cloud-based Deep Networks", *CVPR*, 2020.

8. Xiaoyi Dong, Dongdong Chen, **Hang Zhou**, Gang Hua, Weiming Zhang, Nenghai Yu, "Self-robust 3D Point Recognition via Gather-vector Guidance", *CVPR*, 2020.

9. Xiquan Guan, Weiming Zhang, Huaming Feng, **Hang Zhou**, Jie Zhang, Nenghai Yu, "Reversible Watermarking in Deep Convolutional Neural Networks for Integrity Authentication", *ACM Multimedia*, 2020.

10. **Hang Zhou**, Kejiang Chen, Weiming Zhang, Han Fang, Wenbo Zhou, Nenghai Yu, "DUP-Net: Denoiser and Upsampler Network for 3D Adversarial Point Clouds Defense", *ICCV*, 2019.

Journal papers

1. Qidong Huang, Xiaoyi Dong, Dongdong Chen, **Hang Zhou**, Weiming Zhang, Kui Zhang, Gang Hua, Nenghai Yu, "PointCAT: Contrastive Adversarial Training for Robust Point Cloud Recognition", *IEEE Trans. on Image Processing (TIP)*, 2024.

2. **Hang Zhou**, Rui Ma, Ling-Xiao Zhang, Lin Gao, Ali Mahdavi-Amiri, Hao Zhang, "SAC-GAN: Structure-aware Image Composition", *IEEE Trans. on Visualization and Computer Graphics (TVCG)*, Vol. 29, 2023.

3. Qichao Ying, **Hang Zhou**, Zhenxing Qian, Sheng Li, Xinpeng Zhang, "Learning to Immunize Images for Tamper Localization and Self-recovery", *IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI)*, Vol. 45, No. 11, pp. 13814–13830, 2023.

4. Kejiang Chen, **Hang Zhou**, Yaofei Wang, Menghan Li, Weiming Zhang, Nenghai Yu, "Cover Reproducible Steganography via Deep Generative Models", *IEEE Trans. on Dependable and Secure Computing (TDSC)*, Vol. 20, No. 5, pp. 3787–3798, 2021.

5. **Hang Zhou**, Weiming Zhang, Kejiang Chen, Weixiang Li, Nenghai Yu, "Three-Dimensional Mesh Steganography and Steganalysis: A Review", *IEEE Trans. on Visualization and Computer Graphics (TVCG)*, Vol. 28, No. 12, pp. 5006–5025, 2021.

6. Kunlin Liu, Dongdong Chen, Jing Liao, Weiming Zhang, **Hang Zhou**, Jie Zhang, Wenbo Zhou, Nenghai Yu, "JPEG Robust Invertible Grayscale", *IEEE Trans. on Visualization and Computer Graphics (TVCG)*, Vol. 28, No. 12, pp. 4403–4417, 2021.

7. Kejiang Chen, **Hang Zhou**, Hanqing Zhao, Dongdong Chen, Weiming Zhang, Nenghai Yu, "Distribution-Preserving Steganography Based on Text-to-Speech Generative Models", *IEEE Trans. on Dependable and Secure Computing (TDSC)*, Vol. 19, No. 5, pp. 3343–3356, 2021.

8. **Hang Zhou**, Kejiang Chen, Weiming Zhang, Chuan Qin, Nenghai Yu, "Feature-Preserving Tensor Voting Model for Mesh Steganalysis", *IEEE Trans. on Visualization and Computer Graphics (TVCG)*, Vol. 27, No. 1, pp. 57–67, 2019.

9. **Hang Zhou**, Kejiang Chen, Weiming Zhang, Yuanzhi Yao, Nenghai Yu, "Distortion Design for Secure Adaptive 3D Mesh Steganography", *IEEE Trans. on Multimedia (TMM)*, Vol. 21, No. 6, pp. 1384–1398, 2018.

10. **Hang Zhou**, Kejiang Chen, Weiming Zhang, Nenghai Yu, "Comments on 'Steganography Using Reversible Texture Synthesis'", *IEEE Trans. on Image Processing (TIP)*, Vol. 26, No. 4, pp. 1623–1625, 2017.

INVITED TALKS

1. "Controllable Compositional Modeling in Computer Vision and Graphics", Imperial-X, Imperial College London, London, UK, November 6, 2023.

2. "Exploring Deep Point-Cloud Robustness", GAMES Webinar, online, December 22, 2022.

3. "Learning Diverse and Controllable 3D Content Generation", on behalf of Ali Mahdavi-Amiri and Richard Zhang, Huawei-SFU Joint Lab Workshop, Vancouver, Canada, November 25, 2022.

SERVICES

- Reviewer for SIGGRAPH 2024
- Reviewer for CVPR 2021, 2022, 2023, 2024
- Reviewer for ICCV 2023
- Reviewer for ECCV 2022, 2024
- Reviewer for ICLR 2020, 2021, 2022, 2023, 2024
- Reviewer for NeurIPS 2021, 2022, 2023
- Reviewer for IJCAI 2021, 2022, 2023
- Reviewer for AAAI 2021, 2022
- Reviewer for ICML 2022, 2023
- Reviewer for IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI)
- Reviewer for IEEE Trans. on Visualization and Computer Graphics (TVCG)
- Reviewer for IEEE Trans. on Image Processing (TIP)
- Reviewer for IEEE Trans. on Information Forensics and Security (TIFS)
- Reviewer for IEEE Trans. on Neural Networks and Learning Systems (TNNLS)
- Reviewer for IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)
- Reviewer for IEEE/ACM Trans. on Audio, Speech, and Language Processing (TASLP)
- Reviewer for Physical Review Letters (PRL)
- Reviewer for IEEE Signal Processing Letters (SPL)