

Hanyu Wang

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EDUCATION

University of Maryland – College Park

Ph.D. in Computer Science; Advisor: [Abhinav Shrivastava](#)

College Park, MD, US

Aug. 2020 – Present

University of Maryland – College Park

M.S. in Computer Science; GPA: 3.94/4.0

College Park, MD, US

Aug. 2018 – May 2020

Xi'an Jiaotong University

B.Eng. in Computer Science and Technology; GPA: 3.9/4.0

Xi'an, China

Sept. 2014 – May 2018

INTERESTS

Deep learning and computer vision, including but not limited to generative models, representation learning, vision + language/other modalities, reinforcement learning in vision, etc.

RESEARCH & PROJECTS

Neural Space-filling Curves

July 2020 – Present

- Posed the problem of discovering optimal 1D pixel orders as one of finding context-based Space-filling curves.
- Proposed an alternating minimization technique to train an NN to generate context-based SFCs for images.
- Neural SFCs significantly improved autocorrelations of pixel sequences compared to previous SOTA approaches.
- Demonstrated the effectiveness of Neural SFCs in applications such as autoregressive generative modeling.

Text-to-Image Synthesis

June 2019 – Jan. 2020

- Focused on GAN-based high quality text-to-image synthesis.
- Solved the discriminator overfitting issue by introducing auxiliary rotation classification tasks.
- Proposed a text-image consistency loss that improves the synthesis quality.
- Discovered the negative effect of BN in discriminator and proposed several approaches to solve it.

Video Frame Interpolation

Oct. 2019 – Dec. 2019

- Modified intermediate optical flow approximation for more precise video frame interpolation.
- Introduced the Optical Flow Reconstruction Loss as a complementary objective.
- Achieved better interpolation quality compared to our baseline SuperSloMo.

Local 3D Keypoint Descriptor

July 2017 – June 2018

- Proposed a novel data driven 3D keypoint descriptor.
- Parameterized 3D shape patches into 2D geometry images, then designed a descriptor CNN trained on them.
- Proposed the Min-CV triplet loss function that improves the training significantly.
- Our descriptor outperformed other state-of-the-art methods on several non-rigid shape matching benchmarks.

PUBLICATION

Hanyu Wang, Kamal Gupta, Larry Davis, Abhinav Shrivastava
Neural Space-filling Curves. **Submitted to ICCV 2021.**

Jianwei Guo, **Hanyu Wang**, Zhanglin Cheng, Xiaopeng Zhang, Dong-Ming Yan
Learning local shape descriptors for computing non-rigid dense correspondence. **Computational Visual Media 2020.**

Hanyu Wang*, Jianwei Guo*, Dong-Ming Yan, Weize Quan, Xiaopeng Zhang
Learning 3D Keypoint Descriptors for Non-Rigid Shape Matching. **ECCV 2018.**

TECHNICAL SKILLS

Languages: Python, C/C++, MATLAB, Java, C#, etc.

Frameworks & Libraries: Pytorch, Tensorflow, Numpy, Jupyter, etc.