RUIHAN YANG

ruihan.yang@uci.edu https://buggyyang.github.io Ph.D. in Computer Science

Research Interests

Generative Models **Neural Data Compression** **Multimedia** **Representation Learning**

Education

Ph.D. in Computer Science
2019 - 2025
University of California, Irvine

B.S. in Computer Science
2014 - 2018
NYU Shanghai, New York University

Professional Experience

Senior Researcher
April 2025 - Now
AI Lab, Tencent America, Bellevue

- Multi-modal generation and understanding

Research Intern
Jun 2024 - Mar 2025
Microsoft Azure AI, Microsoft, Redmond

- Team: Cognitive Service Research & Voice AI
- Product-oriented research on audio guided video translation and talking avatar
- Full-time during the summer and Part-time after September

Research Intern
Jun 2023 - Sep 2023
Microsoft Research, Microsoft, Redmond

- Team: Audio and Acoustic Research
- Audio-Visual joint synthesis using multi-modal diffusion models
- Drove research efforts towards publication, enhancing the group's profile in audio-visual technology innovation

Research Intern
Jun 2021 - Sep 2021
Qualcomm AI Research, Qualcomm, San Diego

- Team: Neural Compression
- Led the development of a pioneering project on variable bitrate neural video compression
- Innovated adaptive video compression techniques, contributing to advancements in efficient data encoding

Research Assistant
Jan 2018 - Jul 2019
Computer Science, NYU Shanghai

- Research: Neural Music Modeling/Generation
- Published two papers as lead author and one as co-author at ISMIR and NIME conferences

Affiliated Research Assistant
Sep 2017 - Jul 2019
Computational Material Science, NYU Shanghai

- Research: Applied Machine Learning & Scientific Computing
- Co-authored two papers published in Nature Communications and Journal of Physics: Condensed Matter

Publications

* *denotes equal contribution*

AstroCompress: A benchmark dataset for multi-purpose compression of astronomical data
Tuan Truong*, Rithwik Sudharsan*, Yibo Yang, Peter Ma, **Ruihan Yang**, Stephan Mandt, Joshua S. Bloom
ICLR, 2025

Fast Samplers for Inverse Problems in Iterative Refinement Models
Kushagra Pandey*, **Ruihan Yang*** and Stephan Mandt
NeurIPS, 2024

Precipitation Downscaling with Spatiotemporal Video Diffusion
Prakhar Srivastava, **Ruihan Yang**, Gavin Kerrigan, Gideon Dresdner, Jeremy McGibbon, Christopher Bretherton and Stephan Mandt
NeurIPS, 2024

CMMD: Contrastive Multi-Modal Diffusion for Video-Audio Conditional Modeling
Ruihan Yang, Hannes Gamper and Sebastian Braun
ECCV AVGenL Workshop, 2024

Lossy Image Compression with Conditional Diffusion Model
Ruihan Yang and Stephan Mandt
NeurIPS, 2023

SC2 Benchmark: Supervised Compression for Split Computing
Yoshitomo Matsubara, **Ruihan Yang**, Marco Levorato and Stephan Mandt
TMLR (Journal)

Insights from Generative Modeling for Neural Video Compression
Ruihan Yang, Yibo Yang, Joe Marino and Stephan Mandt
IEEE PAMI (Journal)

Diffusion Probabilistic Modeling for Video Generation
Ruihan Yang, Prakhar Srivastava and Stephan Mandt
Entropy (Journal)

Supervised Compression for Resource-Constrained Edge Computing Systems
Yoshitomo Matsubara, **Ruihan Yang**, Marco Levorato and Stephan Mandt
WACV, 2022

Hierarchical Autoregressive Modeling for Neural Video Compression
Ruihan Yang, Yibo Yang, Joe Marino and Stephan Mandt
ICLR, 2021

PIANOTREE VAE: Structured Representation Learning for Polyphonic Music
Ziyu Wang, Yiyi Zhang, Yixiao Zhang, Junyan Jiang, **Ruihan Yang**, Junbo Zhao and Gus Xia
ISMIR, 2020

Deep Music Analogy Via Latent Representation Disentanglement
Ruihan Yang, Dingsu Wang, Ziyu Wang, Tianyao Chen, Junyan Jiang and Gus Xia
ISMIR, 2019

Inspecting and Interacting with Meaningful Music Representations using VAE
Ruihan Yang, Tianyao Chen, Yiyi Zhang and Gus Xia
NIME, 2019

The complex non-collinear magnetic orderings in Ba_2YOsO_6: A new approach to tuning spin-lattice interactions and controlling magnetic orderings in frustrated complex oxides
Yue-wen Fang, **Ruihan Yang** and Hanghui Chen
Journal of Physics: Condensed Matter (Journal)

A large modulation of electron-phonon coupling and an emergent superconducting dome in doped strong ferroelectrics
Jiaji Ma, **Ruihan Yang**, and Hanghui Chen
Nature Communications (Journal)