Ruihan Yang

ABOUT ME

Research	Generative Models, Neural Data Compression, MultiMedia, Representation Learning
Email	ruihan.yang@uci.edu
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EDUCATION

University of California, Irvine   *2019/09-now*
PhD in Computer Science

NYU Shanghai, New York University   *2014/09-2018/05*
B.S. in Computer Science

RESEARCH EXPERIENCE

Research Intern   *2024/06-*
                                                                                           2024/09(ongoing)
Microsoft Azure AI, Microsoft, Redmond
• Research Group: Speech Research.
• Audio guided video editing research.

Research Intern   *2023/06-2023/09*
Microsoft Research, Microsoft, Redmond
• Research Group: Audio and Acoustic Research.
• Audio and video synthesis using multi-modal diffusion models. Drive research efforts towards publication, enhancing the group's profile in audio-visual technology innovation.

Research Intern   *2021/06-2021/09*
Qualcomm AI Research, Qualcomm, San Diego
• Research Group: Neural Compression.
• Led the development and coding of a pioneering project on variable bitrate neural video compression. Innovated adaptive video compression techniques, contributing to advancements in efficient data encoding.

Research Assistant   *2018/01-2019/07*
Computer Science, NYU Shanghai
• Research: Neural Music Modeling/Generation.
• Two papers were accepted as the lead author and one paper as co-author. Papers were accepted by ISMIR and NIME conferences.

Affiliated Research Assistant   *2017/09-2019/07*
Computational Material Science, NYU Shanghai
• Research: Applied Machine Learning & Scientific Computing.
• Two co-authored papers were accepted by Nature Communications and Journal of Physics: Condensed Matter.

PAPERS (INCLUDING PREPRINTS)

Fast Samplers for Inverse Problemsin Iterative Refinement Models
Kushagra Pandey, **Ruihan Yang*** [1] and Stephan Mandt*
arXiv, 2024

CMMD: Contrastive Multi-Modal Diffusion for Video-Audio Conditional Modeling
***Ruihan Yang**, Hannes Gamper and Sebastian Braun*
arXiv, 2023

Probabilistic Precipitation Downscaling with Optical Flow-Guided Diffusion
*Prakhar Srivastava, **Ruihan Yang**, Gavin Kerrigan, Gideon Dresdner, Jeremy McGibbon, Christopher Bretherton and Stephan Mandt*
arXiv, 2023

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*
Transactions on Machine Learning Research 2023

Insights from Generative Modeling for Neural Video Compression

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[1] * denotes equal contribution

Ruihan Yang, Yibo Yang, Joe Marino and Stephan Mandt
Transactions on Pattern Analysis and Machine Intelligence 2023

Diffusion Probabilistic Modeling for Video Generation
Ruihan Yang, Prakhar Srivastava and Stephan Mandt
Entropy 2023

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

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