

# Hao-Wen (Herman) Dong

Incoming Assistant Professor  
Department of Performing Arts Technology  
School of Music, Theatre & Dance  
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## Research Interests

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Music generation, audio synthesis, generative AI, multimodal learning, music information retrieval

## Education

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<b>University of California San Diego</b> <i>Ph.D. in Computer Science</i> Advisors: <a href="#">Julian McAuley</a> and <a href="#">Taylor Berg-Kirkpatrick</a> Dissertation: <a href="#">Generative AI for Music and Audio</a>	Sep 2019 – Jun 2024 La Jolla, CA, USA
<b>University of California San Diego</b> <i>M.S. in Computer Science</i>	Sep 2019 – Jun 2021 La Jolla, CA, USA
<b>National Taiwan Normal University</b> <i>Digital Video and Audio Arts Program</i>	Sep 2016 – Jun 2017 Taipei, Taiwan
<b>National Taiwan University</b> <i>B.S. in Electrical Engineering</i>	Sep 2013 – Jun 2017 Taipei, Taiwan

## Selected Honors & Awards

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<b>Doctoral Award for Excellence in Research, Department of Computer Science and Engineering, UC San Diego</b>	2024
<b>Rising Stars in AI, AI Initiative, King Abdullah University of Science and Technology (KAUST)</b>	2024
<b>Rising Stars in Data Science, Data Science Institute, University of Chicago and Halicioğlu Data Science Institute, UC San Diego</b>	2023
<b>IEEE SPS Scholarship (\$2,000), IEEE Signal Processing Society</b>	2023
<b>Friends of International Center Fellowship (\$2,000), Division of Graduate Education and Postdoctoral Affairs, UC San Diego</b>	2023
<b>Rising Stars in Signal Processing, International Conference on Acoustics, Speech, and Signal Processing (ICASSP)</b>	2023
<b>Interdisciplinary Research Award (\$500), Graduate and Professional Student Association, UC San Diego</b>	2023
<b>Postdoctoral Networking Tour in Artificial Intelligence, German Academic Exchange Service (DAAD)</b>	2023

<b>AWS Cloud Credit for Research</b> (\$2,500), <i>Amazon Web Services</i>	2023
<b>Government Scholarship to Study Abroad</b> (\$32,000), <i>Taiwan Ministry of Education</i>	2022 – 2024
<b>J. Yang Scholarship</b> (\$25,000), <i>J. Yang and Family Foundation</i>	2021 – 2022
<b>ECE Department Fellowship</b> (\$54,198), <i>Department of Electrical and Computer Engineering, UC San Diego</i>	2019 – 2020

## Professional Experience

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<b>NVIDIA</b> <i>Research Intern</i> Deep Imagination Research Group, NVIDIA Research Advisors: <a href="#">Siddharth Gururani</a> and <a href="#">Ming-Yu Liu</a> Topic: Controllable audio generation	Sep 2023 – Dec 2023 Santa Clara, CA, USA
<b>Adobe</b> <i>Research Scientist/Engineer Intern</i> Audio Research Group, Adobe Research Advisors: <a href="#">Justin Salamon</a> and <a href="#">Oriol Nieto</a> Topic: Text-to-audio retrieval	May 2023 – Sep 2023 San Francisco, CA, USA
<b>Dolby</b> <i>Speech/Audio Deep Learning Intern</i> Applied AI Team, Advanced Technology Group Advisor: <a href="#">Xiaoyu Liu</a> Topic: Text-to-audio synthesis	Jan 2023 – Apr 2023 Remote
<b>Amazon</b> <i>Applied Scientist Intern</i> Natural Understanding Team, Alexa AI Advisors: <a href="#">Wenbo Zhao</a> and <a href="#">Gunnar Sigurdsson</a> Topic: Text-to-audio synthesis	Sep 2022 – Jan 2023 Sunnyvale, CA, USA
<b>Sony</b> <i>Student Intern</i> Tokyo Laboratory 30, R&D Center Advisor: <a href="#">Naoya Takahashi</a> Topic: Text-queried sound separation	Jun 2022 – Sep 2022 Tokyo, Japan
<b>Dolby</b> <i>Deep Learning Audio Intern</i> Applied AI Team, Advanced Technology Group Advisor: <a href="#">Cong Zhou</a> Topic: Music performance synthesis	Jun 2021 – Sep 2021 Remote
<b>Yamaha</b> <i>Research Intern</i> AI Group, Research and Development Division Advisor: <a href="#">Keijiro Saino</a> Topic: Deep learning based synthesizer	May 2019 – Aug 2019 Hamamatsu, Japan

**Academia Sinica**

Research Assistant

Music and AI Lab, Research Center for IT Innovation

Advisor: [Yi-Hsuan Yang](#)

Topics: Music generation and deep generative models

Jul 2017 – Apr 2019

Taipei, Taiwan

**Publications**Google Scholar ID: [tEOa3O4AAAAJ](#)

\* indicates equal contribution

**Conference Papers** .....

Hao-Wen Dong, Xiaoyu Liu, Jordi Pons, Gautam Bhattacharya, Santiago Pascual, Joan Serrà, Taylor Berg-Kirkpatrick, and Julian McAuley, “CLIPSONIC: Text-to-Audio Synthesis with Unlabeled Videos and Pretrained Language-Vision Models,” *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 2023. (★ Oral presentation) [📄](#) [🔗](#) [📺](#) [📢](#)

Hao-Wen Dong, Ke Chen, Shlomo Dubnov, Julian McAuley, and Taylor Berg-Kirkpatrick, “Multitrack Music Transformer,” *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023. (★ Oral presentation) [📄](#) [🔗](#) [📺](#) [📢](#)

Hao-Wen Dong, Naoya Takahashi, Yuki Mitsufuji, Julian McAuley, and Taylor Berg-Kirkpatrick, “CLIPSep: Learning Text-queried Sound Separation with Noisy Unlabeled Videos,” *International Conference on Learning Representations (ICLR)*, 2023. [📄](#) [🔗](#) [📺](#) [📢](#)

Ke Chen, Hao-Wen Dong, Yi Luo, Julian McAuley, Taylor Berg-Kirkpatrick, Miller Puckette, and Shlomo Dubnov, “Improving Choral Music Separation through Expressive Synthesized Data from Sampled Instruments,” *International Society for Music Information Retrieval Conference (ISMIR)*, 2022. [📄](#) [🔗](#)

Hao-Wen Dong, Cong Zhou, Taylor Berg-Kirkpatrick, and Julian McAuley, “Deep Performer: Score-to-Audio Music Performance Synthesis,” *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2022. [📄](#) [🔗](#) [📺](#) [📢](#)

Hao-Wen Dong, Chris Donahue, Taylor Berg-Kirkpatrick, and Julian McAuley, “Towards Automatic Instrumentation by Learning to Separate Parts in Symbolic Multitrack Music,” *International Society for Music Information Retrieval Conference (ISMIR)*, 2021. [📄](#) [🔗](#) [📺](#) [📢](#)

Sachinda Edirisooriya, Hao-Wen Dong, Julian McAuley, and Taylor Berg-Kirkpatrick, “An Empirical Evaluation of End-to-End Polyphonic Optical Music Recognition,” *International Society for Music Information Retrieval Conference (ISMIR)*, 2021. [📄](#) [🔗](#)

Hao-Wen Dong, Ke Chen, Julian McAuley, and Taylor Berg-Kirkpatrick, “MusPy: A Toolkit for Symbolic Music Generation,” *International Society for Music Information Retrieval Conference (ISMIR)*, 2020. [📄](#) [🔗](#) [📺](#) [📢](#)

Hao-Wen Dong and Yi-Hsuan Yang, “Convolutional Generative Adversarial Networks with Binary Neurons for Polyphonic Music Generation,” *International Society for Music Information Retrieval Conference (ISMIR)*, 2018. [📄](#) [🔗](#) [📺](#) [📢](#)

Hao-Wen Dong\*, Wen-Yi Hsiao\*, Li-Chia Yang, and Yi-Hsuan Yang, “MuseGAN: Multi-Track Sequential Generative Adversarial Networks for Symbolic Music Generation and Accompaniment,” *AAAI Conference on Artificial Intelligence (AAAI)*, 2018. (★ Oral presentation) [📄](#) [🔗](#) [📺](#) [📢](#)

## Journal Paper .....

Yin-Cheng Yeh, Wen-Yi Hsiao, Satoru Fukayama, Tetsuro Kitahara, Benjamin Genchel, Hao-Min Liu, Hao-Wen Dong, Yian Chen, Terence Leong, and Yi-Hsuan Yang, “Automatic Melody Harmonization with Triad Chords: A Comparative Study,” *Journal of New Music Research (JNMR)*, 50(1):37–51, 2021. [📄](#)

## Workshop Papers .....

Weihan Xu, Julian McAuley, Shlomo Dubnov, and Hao-Wen Dong, “Equipping Pretrained Unconditional Music Transformers with Instrument and Genre Controls,” *IEEE Big Data Workshop on AI Music Generation (AIMG)*, 2023. ([🏆 AI Music Innovation Award](#)) [📄](#) [🔗](#)

Hao-Wen Dong, Gunnar A. Sigurdsson, Chenyang Tao, Jiun-Yu Kao, Yu-Hsiang Lin, Anjali Narayan-Chen, Arpit Gupta, Tagyoung Chung, Jing Huang, Nanyun Peng, and Wenbo Zhao, “CLIPSynth: Learning Text-to-audio Synthesis from Videos using CLIP and Diffusion Models,” *CVPR Workshop on Sight and Sound (WSS)*, 2023. [📄](#) [🔗](#) [📺](#)

## Demo Papers .....

Hao-Wen Dong, Wen-Yi Hsiao, and Yi-Hsuan Yang, “Pypianoroll: Open Source Python Package for Handling Multitrack Pianoroll,” *ISMIR Late-Breaking Demos*, 2018. [📄](#) [🔗](#) [📺](#)

Hao-Wen Dong\*, Wen-Yi Hsiao\*, Li-Chia Yang, and Yi-Hsuan Yang, “MuseGAN: Demonstration of a Convolutional GAN Based Model for Generating Multi-track Piano-rolls,” *ISMIR Late-Breaking Demos*, 2017. [📄](#) [🔗](#) [📺](#)

## Nonrefereed Papers .....

Hao-Wen Dong and Yi-Hsuan Yang, “On Output Activation Functions for Adversarial Losses: A Theoretical Analysis via Variational Divergence Minimization and An Empirical Study on MNIST Classification,” *arXiv preprint arXiv:1901.08753*, 2019. [📄](#) [🔗](#) [📺](#)

Hao-Wen Dong and Yi-Hsuan Yang, “Training Generative Adversarial Networks with Binary Neurons by End-to-end Backpropagation,” *arXiv preprint arXiv:1810.04714*, 2018. [📄](#) [🔗](#) [📺](#)

## Talks

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### Tutorial Talk .....

Hao-Wen Dong and Yi-Hsuan Yang, “Generating Music with GANs: An Overview and Case Studies,” *Tutorials of the 20th International Society for Music Information Retrieval Conference (ISMIR)*, Delft, The Netherlands, Nov. 4, 2019. (3-hour tutorial) [🔗](#) [📄](#) [📺](#)

### Invited Talks .....

“Generative AI for Music and Audio,” *CS Colloquium, Department of Computer Science, University of Missouri–St. Louis*, Online, Mar. 7, 2024. [📄](#)

“Learning Text-to-Audio Synthesis from Videos,” *Rising Stars in AI Symposium, AI Initiative, King Abdullah University of Science and Technology (KAUST)*, Thuwal, Saudi Arabia, Feb. 20, 2024. [📄](#)

“Generative AI for Music and Audio,” *CS Seminar, Department of Computer Science, Northwestern University*, Evanston, IL, USA, Nov. 15, 2023. [📄](#)

“Generative AI for Music and Audio,” *Rising Stars in Data Science Workshop, Data Science Institute, University of Chicago*, Chicago, IL, USA, Nov. 14, 2023. [📄](#)

- “Generative AI for Music and Audio,” *DSP Seminar, Center for Computer Research in Music and Acoustics (CCRMA), Stanford University*, Palo Alto, CA, USA, Nov. 10, 2023. [📄](#)
- “Learning Sound Separation and Synthesis from Videos using Pretrained Language-vision Models,” *Seminar, Mitsubishi Electric Research Laboratories (MERL)*, Cambridge, MA, USA, Oct. 30, 2023. [📄](#)
- “Generative AI for Music and Audio,” *Seminar, Institute of Information Science, Academia Sinica*, Taipei, Taiwan, Sept. 18, 2023. [📄](#) [▶](#)
- “Generative AI for Music and Audio,” *Seminar, Department of Computer Science and Information Engineering, National Taiwan University*, Taipei, Taiwan, Sept. 15, 2023. [📄](#) [▶](#)
- “Generative AI for Music and Audio,” *Seminar, Graduate Institute of Communication Engineering, National Taiwan University*, Taipei, Taiwan, Sept. 11, 2023. [📄](#) [▶](#)
- “Generating Multitrack Music using Deep Learning,” *Seminar, AI Research Center, National Institute of Advanced Industrial Science and Technology (AIST)*, Tokyo, Japan, Sept. 12, 2022. [📄](#)
- “MusPy: Symbolic Music Processing in Python,” *Music + AI Reading Group, Mila and Vector Institute*, Online, Apr. 8, 2022. [📄](#) [▶](#)
- “Towards Automatic Instrumentation by Learning to Separate Parts in Symbolic Multitrack Music,” *J. Yang Scholars Symposium, UC San Diego*, Online, Sept. 25, 2021. [📄](#) [▶](#)
- “MuseGAN: Multi-track Sequential Generative Adversarial Networks for Symbolic Music Generation and Accompaniment,” *Music AI Day, Academia Sinica*, Taipei, Taiwan, Jan. 3, 2019. [📄](#)
- “MuseGAN: Multi-track Sequential Generative Adversarial Networks for Symbolic Music Generation and Accompaniment,” *The 28th Generative Music Informatics Workshop*, Hiroshima, Japan, Aug. 20, 2018. [📄](#)
- “MuseGAN: Multi-track Sequential Generative Adversarial Networks for Symbolic Music Generation and Accompaniment,” *The 5th Taiwanese Music and Audio Computing Workshop*, Taipei, Taiwan, May 24, 2018. [📄](#)
- “MuseGAN: Multi-track Sequential Generative Adversarial Networks for Symbolic Music Generation and Accompaniment,” *AAAI Seminar, Program Office of AI Research, Taiwan Ministry of Science and Technology*, Hsinchu, Taiwan, Mar. 24, 2018. [📄](#)

## Posters .....

- Hao-Wen Dong, “Learning Text-queried Sound Separation and Synthesis using Unlabeled Videos and Pretrained Language-Vision Models,” *Rising Stars in Data Science Workshop*, Chicago, IL, USA, Nov. 14, 2023. [📄](#)
- Hao-Wen Dong, “Learning Text-queried Sound Separation and Synthesis using Unlabeled Videos and Pretrained Language-Vision Models,” *Speech and Audio in the Northeast (SANE)*, Brooklyn, NY, USA, Oct. 26, 2023. [📄](#)
- Hao-Wen Dong, “Empowering Music Creation with Machine Learning,” *ICASSP Rising Stars in Signal Processing Workshop*, Rhodes, Greece, June 9, 2023. [📄](#)
- Hao-Min Liu, Hao-Wen Dong, Wen-Yi Hsiao, and Yi-Hsuan Yang, “Lead sheet and Multi-track Piano-roll generation using MuseGAN,” *GPU Technology Conference Taiwan (GTC Taiwan)*, Taipei, Taiwan, May 30, 2018. [📄](#)

## Teaching Experience

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### Teaching Assistantships .....

Teaching Assistant, <i>ML: Learning Algorithms (CSE 251A), UC San Diego</i>	Winter 2024
Teaching Assistant, <i>Principles of Machine Learning: Learning Algorithms (CSE 251A), UC San Diego</i>	Winter 2022
Teaching Assistant, <i>Recommender Systems &amp; Web Mining (CSE 258), UC San Diego</i>	Fall 2021
Teaching Assistant, <i>Topics in CSE: Advanced Statistical NLP (CSE 291), UC San Diego</i>	Spring 2021
Teaching Assistant, <i>Introduction to Machine Learning (CSE 151A), UC San Diego</i>	Winter 2021
TA Lead on Remote Teaching, <i>Recommender Systems &amp; Web Mining (CSE 258), UC San Diego</i>	Fall 2020
Teacher, <i>AMC 8 Training Camp, Kang Chiao International School</i>	Fall 2015

### Guest Lectures .....

- “AI Music and Audio Generation,” *Music Class, Taipei Digital Experimental High School*, Online, May 21, 2024. [📄](#)
- “AI Concerns of Data Sources for Generative AI,” *Topic Exploration, Taipei Digital Experimental High School*, Online, Apr. 29, 2024. [📄](#)

## Mentoring Experience

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### Graduate Research .....

Weihan Xu, graduate student, <i>Duke University</i> , Topic: Music generation	2023 – present
Chris Francis, graduate student, <i>UC San Diego</i> , Topic: Music generation	2023
Sanjayan Sreekala, graduate student, <i>UC San Diego</i> , Topic: Audio synthesis	2023

### Undergraduate Research .....

NSF Early Research Scholars Program (ERSP), <i>UC San Diego</i>	2023 – present
Team: Wanning Lu, Hoang Phan, Diego Reyes	
Topic: Violin performance rendering	

### Career Mentoring .....

WiMIR Mentoring Program, <i>Women in Music Information Retrieval</i>	2022 – present
2024: Francesca Ronchini, Alison B. Ma, Jolene Shao	
2023: Julien Guinot	
2022: Kavya Saxena	
project Tyra Mentoring Program, <i>Taiwanese Young Researcher Association</i>	2021 – present
2023: Tien Yu Chang, Hao-Cheng Chang, Yun Ho	
2022: Jhan-Shuo Liu, Hou-Chun Liu, Chia-Yuan Hsu	
2021: Yen-Chen Shih, Li-Ching Chen, Yu-Chia Chen, Yu-Yang Kao, Yen-Fu Lu	

## Professional Service

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**Program Committee**, *ISMIR (2024)*, *NLP4MusA (2024)*










**Conference Reviewer**, *NeurIPS (2022–2024)*, *AIMC (2022–2024)*, *ICML (2023–2024)*, *ICASSP (2024)*, *ICLR (2024)*, *ISMIR (2020–2023)*, *CHI Late-Breaking Work (2022)*, *ISMIR Late-Breaking Demos (2021)*

**Journal Reviewer**, *TASLP (2023–2024)*, *EURASIP JASM (2022–2024)*, *TOMM (2023)*, *SoftwareX (2022–2023)*, *EURASIP JASP (2022)*, *PJS (2022)*, *JOCCH (2022)*, *TISMIR (2022)*, *IEEE Transactions on Games (2020)*, *Scientific Reports (2020)*, *Neurocomputing (2019)*

**Book Reviewer**, “*Generative AI with Python and TensorFlow 2*” by Joseph Babcock and Raghav Bali, Packt Publishing, 2021

## Music, Films & Dramas

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<b>Bass Singer</b> , <i>NTUChorus</i>	2013 – 2017
<b>Producer</b> , “ <i>FragMemory</i> ”, short film, color, 39min 	2017
<b>Conductor</b> , <i>NTUEE Concert Choir</i> 	2017
<b>Student Conductor</b> , <i>NTUChorus</i>	2015 – 2016
<b>Student Conductor</b> , <i>NTUChorus Summer Concert</i> , Taiwan National Concert Hall  	2016
<b>Student Conductor</b> , <i>NTUChorus Winter Concert</i> , Taiwan National Concert Hall 	2016
<b>Bass Leader</b> , <i>NTUChorus</i>	2014 – 2015
<b>Director and Writer</b> , “ <i>Eye of Horus</i> ”, Sophomore Drama, NTUEE Night 	2015
<b>Leading Actor</b> , “ <i>The Magus</i> ”, Freshman Drama, NTUEE Night 	2014
<b>Music Director</b> , “ <i>Life is ____.</i> ”, Graduation album for NKNUSH Class of 2013 	2013
<b>Writer, Vocal and Drums</b> , “ <i>No longer ever</i> ”, Graduation song for NKNUSH Class of 2013 	2013

— Last updated on Jun 8, 2024 —