

# Fang-Duo Tsai

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## Education

<b>PhD</b> <b>National Taiwan University</b> , Graduate Institute of Communication Engineering	09.2025 ~
<ul style="list-style-type: none"><li>• Research areas: Song Generation, Text-to-Music</li><li>• Advisors: Prof. Yi-Hsuan Yang</li></ul>	
<b>MS</b> <b>National Taiwan University</b> , Graduate Institute of Communication Engineering	09.2023 ~06.2025
<ul style="list-style-type: none"><li>• Research areas: Controllable Text-to-Music, Music editing, Diffusion Models</li><li>• Advisors: Prof. Yi-Hsuan Yang, Prof. Hao-Chung Cheng</li></ul>	
<b>BS</b> <b>National Taiwan University</b> , Electrical Engineering	02.2020 ~06.2023
<ul style="list-style-type: none"><li>• Research areas: Text-to-Music, Deep Learning and Computer Vision, Wifi motion detection</li><li>• Advisors: Prof. Yi-Hsuan Yang, Prof. Yu-Chiang, Frank Wang, Prof. Hung-Yun Hsieh</li></ul>	

## Publications

[1] <b>Fang-Duo Tsai</b> , Yi-An Lai, Fei-Yueh Chen, Li Chai, Hao-Chung Cheng, Yi-Hsuan Yang "ComposerFlow: Step-by-Step Compositional Song Generation." In <i>In International Conference on Learning Representations (<a href="#">under review</a>)</i> , 2025.	09.2025
[ <a href="#">pdf</a> ] [ <a href="#">Demo website</a> ]	
[2] <b>Fang-Duo Tsai</b> , Yi-Hsuan Yang "Demonstrating Singing accompaniment capabilities for MuseControlLite" In <i>The Thirty-Ninth Annual Conference on Neural Information Processing Systems (<a href="#">Neurips Music4AI workshop demo</a>)</i> , 2025. [ <a href="#">pdf</a> ]	08.2025
[ <a href="#">arXiv</a> ]   [ <a href="#">Demo website</a> ]	
[3] Wei-Jaw Lee, Fang-Chih Hsieh, Xuanjun Chen, <b>Fang-Duo Tsai</b> , Yi-Hsuan Yang "Exploring State-Space-Model based Language Model in Music Generation" In <i>The 26th International Society for Music Information Retrieval Conference (<a href="#">ISMIR LBD</a>)</i> , 2025.	07.2025
[ <a href="#">arXiv</a> ]   [ <a href="#">Demo website</a> ]	
[4] <b>Fang-Duo Tsai</b> , Shih-Lun Wu, Weijaw Lee, Sheng-Ping Yang, Bo-Rui Chen, Hao-Chung Cheng, Yi-Hsuan Yang. "MuseControlLite: Multifunctional Music Generation with Lightweight Conditioners" In <i>International Conference on Machine Learning (<a href="#">ICML</a>)</i> , 2025.	01.2025
[ <a href="#">arXiv</a> ]   [ <a href="#">Code</a> ]   [ <a href="#">Demo website</a> ]   [ <a href="#">google colab</a> ]	
[5] <b>Fang-Duo Tsai</b> , Shih-Lun Wu, Haven Kim, Bo-Yu Chen, Hao-Chung Cheng, Yi-Hsuan Yan. "Audio Prompt Adapter: Unleashing Music Editing Abilities for Text-to-Music with Lightweight Finetuning." In <i>International Society for Music Information Retrieval Conference (<a href="#">ISMIR</a>)</i> 2024.	04.2024
[ <a href="#">arXiv</a> ]   [ <a href="#">Code</a> ]   [ <a href="#">Demo website</a> ]   [ <a href="#">Demo video</a> ]	

## Other Research Experiences

<b>Text-to-Music with RLAIF</b> , Prof. Shao-Hua Sun, NTU [ <a href="#">paper ↗</a> ]	09.2023 ~01.2024
<b>Traditional Chinese Instrument Generation</b> , Prof. Yi-Hsuan Yang, NTU	09.2023 ~12.2023
<b>Computer vision and Personalization</b> , Prof. Yu-Chiang Frank Wang, NTU	09.2022 ~06.2023
<b>WiFi Estimation for Person Pose</b> , Prof. Hung-Yun Hsieh, NTU	02.2022 ~06.2022

# Teaching Experience

<b>Deep Learning for Music Analysis and Generation,</b>	09.2025 ~12.2025
• Designed homework related to controllable text-to-music and retrieval. [ <a href="#">slides ↗</a> ]	<b>Teaching assistant</b>

<b>Reinforcement Learning</b> , instructed by Prof. Shao-Hua Sun, NTU	12.2024
• Invited as a judge for final project presentation.	
<b>Deep Learning for Computer Vision</b> , instructed by Prof. Yu-Chiang Wang, NTU.	<b>Final presentation judge</b>
• Evaluated and scored programming assignments for 140 students.	09.2024 ~12.2024
• Organized and hosted a contest for the final project.	<b>Teaching assistant</b>
<b>Probability and statistics</b> , instructed by Prof. Hung-Yun Hsieh, NTU.	02.2022 ~06.2022
• Evaluated and scored homework, quizzes, and exams for 130 students.	<b>Teaching assistant</b>
• Answered questions during office hours every week.	

## Working experiences

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<b>Taiwan AI Lab</b> , Research intern	03.2025 ~
• Proposed <b>ComposerFlow</b> , a song generation pipeline that leverages the knowledge of multiple models to achieve low-cost, fast training.	
• Compared <b>ComposerFlow</b> with other song generation models with state-of-the-art models, and showed comparable performance, while retaining the flexibility to edit the vocal melody, chord progression and the backing music.	
<b>Realtek</b> , Software engineering	07.2022 ~08.2022
• Provided code for converting different audio encoding for audio files.	
• Provided shell script for testing Google TV and Netflix on television chips.	

## Honors and Recognition

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<b>National Science and Technology concil PhD scholarship</b> , awarded with <b>NTD\$1,500,000</b> scholarship	09.2025
<b>Direct PhD scholarship</b> , awarded with <b>NTD\$1,500,000</b> scholarship	06.2025
<b>SIGMIR scholar</b> , awarded with <b>US\$1000</b> scholarship	08.2024
<b>1<sup>st</sup> prize, 3D Reconstruction from Road Marker Feature Points contest</b>   NTUEE, against <b>15</b> teams.	06.2023
<b>Best Creative Award of Robot Car Design Performance</b>   NTUEE, against <b>24</b> teams.	07.2020

## Peer review

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**ICLR** (2025), **Neurips Music4AI workshop** (2025), **ISMIR** (2025), **ACM survey journal** (2025)

## Invited talks

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"Controllable Text-to-Music", at <b>NTU DeepMIR course</b> .	10.2025
"MuseControlLite: Multifunctional Music Generation with Lightweight Conditioners" at <b>Rochester Audio Information Research Lab</b> .	07.2025

## Extracurricular activities

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<b>Kick-boxer</b> : Member of the NTU Kick-boxing team.	02.2020 ~02.2021
<b>Violinist</b> : Honorable Mention in Violin Solo, National Student's Music Contest	11.2017
<b>Runner</b> , school's fields day   NEHS	2016 ~2018
• 1 <sup>st</sup> place: 100-meter race	
• 1 <sup>st</sup> place: 400-meter race	
• 2 <sup>nd</sup> place: 200-meter race	