Yi-Jen (Ian) Shih

✉ yjshih@utexas.edu | 🏠 www.cs.utexas.edu/ yjshih | ⊡ atosystem | in yjshih | 🐦 @yijenshih | 🎓 Ian Shih

Education

The University of Texas at Austin   *Austin, Texas U.S.*

Ph.D. in Computer Science   *Aug. 2023 -*

- **Advisor**: Prof. David Harwath
- **Research Interest**: Speech Self-supervised Learning, Speech Foundation Models , Multi-modal Representation learning
- **GPA**: overall: **4.0/4.0**

National Taiwan University   *Taipei, Taiwan (R.O.C.)*

B.S. in Electrical and Engineering   *Sep. 2018 - Jun. 2022*

- **Research**: Multimodal Speech Processing, Self-supervised Learning and Music Generation
- **Advisors**: Prof. Hung-yi Lee and Prof. Yi-Hsuan Yang
- **GPA**: overall: **4.11/4.30**
- **Honors**: Dean's List Award, Bachelor Thesis Award

Selected Publications * indicates equal contributions

[1] Wei-Cheng Tseng*, **Yi-Jen Shih***, D. Harwath, and R. Mooney, "Measuring sound symbolism in audio-visual models," in *IEEE SLT*, 2024.

[2] **Yi-Jen Shih**, Z. Gkalitsiou, A. Dimakis, and D. Harwath, "Self-supervised speech models for word-level stuttered speech detection," in *IEEE SLT*, 2024.

[3] **Yi-Jen Shih** and D. Harwath, "Interface design for self-supervised speech models," in *Interspeech*, 2024.

[4] L. Berry, **Yi-Jen Shih**, H.-F. Wang, H.-J. Chang, H.-Y. Lee, and D. Harwath, "M-speechclip: Leveraging large-scale, pre-trained models for multilingual speech to image retrieval," in *IEEE ICASSP*, 2023.

[5] **Yi-Jen Shih**, H.-F. Wang, H.-J. Chang, L. Berry, H.-y. Lee, and D. Harwath, "Speechclip: Integrating speech with pre-trained vision and language model," in *IEEE SLT*, 2022.

[6] **Yi-Jen Shih**, S.-L. Wu, F. Zalkow, M. Müller, and Y.-H. Yang, "Theme transformer: Symbolic music generation with theme-conditioned transformer," in *IEEE Transactions on Multimedia*, 2022.

Research Experience

SALT Lab, UT Austin, Advisor: Prof. David Harwath   *Austin, Texas*

Graduate Research Assistant   *Aug. 2023 - Current*

- Working on exploiting information in Self-supervised Speech model's representations
- Stuttering speech detection on clinical data

Speech Processing Lab, NTU, Advisor: Prof. Hung-Yi Lee   *Taipei, Taiwan*

Undergraduate Researcher   *Sept. 2021 - Aug. 2023*

- Participate in JSALT workshop Visually Enhanced Group [URL]
- Proposed SpeechCLIP [Github] [Blog] [axXiv]
  - Bridge unparallel speech and text data via visual signal
  - Achieve SOTA on Image-Speech Retrieval
  - Accepted by *2022 IEEE Workshop on Spoken Language Technology (SLT)*
- Present SpeechCLIP at JSALT Ending Day [Slides] [Video]

Music and AI Lab, Academia Sinica, Advisor: Prof. Yi-Hsuan Yang   *Taipei, Taiwan*

Research Assistant   *Jul. 2020 - Jun. 2022*

- Working on symbolic music generation
- Proposed Theme-conditioned music generation [Github] [Blog] [arXiv]
  - Accepted by *IEEE Transactions on Multimedia* [link]
  - Won **1st prize** and **Most Popular Award** at Bachelor Thesis Award Electrical Engineering Dept. at NTU
  - Invited talk at MILA x Vector [Youtube]

Teaching

Machine Learning Course by Prof. Hung-Yi Lee   *Taipei, Taiwan*

Teaching Assistant   *Feb. 2020 - Jun. 2020*

- Design machine learning assignment for phoneme classification and grading

Deep learning for Human Langauge Processing Course by Prof. Hung-Yi Lee   *Taipei, Taiwan*

Teaching Assistant   *Sept. 2022 - Jan. 2023*

- Lead undergraduate students doing research project on multimodal speech processing

Experience

Reviewer at IEEE Transaction on Multimedia, ICASSP, TASLP and ISCSLP

Reviewer

Invited Talk at Music + AI Reading Group by Mila x Vector   *QC, Canada*

Invited talker   *Sept. 2020 - Jun. 2021*

- Present Theme Transformer

UC Berkeley   *CA, USA*

Summer Session Student   *Jul. 2019 - Aug. 2019*

- Learn MAX/MSP in Berkeley CNMAT

Selected Projects

MusicChain [Github]   *Taipei Taiwan*

Course final for Web and Multimedia   *Jun. 2021*

- Integrate smart contract into profit sharing music cover system
- Get cooperation invitation from startup from *Emlyon Business School*
- Won **3rd** prize at Bachelor Thesis Award Electrical Engineering Dept. at NTU

NTUEE LightDance [Github] [YouTube]   *Taipei, Taiwan*

Software Developer   *Jul. 2019 Ĩul. 2020*

- Design front-end control interface for live dancing performance
- Devise time synchronize mechanism between 8 clients and master nodes.

Sensor your music [Github]   *Taipei, Taiwan*

Midterm project for Music Computing Class   *Sep. 2021*

- Design an system for smartphones to send control signal to PureData for live musical interactions.

NTUEE Automatic Theremonitor System [Github]   *Taipei, Taiwan*

To collect the COVID-19 infected trace   *Sep. 2020*

- Develop server-client code to track COVID-19 traces in NTU campus
- Awarded Social Devotion Special Award at NTU

Apache Submarine [Github]   *Taipei, Taiwan*

Commit to github repo   *Sep. 2021 - Jan. 2022*

- Total *11* PRs for developing CLI system for Submarine User and fix various bugs in front-end

Honors & Awards

2019	**2nd Place**, Meichu: Hackathon	*Hsinchu, Taiwan*
2020	**Social Devotion Special Award**, at NTU, by the chancellor of NTU, Dr. Chung-Ming Kuan	*Taipei, Taiwan*
2020	**2nd Prize**, Bachelor Thesis Award Electrical Engineering Dept. at NTU	*Taipei, Taiwan*
2021	**3nd Prize**, Bachelor Thesis Award Electrical Engineering Dept. at NTU	*Taipei, Taiwan*
2021	**Most Popular Award**, Bachelor Thesis Award Electrical Engineering Dept. at NTU	*Taipei, Taiwan*
2022	**1st Prize & Most Popular Award**, Bachelor Thesis Award Electrical Engineering Dept. at NTU	*Taipei, Taiwan*
2022	**Dean's List Award**, Electrical Engineering Dept. at NTU	*Taipei, Taiwan*

Skills

Programming Python, PyTorch, C++, LaTeX, Shell, HTML/CSS

Languages English, Mandarin