

# Teng Aleksandra Ma

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Aleksandra Ma is a music AI researcher and master's student in the Music Technology program at Georgia Tech, where her work focuses on integrating human subjectivity and creativity into intelligent music systems. Her research spans human-AI interactive music systems, music auto-tagging, and multimodal source separation for both music and speech. She is not only interested in how machine learning algorithms could serve the musicians' artistic workflow, but also how AI could be a collaborative partner that does not replace but expand human creativity.

## EDUCATION

- **Georgia Institute of Technology** Aug 2023 - May 2026  
*Master of Science in Music Technology* | Advisor: Prof. Alexander Lerch | GPA: 4.0/4.0  
Atlanta, GA
  - Relevant Coursework: Audio Content Analysis, Statistical Machine Learning, Digital Signal Processing, Audio Software Engineering, Music Cognition and Perception, Interactive Music
- **University of California, Berkeley** Aug 2016 - May 2020  
*Bachelor of Arts in Statistics; Bachelor of Arts in Data Science* | GPA: 3.64/4.0  
Berkeley, CA

## WORK EXPERIENCE

- **Massachusetts Institute of Technology, Human-AI Resonance Lab** [🌐] Jun 2025 - Present  
*Research Collaborator, advised by Prof. Anna Huang* Cambridge, MA
  - Co-led human-AI music system co-design summer sessions and configured audio-visual system setup
  - Acted as main engineer and computer musician for the structured improvisation piece *6x4* made with Somax2
  - Recording an audio-visual dataset of 2-player jazz improvisation sessions to model human-AI communication after human-human communication (in collaboration with Georgia Tech)
- **Bose Corporation** [🌐] Jun 2024 - Present  
*Audio Machine Learning Research Co-Op* Framingham, MA
  - Conducted research on and developed an algorithm for real-time audio-visual target speaker speech enhancement
  - Built a demo-ready real-time system that can operate on a CPU with the best performing algorithm from above
- **Deloitte** [🌐] Jan 2021 - May 2023  
*Analytics Consultant, Cyber and Strategic Risk* San Francisco, CA; New York City, NY
  - Created and deployed both rule-based and machine learning text normalization pipelines for 190+ TV and movie productions, resulting in a 60% decrease in data processing time and a 15% decrease in data entry errors.
  - Managed and normalized 15,000+ cost account names and 30,000+ ledger transactions using Python and SQL.
  - Led a team of 5 offshore members to build and deploy 6 Tableau dashboards and provided biweekly trainings to Production Finance Executives on Tableau navigation and tooling.
- **UC Berkeley, Center for Effective Global Action** [🌐] Berkeley, CA  
*Open Policy Analysis Research Assistant* Aug 2020 - Jan 2021
  - Built and maintained an interactive R shiny app aimed to assist policymakers to understand the social and fiscal effects of deworming measures under different assumptions through user input.

## PUBLICATIONS AND PATENTS

C=Conference, J=Journal, D=Demo, W=Workshop Poster, S=Submission, P=Patent

### Peer-Reviewed Publications

- [C.1] T. Aleksandra Ma, Sile Yin, Li-Chia Yang, Shuo Zhang (2024). **Real-Time Audio-Visual Speech Enhancement Using Pre-trained Visual Representations** In *Proceedings of Interspeech 2025*.
- [C.2] Karn N. Watcharasupat, Yiwei Ding, T. Aleksandra Ma, Pavan Seshadri, Alexander Lerch (2025). **Uncertainty Estimation in the Real World: A Study on Music Emotion Recognition** In *Proceedings of European Conference on Information Retrieval 2025*.
- [C.3] T. Aleksandra Ma, Alexander Lerch (2024). **Music auto-tagging in the long tail: A few-shot approach.** In *Proceedings of the Audio Engineering Society NY Show 2024*.
- [D.1] T. Aleksandra Ma, Sile Yin, Li-Chia Yang, Shuo Zhang (2025). **Real-Time System for Audio-Visual Target Speech Enhancement.** In *Proceedings of WASPAA 2025 Demonstrations*.

### Under Review

- [S.1] Yusong Wu, Stephen Brade, T. Aleksandra Ma, Tia-Jane Fowler, Enning Yang, Berker Banar, Aaron Courville, Natasha Jaques, and Anna Huang. **Generative Adversarial Post-Training Mitigates Reward Hacking in Live Human-AI Music Interaction.** Submitted to *International Conference on Learning Representations (ICLR)*.

[S.2] Stephen Brade, T. Aleksandra Ma, Lancelot Blanchard, et al. (2025). **Agents in Concert: A Case-Study of Bringing AI to the Stage in Practice**. Submitted to *International Conference on Intelligent User Interfaces (IUI)*

## Patents

[P.1] T. Aleksandra Ma, Sile Yin, et al. (2024). **Audio-visual Speech Enhancement Using Cameras on Wearables**. Patent application filed. (Pending)

## Workshop Posters (Not Peer Reviewed)

[W.1] T. Aleksandra Ma, Sile Yin, Shuo Zhang (2024). **Audio-visual Target Speaker Speech Enhancement**. *Speech and Audio in the Northeast (SANE) 2024*.

[W.2] T. Aleksandra Ma, Alexander Lerch (2025). **Singing Voice Separation using Video Input as Privileged Information during Training**. *Speech and Audio in the Northeast (SANE) 2025*.

## SELECTED PROJECTS

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### • WebSynth: A Browser-Based Synthesizer Built with Rust

Jan 2024 - May 2024

*Georgia Tech, Audio Software Engineering*



- Designed and implemented the user interface of a web-based synthesizer offering key functionalities like oscillators, filters, EQs, and MIDI input using QWERTY keyboards.
- Developed modular components including oscillators, filters, and envelopes. Conducted extensive unit and integration tests to ensure performance and reliability.

### • Customizable Music Auto-tagger

May 2023 - Jan 2024

*MusicMind | The Sound of AI Accelerator*



- Led customer discovery interviews, mentor consultations, and market research to inform product scoping, roadmap development, and iterative design
- Developed a music auto-tagging model to recommend relevant tags for weakly labeled, loosely organized music catalogs, and presented the system at Demo Day.

### • Lo-fi Music Web-Player with AI-generated Tracks

Dec 2022

*Published as an Editor's Pick on Towards Data Science*



- Built an interactive lo-fi music web-player which allows users to assemble drum, ambience, and melody options.
- Implemented AI solo tracks generated by an LSTM network and pre-coded melody options using Tone.js.

## SKILLS

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- Programming Languages: Python, SQL, JavaScript, Rust, R, Matlab
- Frameworks/Software PyTorch, TensorFlow, Max MSP, Ableton, React.js, Tableau
- Music: Voice and Keyboard Performance, Music Theory, Production and Composition

## ACADEMIC SERVICE & VOLUNTEER EXPERIENCE

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### • Technical Selection Panelist

2025

*AI & African Music Project, University of the Witwatersrand, Johannesburg*



### • Peer Reviewer

2025

*Detection and Classification of Acoustic Scenes and Events (DCASE) Workshop*



### • Volunteer

2023

*International Society for Music Information Retrieval (ISMIR) Conference*



## LEADERSHIP EXPERIENCE

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### • President

Aug 2017 - Dec 2019

*Ascend | Premier Finance and Consulting Student Organization*



- Led the executive team to co-host a case competition where we had 8 pioneer judges (including Steve Wozniak and Una Ryan) and 200+ students participate; hosted as MC on the final round presentation day.
- Spearheaded welcome week events with an officer team of 18; increased email sign-ups by 100%, applicants by 35%.
- Supervised a team of 62 members who altogether hosted 34 events; handled a budget of \$12,000+