Songyan Zhao

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⊕ Google Scholar

EDUCATION

•**Carleton College** *Jul. 2019 - June 2023*

B.A. Computer Science and Mathematics (double-major); Northfield, MN

GPA: 3.86/4.0, Cum laude

•**University of California, Los Angeles** *Sep. 2023 - June 2025*

M.S. Computer Science; Los Angeles, CA

Advisor: Nanyun, Peng, Current GPA: 3.95/4.0

RESEARCH INTEREST

Music Generation, Creative Generation, Human Computer Interaction

PUBLICATION

- **Songyan Zhao**, LI, B., TIAN, Y., AND PENG, N. Reffly: Melody-constrained lyrics editing model. *NAACL* (2025). In submission, avg. reviewer score: 3.63/5, Meta: 4/5

- YOSHIDA, M., LI, B., **Songyan Zhao**, ZHOU, Q., HU, S., CHEN, X. A., AND PENG, N. Colyricist: Enhancing lyric writing with ai through workflow-aligned support. In *CHI* (2025). In submission, second-round

- WU, X., LIN, Z., **Songyan Zhao**, WU, T.-L., LU, P., PENG, N., AND CHANG, K.-W. Vdebugger: Harnessing execution feedback for debugging visual programs. In *EMNLP Findings* (2024)

- BRYAN-KINNS, N., ZHANG, B., **Songyan Zhao**, AND BANAR, B. Exploring variational auto-encoder architectures, configurations, and datasets for generative music explainable ai. *Machine Intelligence Research MIR-2022-12-377.R1* (2023)

RESEARCH EXPERIENCE

•**University of California, Los Angeles** *09/2023 - Present*

Research Assistant, Advisor: Prof. Nanyun Peng, and Prof. Kaiwei Chang Northfield, MN

– REFFLY: Melody-Constrained Lyrics Editing Model

⋄ Proposed the first melody-constraine lyric revision framework that, given a predefined melody, transfers an arbitrary text to a full-length, melody-aligned lyrics with high singability and prosody, enabling more downstream applications.

⋄ Introduced a training-free heuristic for capturing melody-lyrics alignment, semantically and musically, to improve both singability and prosody. We also contribute a expert labeled dataset with fine-grained annotations of music sheets.

⋄ REFFLY significantly enhances lyrics melody alignment and text quality of the generated lyrics by 25 % over strong baselines in terms of musicality and overall performance across tasks like user-specified lyrics generation and Chinese-to-English lyric translation.

– Hierarchical Lyrics-to-Melody Generation (In-progress, project leader)

⋄ Developed the first hierarchical lyrics-to-melody generation framework, enhancing the quality of generated melodies.

⋄ Achieved improved controllability in melody generation by disentangling rhythm, chord, reduced melody, and full melody in the hierarchical framework.

– CoLyricist: Enhancing Lyric Writing with AI through Workflow-Aligned Support

⋄ Conducted interviews with 10 amateur songwriters to clarify their workflows, identify challenges in lyric writing, and highlight limitations in existing AI services.

⋄ Proposed and implemented a prototype system that provides comprehensive support for lyric writing, aligned with the typical workflow of songwriters.

⋄ Validated the effectiveness of CoLyricist through a user study involving 16 amateur lyricists, offering insights into how our tool helps users tackle challenges at each stage of the workflow, and identifying potential directions for future development.

– VDebugger: Harnessing Execution Feedback for Debugging Visual Programs

  ⋄ Proposed a novel framework for debugging visual programs capable of reasoning over execution process and performing explainable debugging;
  ⋄ Developed a pipeline to automatically generate large-scale training datasets including 47.7k program pairs;
  ⋄ VDebugger trained on top of 7B and 13B LLMs achieves significant improvements across 6 datasets and can generalize to unseen scenarios.

•**Mohamed Bin Zayed University of Artificial Intelligence (MBZUAI)** *July. 2024 - present*

Research Assistant, Advisor: Prof. Gus Xia Abu Dhabi, United Arab Emirates.

– Chord style transfer (In-progress, project leader)

  ⋄ Developed a chord style-transfer system that transforms a melody with simple chords into a more complex chord progression, such as jazzifying the arrangement.
  ⋄ Proposed a novel back-translation method to clean and prepare data from the MuseScore dataset.

•**Peking University** *July. 2023 - Sept. 2023*

Research Assistant, Advisor: Prof. Siwei Ma, and Prof. Chuanmin Jia Beijing, China

– FastPoster:

  ⋄ Created text template for poster characteristics generation.
  ⋄ Implemented smoothQuant using OPT-30B for generating the requirements for poster, achieving a 4x acceleration in text generation speed compared to full FP32 precision.

– **Queen Mary University of London** *June 2022 - Jan. 2023*

  Researcher, Advisor: Prof. Nick Bryan-Kinns, Center for Digital Music Remote

  ⋄ Conducted a systematic analysis of Variational Auto-Encoder (VAE) models to optimize generative music performance and interpretability.
  ⋄ Identified optimal configurations for latent space and datasets, enhancing model explainability across multiple music genres.

WORK EXPERIENCE

–**RHINO website: Bootstrap 4 based Online Sports Course Service** *Sept. 2021 - Mar. 2022*

Software Developer Intern at RHINO, Beijing, China Remote

  ⋄ Developed the user history functionality, utilizing Pymssql to accurately record and manage user interactions within the system.
  ⋄ Designed and implemented the front-end interface, focusing on enhancing user experience through intuitive navigation and responsive design.
  ⋄ Integrated authentication functionality to ensure secure user access and protect sensitive data through robust login mechanisms.

–**TianTianBaiTao: Spring Boot based E-commerce Service Mobile APP** *June 2021 - Sept. 2021*

Software Developer Intern at Do-Global Beijing, China

  ⋄ Developed the back-end of "my account", using Java Spring-Boot, Redis, MySQL, and MyBatis.
  ⋄ Created user authentication using REST API and Spring Security.
  ⋄ Created the logging system using Lombok and Log4j.
  ⋄ Automated the deployment with Docker.

HONORS, AWARDS & SCHOLARSHIPS

– C.V. Starr Scholarship (10000 dollars)

SKILLS SUMMARY

Coding languages: Python, Java, JavaScript, HTML, SQL, ect.
Machine learning: Pytorch, Numpy, Scikit-learn, TensorFlow, ect.