

# Kahyun Choi

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## Positions Held

### **Assistant Professor** *Jan. 2019 - present*

- Luddy School of Informatics, Computing, and Engineering
  - Department of Information and Library Science
  - Data Science Program
  - Luddy Center for Artificial Intelligence
- Indiana University Bloomington
- \* *(In light of the COVID-19 pandemic, the tenure clock has been extended by two years)*

### **Co-Instructor** *Fall 2016*

- School of Information Sciences, University of Illinois at Urbana-Champaign
- Digital Libraries (LIS560LE)

### **Research and Teaching Assistant** *Fall 2011 - Fall 2018*

- School of Information Sciences, University of Illinois at Urbana-Champaign
- Projects: [Music Information Retrieval Evaluation eXchange \(MIREX\)](#), K-Pop Mood/Genre Annotation, [HathiTrust Research Center \(HTRC\)](#)
- Courses: "Digital Libraries" (LIS560LE), "Machine Learning Team Projects" (IS590ML)

### **Software Developer** *Jan. 2009 - Jun. 2011*

- [Naver Corp.](#), Seongnam, Korea
- Member System Development Team

## Education

### **Ph.D. (2018) University of Illinois at Urbana-Champaign**

- School of Information Sciences
- Dissertation: [Computational Lyricology: Quantitative Approaches to Understanding Song Lyrics and Their Interpretations](#)
- Committee: J. Stephen Downie (advisor), Michael Twidale, Ted Underwood, Sally Jo Cunningham

### **M.S. (2010) Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea**

- Digital Media Program
- Thesis: [Performance Improvement of Music Mood Classification Using Hyper Music Features](#)
- Advisor: Minsoo Hahn

### **Honors B.E. (2005) Ajou University, Suwon, Korea**

- Information and Computer Engineering

### **Exchange student (fall 2004), University of Illinois at Chicago**

- Department of Computer Science

## Teaching

### **Teaching Award**

- Indiana University Trustees Teaching Award, 2023

### **Teaching Courses (Main Instructor)**

- "Database Design" (ILS-Z 511, ILS IU), Spring 2023, Spring 2022, Fall 2021, Spring 2021, Fall 2020, Fall 2019, Spring 2019
- "Music Data Mining" (ILS-Z 604, ILS IU), Fall 2022, Spring 2020
- "Digital Libraries" (LIS 560 LE, School of Information Sciences, UIUC), Fall 2016

### Teaching Assistant

- "Machine Learning Team Projects" (IS 590 ML, School of Information Sciences, UIUC), Fall 2018
- "Digital Libraries" (LIS560LE), School of Information Sciences, UIUC, Spring 2017, Fall 2015, Spring 2015, Fall 2014, Spring 2014, Fall 2013, and Spring 2013

## Grants

### Awarded Grants

1. ["Unbiased AI for Poetry Analysis: Toward Equitable and Diverse Digital Libraries,"](#) Institute of Museum and Library Services, Early Career Research Development project of Laura Bush 21st Century Librarian Program, Federal, \$420,819, Aug. 2022 - Jul. 2025, Principal Investigator
2. ["Computational Poetry Analysis: AI for Literature,"](#) Luddy Faculty Fellowship, Internal, \$25,000, Nov. 2021 - Oct. 2022, Principal Investigator
3. ["AI & Co-design in public libraries: Empowering underserved youth to cultivate symbiotic relationships between Artificial Intelligence \(AI\) and their communities,"](#) Institute of Museum and Library Services, National Leadership Grants, Federal, (\$249,999 in total, my portion is about \$97,741), Aug. 2021 - Jul. 2023, Co-Principal Investigator (PI: Hee Rin Lee)

## Publications

### Submitted Peer Reviewed Papers

1. *Kahyun Choi*, "Word Embedding-Based Complexity Analyses of Song Lyrics," Journal of the Association for Information Science and Technology (JASIST), *Submitted*

### Workshop Abstracts

1. Ji Youn Shin, *Kahyun Choi*, Hee Rin Lee, ["Community-engaged design for STEM education: Students as co-designers of AI programs in public libraries,"](#) in Child-Centred AI Design: Definition, Operation, and Considerations ACM CHI 2023 Workshop, 2023
2. *Kahyun Choi*, ["Computational Poetry Collection Analysis via Context-Dependent Language Models,"](#) in ASIS&T SIG AI Workshop, 2022.
3. Hee Rin Lee, *Kahyun Choi*, Selin Akgun, Ji Youn Shin, Pooja Malvi, Meredith Dedema, ["AI & Co-design in public libraries: Empowering underserved youth to cultivate symbiotic relationships between Artificial Intelligence \(AI\) and their communities,"](#) in ASIS&T SIG AI Workshop, 2022. (**Best Presentation Award**)

### Peer-Reviewed Publications

1. *Kahyun Choi*, ["Bimodal Music Subject Classification via Context-Dependent Language Model,"](#) in Proceedings of the 16th iConference (iConference), 2021.
2. *Kahyun Choi* and J. Stephen Downie, ["A Trend Analysis on Concreteness of Popular Song Lyrics,"](#) in Proceedings of the 6th International Digital Libraries for Musicology workshop (DLfM), 2019.
3. *Kahyun Choi* and J. Stephen Downie, ["Exploratory investigation of word embedding in song lyric topic classification: promising preliminary results,"](#) In Proceedings of the IEEE / ACM Joint Conference in Digital Libraries (JCDL), 2018.
4. Anders Friberg, Ragnar Schön, Anders Elowsson, *Kahyun Choi*, and J. Stephen Downie, ["Cross-cultural aspects of perceptual features in K-Pop: A pilot study comparing Chinese and Swedish listeners,"](#) in Proceedings of the 43rd International Computer Music Conference, (ICMC), 2017
5. Xiao Hu, *Kahyun Choi*, Yun Hao, Sally Jo Cunningham, Jin Ha Lee, Audrey Laplante, David Bainbridge, and J. Stephen Downie, ["Exploring the Music Library Association Mailing List: A Text Mining Approach,"](#) in Proceedings of the 18th International Society for Music Information Retrieval Conference, (ISMIR), 2017

6. Xiao Hu, Jin Ha Lee, David Bainbridge, *Kahyun Choi*, Peter Organisciak, and J. Stephen Downie, "[The MIREX Grand Challenge: a framework of holistic user experience evaluation in music information retrieval](#)", Journal of the Association for Information Science and Technology (JASIST), Vol. 68, pp. 97-112, 2016
7. *Kahyun Choi*, Jin Ha Lee, Xiao Hu, and J. Stephen Downie, "[Music Subject Classification Based on Lyrics and User Interpretations](#)", in Proceedings of the American Society for Information Science and Technology (ASIS&T), 2016
8. Xiao Hu, *Kahyun Choi*, Jin Ha Lee, Audrey Laplante, Yun Hao, Sally Jo Cunningham and J. Stephen Downie, "[WiMIR: An Informetric Study on Women Authors in ISMIR](#)", in Proceedings of the 17th International Society for Music Information Retrieval Conference, (ISMIR), 2016
9. Yun Hao, *Kahyun Choi*, and J. Stephen Downie, "[Exploring J-DISC: Some Preliminary Analyses](#)", in Proceedings of the 3rd International Digital Libraries for Musicology workshop (DLfM), 2016
10. Xiao Hu, *Kahyun Choi*, J. Stephen Downie, "[A Framework for Evaluating Multimodal Music Mood Classification](#)", Journal of the Association for Information Science and Technology (JASIST), Vol. 68, pp. 273-285, 2015
11. Jin Ha Lee, Xiao Hu, *Kahyun Choi*, and J. Stephen Downie, "[MIREX Grand Challenge 2014 on User Experience: Qualitative analysis of user feedback](#)", in Proceedings of the International Society for Music Information Retrieval Conference, (ISMIR), 2015
12. *Kahyun Choi*, Jin Ha Lee, Craig Willis, J. Stephen Downie, "[Topic Modeling Users' Interpretations of Songs to Inform Subject Access in Music Digital Libraries](#)", In Proceedings of the IEEE / ACM Joint Conference in Digital Libraries (JCDL), 2015
13. J. Stephen Downie, Xiao Hu, Jin Ha Lee, *Kahyun Choi*, Yun Hao, and Sally Jo. Cunningham, "[Ten Years of MIREX \(Music Information Retrieval Evaluation eXchange\): Reflections, Challenges and Opportunities](#)", in Proceedings of the International Society for Music Information Retrieval Conference, (ISMIR), 2014
14. Xiao Hu, Jin Ha Lee, *Kahyun Choi*, and J. Stephen Downie, "[A Cross-Cultural Study on the Mood of K-POP Songs](#)", in Proceedings of the International Society for Music Information Retrieval Conference, (ISMIR), 2014
15. *Kahyun Choi*, Jin Ha Lee, and J. Stephen Downie, "[What is this song about anyway?: Automatic classification of subject using user interpretations and lyrics](#)", In Proceedings of the IEEE / ACM Joint Conference in Digital Libraries (JCDL), 2014
16. Jin Ha Lee, *Kahyun Choi*, Xiao Hu, and J. Stephen Downie, "[K-Pop Genres: A Cross Cultural Exploration](#)", in Proceedings of the International Society for Music Information Retrieval Conference, (ISMIR), 2013.

## Advising

### Independent Study

- Meredith Dedema (ILS PhD at IU), Spring 2023
- Haining Wang (ILS PhD at IU), Spring 2023
- Sasidev Mahendran (CS MS at IU), Spring 2023
- Sumitha Vellinalur Thattai (CS MS at IU), Spring 2023

### Emerging Scholars Research Experience for Undergraduate Women Mentor

- Alexa Walquist (Undergraduate at Kelley School at IU), Fall 2022-Spring 2023

### Research Assistantship Advising

- Meredith Dedema (ILS PhD at IU), Summer 2022-Spring 2023
- Shruti Padole (CS MS at IU), Summer 2022-Spring 2023

### Women in Music Information Retrieval (WiMIR) Mentor

- Eunjin Choi (PhD at Graduate School of Culture Technology at KAIST), Spring 2022

### PhD Qualifying Exam Committee Member

- Pei-Ying Chen (ILS PhD at IU), 2021

## PhD Dissertation Committee Member

- Zheng Gao (ILS PhD at IU), 2020

## Presentations

### Invited Talks

- "AI for Libraries and Libraries for AI," Luddy Fellows Research Spotlight, April 5, 2023
- "AI for Libraries," [2022-2023 Luddy Faculty Fellows Talk](#), March 7, 2023
- "Unbiased AI for Poetry Analysis: Toward Equitable and Diverse Digital Libraries," [Pervasive Technology Institute](#) Speaker Series, Bloomington, December 2, 2022
- "Computational Lyricology," [The Georgia Tech Center for Music Technology Seminar](#), Georgia Institute of Technology, September 12, 2022
- "Music Trend Analysis," [IU JSOM Music and Mind Lab](#), Bloomington, May 2, 2022
- "Automatic Music Subject Classification and a Cross-Cultural Exploration of K-Pop Genre," Shazam, Menlo Park, CA, Aug. 14, 2014.
- "A Cross-Cultural Study on the Mood and Genre of Korean Pop Songs," Pandora Radio, Oakland, CA, Jun. 19, 2014.
- "A Cross-cultural Exploration of K-Pop Moods and Genres," KTH Royal Institute of Technology, Sweden, May 3, 2014 - May 9, 2014.
- Guest lectures about Information Retrieval, Digital Libraries (LIS560LE), Fall 2014, Spring 2015, Fall 2015, and Spring 2016.

### Talks at Workshops and Doctoral Colloquia

- *Kahyun Choi*, "Computational Poetry Collection Analysis via Context-Dependent Language Models," ASIST AI workshop, 2022.
- Hee Rin Lee, *Kahyun Choi*, Selin Akgun, Pooja Malvi, Ji Youn Shin, and Meredith Dedema, "AI & Co-design in public libraries: Empowering underserved youth to cultivate symbiotic relationships between Artificial Intelligence (AI) and their communities," ASIST AI workshop, 2022. (Best Presentation Award)
- *Kahyun Choi*, "Music Thumbnailing," 2016 Annual Meeting of the Association for Information Science and Technology (ASIS&T) Doctoral Colloquium, Copenhagen, Denmark, Oct. 18, 2016 (Travel grant)
- *Kahyun Choi*, "From Lyrics to Their Interpretations: Automated Reading Between the Lines," the IEEE/ACM Joint Conference in Digital Libraries (JCDL) Doctoral Consortium, 2015 (Travel grant)

### Posters

- *Kahyun Choi*, "Topic Modeling Users' Interpretations of Songs to Inform Subject Access in Music Digital Libraries," GSLIS Research Showcase 2015
- *Kahyun Choi*, "The Impact of Music Genre on Music Similarity: A Qualitative Exploration," GSLIS Research Showcase 2015
- *Kahyun Choi*, "Exploring Music Subject Classification Based on User Interpretations of Music," Midwest Music Information Retrieval Gathering (MMIRG), Evanston, IL, Jun. 14, 2014.
- *Kahyun Choi*, "K-Pop Genres: A Cross-Cultural Exploration," GSLIS Research Showcase 2014
- *Kahyun Choi*, "Exploiting Structural Data for Music Exploration," GSLIS Research Showcase 2013
- *Kahyun Choi*, "Music Mood Tag Prediction with Dimension Reduced Tag Space," GSLIS Research Showcase 2013

## Professional Activities

### Advisory Board

- [Audiovisual Metadata Platform](#), Indiana University (IU) Libraries, Andrew W. Mellon Foundation, 2022-2023

#### **Research Community Work**

- The International Society for Music Information Retrieval Conference (ISMIR), Meta-Reviewer, 2022
- The International Society for Music Information Retrieval Conference (ISMIR), Volunteer Chair, 2021
- The International Society for Music Information Retrieval Conference (ISMIR), Meta-Reviewer, 2021
- The International Digital Libraries for Musicology workshop (DLfM), Session Chair, 2021
- The International Digital Libraries for Musicology workshop (DLfM), Program Committee, 2021
- The International Society for Music Information Retrieval Conference (ISMIR), Meta-Reviewer, 2020
- Midwest Music and Audio Day, Bloomington, IN, Organizing Committee (June 27, 2019)
- The Music Information Retrieval Evaluation eXchange (MIREX), Evaluation Committee leader, (Aug. 2014 - Aug. 2016)
- The Music Information Retrieval Evaluation eXchange (MIREX), Evaluation Committee member, (Aug. 2011 - Aug. 2013)

#### **As a reviewer of journals and conferences**

- Transactions of the International Society for Music Information Retrieval (TISMIR)
- The International Society for Music Information Retrieval Conference (ISMIR)
- The American Society for Information Science and Technology (ASIS&T)
- ACM Transactions on Intelligent Systems and Technology (TIST)
- International Journal on Digital Libraries (IJDL)

#### **Internal Services at IU**

- ILS Doctoral Steering Committee, August 2022-present
- Data Science Curriculum Committee (Data Science), 2020-present
- ILS Colloquium Committee, October 2019-December 2021

## **Awards, Honors, and Scholarships**

#### **Indiana University Trustees Teaching Award**

- Recognizing outstanding contributions to the educational mission at IU
- Recipients receive a monetary award, a letter, a plaque, and are honored at a reception
- Indiana University Trustees, 2023

#### **Best Presentation Award**

- ASIS&T SIG AI Workshop, 2022

#### **Rayward Fellowship and Provost Match Fellowship**

- A tuition waiver and stipend were granted from Summer 2017 to Spring 2018 to assist with the writing of the PhD dissertation
- School of Information Sciences, University of Illinois at Urbana-Champaign

#### **Women in Music Information Retrieval (WiMIR) Award**

- ISMIR, 2016 (travel grant)

#### **Merit-based university scholarships for four semesters**

- Department of Information and Computer Engineering, Ajou University, Suwon, Republic of Korea
- Spring 2004, fall 2003, spring 2002, fall 2001

#### **Graduated with honors**

- Department of Information and Computer Engineering, Ajou University, Suwon, Republic of Korea

## Skills

- Machine learning tools: PyTorch, scikit-learn, Keras, Mallet, Weka
- Programming languages: Python, MATLAB, Unix shell scripting, JavaScript, R, Java, C, PHP, C with PIC
- Database: MySQL, MongoDB, Neo4j
- Digital library building tools: Omeka, Greenstone
- Others: Linux, NodeXL, Dedoose, Amazon MTurk