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
- Selin Akgun (Education PhD at MSU), Spring 2022-Summer 2022

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 Digital Libraries for Musicology workshop (DLfM), Program Committee, 2023
- 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 Univeristy, Suwon, Republic of Korea
- Spring 2004, fall 2003, spring 2002, fall 2001

Graduated with honors

- Department of Information and Computer Engineering, Ajou Univeristy, 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