

Bongjun Kim

iambongjun@gmail.com • <https://www.bongjunkim.com>

EDUCATION	Ph.D. in Computer Science June 2020 Interactive Audio Lab Northwestern University, Evanston, IL, USA
	M.S. in Culture Technology Aug 2012 Audio and Interactive Media Lab Korea Advanced Institute of Science and Technology (KAIST), Korea
	B.S. / M.S. in Industrial Engineering Aug 2009 Industrial Informatics Lab Ajou University, Suwon, Korea (Study Abroad, Lulea University of Technology, Lulea, Sweden) Aug 2006 – Dec 2006
RESEARCH INTERESTS	Machine Learning - deep learning, interactive machine learning, active learning Audio Signal Processing - sound event recognition, audio/music information retrieval Human Computer Interaction - interactive intelligent systems, creativity support tools
PROFESSIONAL EXPERIENCE	Data Scientist 3M, MN, USA Aug 2020 – Present Health Information Systems <ul style="list-style-type: none">▪ Sound and speech recognition Corporate Research Systems Lab <ul style="list-style-type: none">▪ Sound event recognition▪ Machine learning for manufacturing process Research Assistant Northwestern University, IL, USA Sep 2013 – Jun 2020 Interactive Audio Lab. The Department of Computer Science <ul style="list-style-type: none">▪ Sound event detection with weakly-labeled data▪ A human-in-the-loop interface for sound event annotation▪ Audio search by vocal imitation▪ Speeding learning of personalized audio equalization Research Intern Bosch, CA, USA Jun 2018 – Aug 2018 The Research and Technology Center <ul style="list-style-type: none">▪ Deep learning for sound event recognition Research Intern Gracenote, CA, USA Jun 2017 – Sep 2017 The Media Technology Lab. <ul style="list-style-type: none">▪ Audio compression identification Research Assistant KAIST, Korea Sep 2010 – Aug 2012 Audio and Interactive Media Lab. <ul style="list-style-type: none">▪ Mobile media as a musical instrument Research Engineer Doosan Infracore Co. Ltd, Korea Jul 2009 – Jul 2010 <ul style="list-style-type: none">▪ Research process innovation
TEACHING EXPERIENCE	Teaching Assistant Northwestern University Spring, Fall 2019, Winter 2020 CS-349 Machine Learning

Teaching Assistant | Northwestern University
CS-352 Machine Perception of Music and Audio

Winter, 2019

Teaching Assistant | Northwestern University
EECS-349 Machine Learning

Fall quarters, 2014-2017

Teaching Assistant | KAIST, Korea
GCT-633 Audio and Multimedia Programming

Fall, 2012

**JOURNAL
PUBLICATIONS**

- Bryan Pardo, Mark Cartwright, Prem Seetharaman, and **Bongjun Kim**, “Learning to Build Natural Audio Production Interfaces,” *Arts*, Vol. 8, Issue 3, 2019
- **Bongjun Kim** and Bryan Pardo, “A Human-in-the-loop System for Sound Event Detection and Annotation,” *ACM Transaction on Interactive Intelligent System (TiS)*, Vol. 8, Issue 2, Article 13, June 2018.
- **Bongjun Kim** and Kiejun Park, “Probabilistic Delay Model of Dynamic Message Frame in FlexRay Protocol,” *IEEE Transaction on Consumer Electronics*, Vol. 55, Issue 1, pp. 77-82, 2009.
- Bumjoo Park, Kiejun Park, and **Bongjun Kim**, “A Performance Isolation Mechanism Based on Fuzzy Technique for Web Server Loading Balancing,” *The Institute of Electronics, Information and Communication Engineers Transactions on Communications*, Vol.E92-B, No.4, 2009.

**REFEREED
CONFERENCE
AND WORKSHOP
PUBLICATIONS**

- Fatemeh Pishdadian, **Bongjun Kim**, Prem Seetharaman, and Bryan Pardo, “Classifying non-speech vocals: Deep vs Signal Processing Representations,” *the Detection and Classification of Acoustic Scenes and Events Workshop (DCASE)*, 2019.
- **Bongjun Kim** and Bryan Pardo, “Sound Event Detection Using Point-labeled Data,” *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 2019.
- **Bongjun Kim** and Shabnam Ghaffarzadegan, “Self-supervised Attention Model for Weakly Labeled Audio Event Classification,” *European Signal Processing Conference (EUSIPCO)*, 2019.
- **Bongjun Kim** and Bryan Pardo, “Improving Content-based Audio Retrieval by Vocal Imitation Feedback,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2019.
- **Bongjun Kim**, Madhav Ghei, Bryan Pardo, and Zhiyao Duan, “Vocal Imitation Set: a dataset of vocally imitated sound events using the AudioSet ontology,” *the Detection and Classification of Acoustic Scenes and Events Workshop (DCASE)*, 2018.
- **Bongjun Kim** and Zafar Rafii, “Lossy Audio Compression Identification,” *European Signal Processing Conference (EUSIPCO)*, 2018.
- **Bongjun Kim**, “Leveraging User Input and Feedback for Interactive Sound Event Detection and Annotation,” Student Consortium, *ACM International Conference on Intelligent User Interfaces (IUI)* 2018.
- **Bongjun Kim** and Bryan Pardo, “I-SED: an Interactive Sound Event Detector,” *ACM International Conference on Intelligent User Interfaces (IUI)*, 2017
- **Bongjun Kim** and Bryan Pardo, “Interface Design for Interactive Sound Event Detection,” *Workshop on Awareness Interface and Interaction (AWARE) at the ACM International Conference on Intelligent User Interface (IUI)*, 2017
- **Bongjun Kim** and Bryan Pardo, “Speeding Learning of Personalized Audio Equalization,” *International Conference on Machine Learning and Applications (ICMLA)*, Dec. 2014
- **Bongjun Kim** and Bryan Pardo, “Adapting Collaborative Filtering to Personalized Audio Production,” *AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*, 2014
- **Bongjun Kim** and Woon Seung Yeo, “Probabilistic Prediction of Rhythmic Characteristics in Markov Chain-based Melodic Sequences,” *International Computer Music Conference (ICMC)* 2013

- Seunghun Kim, **Bongjun Kim**, and Woon Seung Yeo, “IAMHear: A Tabletop Interface with Smart Mobile Devices using Acoustic Location,” *Conference on Human Factors in Computing Systems (CHI)* works in progress, 2013
- **Bongjun Kim** and Woon Seung Yeo, “Interactive Mobile Music Performance with Digital Compass,” *the International Conference on New Interfaces for Musical Expression (NIME)*, 2012.
- Minkoo Kang, Kiejn Park, and **Bongjun Kim**, “A Scheduling Alogorithm for Reducing FlexRay Message Response Time using Empty Minislots in Dynamic Segment,” *Digest of Technical Papers, International Conference on Consumer Electronics (ICCE)*, 2010.
- Minkoo Kang, Kiejn Park, and **Bongjun Kim**, “A Static Message Scheduling Algorithm for Reducing FlexRay Network Utilization,” *IEEE International Symposium on Industrial Electronics*, 2009.
- **Bongjun Kim** and Kiejn Park, “Analysis of Frame Delay Probability in the FlexRay Dynamic Segment,” *The IEEE International Conference on Industrial Informatics*, 2008.
- Minkoo Kang, Kiejn Park, and **Bongjun Kim**, “PDO Packing Mechanism for Minimizing CANopen Network Utilization,” *The 34th Annual Conference of the IEEE Industrial Electronics Society*, 2008.
- Minkoo Kang, Kiejn Park, and **Bongjun Kim**, “Determining the Size of a Static Segment and Analyzing the Utilization of In-vehicle FlexRay Network,” *Third International Conference on Convergence and Hybrid Information Technology*, 2008.

NON-REFEREED PUBLICATIONS

- **Bongjun Kim**, “Building Light-Weight Convolutional Neural Networks for Acoustic Scene Classification Using Audio Embeddings,” *the Detection and Classification of Acoustic Scenes and Events (DCASE) challenge*, 2021.
- **Bongjun Kim**, “Convolutional Neural networks with Transfer Learning for Urban Sound Tagging,” *the Detection and Classification of Acoustic Scenes and Events (DCASE) challenge*, 2019.
- **Bongjun Kim**, “Ensemble of Convolutional Neural Networks with Transfer Learning for Audio Classification,” *Making Sense of Sounds Data Challenge*, 2018.

PATENTS

- Zafar Rafii, Markus Cremer, and **Bongjun Kim**. “Methods, Apparatus and Articles of Manufacture to Identify Sources of Network Streaming Services,” US 11049507, June 2021.
- Zafar Rafii, Markus Cremer, and **Bongjun Kim**. “Methods, Apparatus and Articles of Manufacture to Identify Sources of Network Streaming Services,” US 10733998, August 2020.
- Zafar Rafii, Markus Cremer, and **Bongjun Kim**, “Methods and Apparatus to Perform Windowed Sliding Transforms,” US 10629213, April 2020.

AWARDS/HONORS

- 2nd place in IEEE DCASE “Urban Sound Tagging” Challenge (10 teams)** 2019
IEEE Detection and Classification of Acoustic Scenes and Events Challenge
- 2nd place in IEEE DCASE “Making Sense of Sound Data” Challenge (12 teams)** 2018
IEEE Detection and Classification of Acoustic Scenes and Events Challenge
- WASPAA Travel Grant** 2019
IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)
- The NSF Travel Grant** 2019
European Signal Processing Conference (EUSIPCO)
- The SIGCHI Student Travel Grant** 2019
ACM International Conference on Intelligent User Interfaces (IUI)
- The NSF Travel Grant** 2017, 2018
ACM International Conference on Intelligent User Interfaces (IUI)
- Segal Design Cluster Fellowship** 2015 – 2016
Northwestern University, IL, USA

	Outstanding Teaching Assistant Award	2012
	GCT633 Audio and Multimedia Programming Korea Advanced Institute of Science and Technology (KAIST), Korea	
	Best Presentation and Paper Award	2008
	IEEE International Conference on Industrial Informatics	
INVITED TALKS / POSTERS	[Talk] “Interactive Intelligent Systems for Environmental Sound Event Search” Applied AI Conference, St. Paul, MN, USA	Nov 2022
	[Talk] “Building AI models for sound recognition with less annotation effort” AppliedAI meetup, St. Paul, MN, USA	Dec 2020
	[Poster] “Sound Event Detection using Point-labeled Data” Speech and Audio in the Northeast (SANE), Columbia University, NYC, USA	Oct 2019
	[Talk] “A Human-in-the-loop System for Audio Retrieval” Midwest Music and Audio Day, Indiana University, Bloomington, IN, USA	Jun 2019
	[Talk] “A Human-in-the-loop System for Sound Event Detection and Annotation” ACM International Conference on Intelligent User Interfaces (IUI 2019), LA, USA	Mar 2019
	[Poster] “Vocal Imitation Set: a dataset of vocally imitated sound events” Speech and Audio in the Northeast (SANE), Google, Cambridge, MA, USA	Oct 2018
	[Talk] “Interactive Intelligent user interfaces for Music and Audio” HCI@KAIST Seminars, KAIST, Korea	Mar 2018
	[Talk] “Interactive Intelligent user interfaces for Music and Audio” Music and Audio Computing Lab., Culture Technology, KAIST, Korea	Mar 2018
	[Talk] “Interactive Intelligent user interfaces for Music and Audio” Ewha Arts & Science Institute, Ewha Womans University, Korea.	Mar 2018
	[Talk] “A Human-in-the-loop System for Sound Event Detection and Annotation” Haii:Human-AI-Interaction, inc., Yonsei University, Korea	Mar 2018
	[Talk] “I-SED: an Interactive Sound Event Detector” Midwest Music and Audio Day, Evanston, IL, USA	Jun 2017
	[Talk] “I-SED: an Interactive Sound Event Detector” Simons Institute Workshop on Interactive Learning, Berkeley, CA, USA	Feb 2017
	[Talk] “I-SED: an Interactive Sound Event Detector” Gracenote, Emeryville, CA, USA	Feb 2017
EXTERNAL SERVICES	Journal Reviewer	
	IEEE Signal Processing Letters	2020
	IEEE Signal Processing Magazine	2018
	Conference Reviewer	
	International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	2015 – Present
	Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE)	2021 – Present
	International Conference on New Interfaces for Musical Expression (NIME)	2013 – Present
	Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)	2015, 2021
	ACM User Interface Software and Technology Symposium (UIST)	2019
	ACM Multimedia Conference	2016

	Student Volunteer for Conferences	
	ACM International Conference on Intelligent User Interfaces (IUI), Cyprus	2017
	International Conference on Design Computing and Cognition, USA	2016
	Conference Organizing Staff	2013
	International Conference on New Interfaces for Musical Expression (NIME), Korea	
DATA SET	Vocal Imitation Set: vocal imitations of sounds from the AudioSet ontology https://doi.org/10.5281/zenodo.1340763	May 2018
	Fine-grained Vocal Imitation Set https://doi.org/10.5281/zenodo.3538534	Nov 2019
GUEST LECTURES	“Sound object labeling”	Feb 2019
	CS-352: Machine perception of Music and Audio, Northwestern University	
	“Collaborative Filtering”	Oct 2017
	EECS-349: Machine Learning, Northwestern University	
	“Collaborative Filtering”	Oct 2016
	EECS-349: Machine Learning, Northwestern University	
	“Collaborative Filtering”	Oct 2015
	EECS-349: Machine Learning, Northwestern University	
MEDIA	Podcast Guest	Mar 2021
	<i>Conversations on Applied AI - Stories from Experts in Artificial Intelligence</i> https://appliedai.buzzsprout.com/1101152/8222571	
RESEARCH MENTORING	Emma McDonnell Undergraduate at Northwestern Univ. Project: Audio editing interfaces for the visually impaired	2019
	Brian Margolis M.S. at Northwestern Univ. Project: Interactive audio annotation interfaces for multi-class labeling	2018
	Madhav Ghei Undergraduate at Northwestern Univ. Project: A query-by-vocal imitation audio search system	2018
ART PERFORMANCE AND EXHIBITION	Mobile music performance: Where Are You Standing?	May 2012
	Conference on New Interfaces for Musical Expression (NIME), Ann Arbor, USA	
	Interactive sound art installation: Turning Into Sound	Jan 2012
	Daejoen Children Art Gallery, Daejeon, Korea	
	Mobile music performance: ADC Project- Don’t Imagine	Aug 2011
	Arco Art Theater, Seoul, Korea	
	Mobile music performance: Where Are You Standing?	Jun 2011
	Hyundai Card / Capital Inc., Seoul, Korea	