

Bongjun Kim

2233 Tech Drive, Seeley Mudd, Room 3202, Evanston, Illinois, USA
bongjun@u.northwestern.edu • <http://www.bongjunkim.com>

EDUCATION	Ph.D. candidate in Computer Science 2013 – present Interactive Audio Lab (Advisor: Bryan Pardo) Northwestern University, Evanston, IL, USA
	M.S. in Culture Technology 2012 Audio and Interactive Media Lab (Advisor: Woon Seung Yeo) Korea Advanced Institute of Science and Technology (KAIST), Korea
	M.S. in Industrial Engineering 2009 Industrial Informatics Lab (Advisor: Kiejin Park) Ajou University, Suwon, Korea
	B.S. in Industrial and Information System Engineering 2007 Ajou University, Suwon, Korea (Study Abroad, Lulea University of Technology, Lulea, Sweden) Aug 2006 – Dec 2006
RESEARCH INTEREST	Machine Learning - interactive machine learning, deep learning, active learning Audio Signal Processing - sound event detection, audio/music information retrieval Human Computer Interaction - a human-in-the-loop interface, digital musical instrument
RESEARCH EXPERIENCE	Research Assistant Northwestern University, IL, USA Sep 2013 – present <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 <ul style="list-style-type: none">▪ Weakly labeled audio event classification
	Research Intern Gracenote, CA, USA Jun 2017 – Sep 2017 <ul style="list-style-type: none">▪ Audio compression identification
	Research Assistant KAIST, Korea Sep 2010 – Aug 2012 <ul style="list-style-type: none">▪ Mobile media as a musical instrument
TEACHING EXPERIENCE	Teaching Assistant Spring, 2019 CS-349 Machine Learning Northwestern University, IL, USA
	Teaching Assistant Winter, 2019 CS-352 Machine Perception of Music and Audio Northwestern University, IL, USA
	Teaching Assistant Fall quarters, 2014-2017 EECS-349 Machine Learning Northwestern University, IL, USA
	Teaching Assistant Fall, 2012 GCT-633 Audio and Multimedia Programming KAIST, Korea

PUBLICATIONS

- Bryan Pardo, Mark Cartwright, Prem Seetharaman, and **Bongjun Kim**, “Learning to Build Natural Audio Production Interfaces,” Arts, accepted for publication, 2019.
- 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), Surrey, UK, Nov. 2018.
- **Bongjun Kim** and Zafar Rafii, “Lossy Audio Compression Identification,” European Signal Processing Conference (EUSIPCO), Rome, Italy, Sept. 2018.
- **Bongjun Kim** and Bryan Pardo, “A Human-in-the-loop System for Sound Event Detection and Annotation,” ACM Transaction on Interactive Intelligent System (TiiS), Vol. 8, Issue 2, Article 13, June 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), Limassol, Cyprus, Mar. 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), Limassol, Cyprus, Mar. 2017
- **Bongjun Kim** and Bryan Pardo, “Speeding Learning of Personalized Audio Equalization,” International Conference on Machine Learning and Applications (ICMLA), Detroit, USA, 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, Apr. 2013
- **Bongjun Kim** and Woon Seung Yeo, “Interactive Mobile Music Performance with Digital Compass,” In Proceedings of the International Conference on New Interfaces for Musical Expression (NIME), Ann Arbor, USA, 2012.
- Minkoo Kang, Kiejin Park, and **Bongjun Kim**, “A Scheduling Algorithm for Reducing FlexRay Message Response Time using Empty Minislots in Dynamic Segment,” Digest of Technical Papers, International Conference on Consumer Electronics (ICCE), USA, 2010.
- Minkoo Kang, Kiejin Park, and **Bongjun Kim**, “A Static Message Scheduling Algorithm for Reducing FlexRay Network Utilization,” IEEE International Symposium on Industrial Electronics, pp. 1287-1291, Seoul, Korea, 2009.
- **Bongjun Kim** and Kiejin Park, “Probabilistic Delay Model of Dynamic Message Frame in FlexRay Protocol,” IEEE Transaction on Consumer Electronics, Vol. 55, Issue 1, pp. 77-82, Feb. 2009.

- Bumjoo Park, Kiejin 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.
- **Bongjun Kim** and Kiejin Park, “Analysis of Frame Delay Probability in the FlexRay Dynamic Segment,” The 6th IEEE International Conference on Industrial Informatics, pp. 1519-1522, Daejeon, Korea, 2008.
- Minkoo Kang, Kiejin Park, and **Bongjun Kim**, “PDO Packing Mechanism for Minimizing CANopen Network Utilization,” The 34th Annual Conference of the IEEE Industrial Electronics Society, pp.1516-1519, Nov. 2008.
- Minkoo Kang, Kiejin 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, Vol. 2, pp.50-53, Nov. 2008.

PATENTS

- Zafar Rafii, Markus Cremer, and **Bongjun Kim**, “Methods and Apparatus to Perform Windowed Sliding Transforms,” US 20190122678, April 2019.
- Zafar Rafii, Markus Cremer, and **Bongjun Kim**. “Methods, Apparatus and Articles of Manufacture to Identify Sources of Network Streaming Services,” US 20190122673, April 2019.

CHALLENGES

Detection and Classification of Acoustic Scenes and Events (DCASE), 2019

placed 3rd out of 22 systems competing (Task5: Urban Sound Tagging).

- Technical paper: Convolutional Neural Networks with Transfer Learning for Urban Sound Tagging

Making Sense of Sounds Data Challenge, 2018

Placed 3rd out of 23 systems competing (Results were announced at DCASE 2018).

- Technical paper: Ensemble Of Convolutional Neural Networks With Transfer Learning For Audio Classification

ACADEMIC AWARDS

- The SIGCHI Student Travel Grant** 2019
ACM International Conference on Intelligent User Interfaces (IUI) 2019
- The NSF Travel Grant** 2017, 2018
ACM International Conference on Intelligent User Interfaces (IUI) 2017, 2018
- 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

TALKS

- “A Human-in-the-loop System for Audio Retrieval” Jun 2019
Midwest Music and Audio Day, Indiana University, Bloomington, IN, USA
- “A Human-in-the-loop System for Sound Event Detection and Annotation” Mar 2019
ACM International Conference on Intelligent User Interfaces (IUI 2019), LA, USA
- “Interactive Intelligent user interfaces for Music and Audio” Mar 2018
HCI@KAIST Seminars, KAIST, Korea

	“Interactive Intelligent user interfaces for Music and Audio”	Mar 2018
	Music and Audio Computing Lab., Culture Technology, KAIST, Korea	
	“Interactive Intelligent user interfaces for Music and Audio”	Mar 2018
	Ewha Arts & Science Institute, Ewha Womans University, Korea.	
	“A Human-in-the-loop System for Sound Event Detection and Annotation”	Mar 2018
	Haii:Human-AI-Interaction, inc., Yonsei University, Korea	
	“I-SED: an Interactive Sound Event Detector”	Jun 2017
	Midwest Music and Audio Day, Evanston, IL, USA	
	“I-SED: an Interactive Sound Event Detector”	Feb 2017
	Simons Institute Workshop on Interactive Learning, Berkeley, CA, USA	
	“I-SED: an Interactive Sound Event Detector”	Feb 2017
	Gracenote, Emeryville, CA, USA	
PROFESSIONAL EXPERIENCE	Research Engineer Doosan Infracore Co. Ltd, Korea Research process innovation and product lifecycle management	Jul 2009 – Jul 2010
EXTERNAL SERVICES	Journal Reviewer IEEE Signal Processing Magazine	2018
	Conference Reviewer ACM User Interface Software and Technology Symposium (UIST)	2019
	IEEE International Conference on Acoustics, Speech, and Signal Processing	2015-16, 2018-19
	International Conference on New Interfaces for Musical Expression	2013 – 2019
	ACM Multimedia Conference	2016
	IEEE Workshop on Applications of Signal Processing to Audio and Acoustics	2015
	Student Volunteer for Conferences ACM International Conference on Intelligent User Interfaces (IUI), Cyprus	2017
	International Conference on Design Computing and Cognition, USA	2016
	Conference Staff: Administration	2013
	International Conference on New Interfaces for Musical Expression (NIME), Korea	
PERFORMANCE AND EXHIBITION	Mobile music performance: Where Are You Standing?	May 2012
	International 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	
PROGRAMMING AND SOFTWARE SKILLS	<ul style="list-style-type: none"> ▪ Machine learning / Signal processing: Python, PyTorch, scikit-learn, Matlab ▪ Web development: Javascript ▪ Creative coding: Processing, Max/MSP 	