

Bongjun Kim

bongjun@u.northwestern.edu • <http://www.bongjunkim.com>

EDUCATION	Ph.D. candidate in Computer Science	June 2020
	Interactive Audio Lab (Advisor: Bryan Pardo)	
	Northwestern University, Evanston, IL, USA	
	M.S. in Culture Technology	Aug 2012
	Audio and Interactive Media Lab (Advisor: Woon Seung Yeo)	
	Korea Advanced Institute of Science and Technology (KAIST), Korea	
	B.S. / M.S. in Industrial Engineering	Aug 2009
	Industrial Informatics Lab (Advisor: Kiejn Park)	
	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 – Jun 2020
	▪ 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
	▪ Weakly labeled audio event classification	
	Research Intern Gracenote, CA, USA	Jun 2017 – Sep 2017
	▪ Audio compression identification	
	Research Assistant KAIST, Korea	Sep 2010 – Aug 2012
	▪ Mobile media as a musical instrument	
TEACHING EXPERIENCE	Teaching Assistant Northwestern University	Spring, Fall 2019, Winter 2020
	CS-349 Machine Learning	
	Teaching Assistant Northwestern University	Winter, 2019
	CS-352 Machine Perception of Music and Audio	
	Teaching Assistant Northwestern University	Fall quarters, 2014-2017
	EECS-349 Machine Learning	
	Teaching Assistant KAIST, Korea	Fall, 2012
	GCT-633 Audio and Multimedia Programming	

PUBLICATIONS

- Bryan Pardo, Mark Cartwright, Prem Seetharaman, and **Bongjun Kim**, “Learning to Build Natural Audio Production Interfaces,” *Arts*, Vol. 8, Issue 3, 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)*, 2018.
- **Bongjun Kim** and Zafar Rafii, “Lossy Audio Compression Identification,” *European Signal Processing Conference (EUSIPCO)*, 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)*, 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 Algorithm 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, “Probabilistic Delay Model of Dynamic Message Frame in FlexRay Protocol,” *IEEE Transaction on Consumer Electronics*, Vol. 55, Issue 1, pp. 77-82, 2009.

	<ul style="list-style-type: none"> ▪ Bumjoo Park, Kiejn Park, and Bongjun Kim, “A Performance Isolation Mechanism Based on Fuzzy Technique for Web Server Loading Balancing,” <i>The Institute of Electronics, Information and Communication Engineers Transactions on Communications</i>, Vol.E92-B, No.4, 2009. ▪ Bongjun Kim and Kiejn Park, “Analysis of Frame Delay Probability in the FlexRay Dynamic Segment,” <i>The IEEE International Conference on Industrial Informatics</i>, 2008. ▪ Minkoo Kang, Kiejn Park, and Bongjun Kim, “PDO Packing Mechanism for Minimizing CANopen Network Utilization,” <i>The 34th Annual Conference of the IEEE Industrial Electronics Society</i>, 2008. ▪ Minkoo Kang, Kiejn Park, and Bongjun Kim, “Determining the Size of a Static Segment and Analyzing the Utilization of In-vehicle FlexRay Network,” <i>Third International Conference on Convergence and Hybrid Information Technology</i>, 2008. 	
PATENTS	<ul style="list-style-type: none"> ▪ 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	<p>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</p> <p>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</p>	
ACADEMIC AWARDS	<p>WASPAA Travel Grant 2019 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)</p> <p>The NSF Travel Grant 2019 European Signal Processing Conference (EUSIPCO) 2019</p> <p>The SIGCHI Student Travel Grant 2019 ACM International Conference on Intelligent User Interfaces (IUI) 2019</p> <p>The NSF Travel Grant 2017, 2018 ACM International Conference on Intelligent User Interfaces (IUI) 2017, 2018</p> <p>Segal Design Cluster Fellowship 2015 – 2016 Northwestern University, IL, USA</p> <p>Outstanding Teaching Assistant Award 2012 GCT633 Audio and Multimedia Programming Korea Advanced Institute of Science and Technology (KAIST), Korea</p> <p>Best Presentation and Paper Award 2008 IEEE International Conference on Industrial Informatics</p>	
INVITED TALKS / POSTERS	<p>[Poster] “Sound Event Detection using Point-labeled Data” Oct 2019 Speech and Audio in the Northeast (SANE), Columbia University, NYC, USA</p> <p>[Talk] “A Human-in-the-loop System for Audio Retrieval” Jun 2019 Midwest Music and Audio Day, Indiana University, Bloomington, IN, USA</p> <p>[Talk] “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</p>	

	[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
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, 2018-20
	International Conference on New Interfaces for Musical Expression	2013 – 2020
	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 International Conference on New Interfaces for Musical Expression (NIME), Korea	2013
MENTORING	Emma McDonnell Undergraduate at Northwestern Audio editing interfaces for the visually impaired	Jan 2019 – Mar 2019
	Brian Margolis M.S. at Northwestern Interactive audio annotation interfaces for multi-class labeling	Jan 2018 – Mar 2018
	Madhav Ghei Undergraduate at Northwestern A query-by-vocal imitation audio search system	Jan 2018 – May 2018
PERFORMANCE AND EXHIBITION	Mobile music performance: Where Are You Standing? International Conference on New Interfaces for Musical Expression (NIME), Ann Arbor, USA	May 2012

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**

- Machine learning / Signal processing: Python, PyTorch, scikit-learn, Matlab
- Web development: Javascript
- Creative coding: Processing, Max/MSP