Bongjun Kim

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EDUCATION	Ph.D. in Computer Science Interactive Audio Lab (Advisor: Bryan Pardo) Northwestern University, Evanston, IL, USA	June 2020	
	M.S. in Culture TechnologyAudio and Interactive Media Lab (Advisor: Woon Seung Yeo)Korea Advanced Institute of Science and Technology (KAIST), I	Aug 2012 Korea	
	B.S. / M.S. in Industrial Engineering Industrial Informatics Lab (Advisor: Kiejin Park) Ajou University, Suwon, Korea	Aug 2009	
	(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	Data Scientist 3M, MN, USA■ Machine learning for signal processing■ Sound event recognition	Aug 2020 – Present	
	 Research Assistant Northwestern University, IL, USA 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 	Sep 2013 – Jun 2020	
	Research Intern Bosch, CA, USA ■ Weakly labeled audio event classification	Jun 2018 – Aug 2018	
	Research Intern Gracenote, CA, USA ■ Audio compression identification	Jun 2017 – Sep 2017	
	Research Assistant KAIST, Korea ■ Mobile media as a musical instrument	Sep 2010 – Aug 2012	
TEACHING EXPERIENCE	Teaching Assistant Northwestern University CS-349 Machine Learning	Spring, Fall 2019, Winter 2020	
	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	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, Kiejin 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, Kiejin Park, and Bongjun Kim, "A Static Message Scheduling Algorithm for Reducing FlexRay Network Utilization," *IEEE International Symposium on Industrial Electronics*, 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, 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 IEEE International Conference on Industrial Informatics*, 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, 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, 2008.

PATENTS

- Zafar Rafii, Markus Cremer, and **Bongjun Kim**, "Methods and Apparatus to Perform Windowed Sliding Transforms," US 10629213, April 2020.
- 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 3^{rd} 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 3^{rd} 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

WASPAA Travel Grant

2019

2019

IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)

The NSF Travel Grant

European Signal Processing Conference (EUSIPCO) 2019

The SIGCHI Student Travel Grant

2019

ACM International Conference on Intelligent User Interfaces (IUI) 2019

The NSF Travel Grant

ACM International Conference on Intelligent User Interfaces (IUI) 2017, 2018

Segal Design Cluster Fellowship

2015 - 2016

2017, 2018

Northwestern University, IL, USA

Outstanding Teaching Assistant Award

2012

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Korea Advanced Institute of Science and Technology (KAIST), Korea

Best Presentation and Paper Award

2008

IEEE International Conference on Industrial Informatics

INVITED TALKS / POSTERS

[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"

[Talk] 11 Hallan-in-the-loop System for Madio Redieval

Jun 2019

Midwest Music and Audio Day, Indiana University, Bloomington, IN, USA

[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	
	[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	n" 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 Letters IEEE Signal Processing Magazine	2020 2018
	Conference Reviewer ACM User Interface Software and Technology Symposium (UIST) IEEE International Conference on Acoustics, Speech, and Signal Processing International Conference on New Interfaces for Musical Expression ACM Multimedia Conference IEEE Workshop on Applications of Signal Processing to Audio and Acoustics	2019 2015-16, 2018-20 2013 – 2020 2016 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), Ko	2013 orea
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? May 2012 International Conference on New Interfaces for Musical Expression (NIME), Ann Arbor, USA	

Interactive sound art installation: Turning Into Sound

Daejoen Children Art Gallery, Daejeon, Korea

Mobile music performance: ADC Project- Don't Imagine

Arco Art Theater, Seoul, Korea

Mobile music performance: Where Are You Standing?

Jun 2011

REFERENCES Available upon request

Hyundai Card / Capital Inc., Seoul, Korea