

# Bongjun Kim

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

EDUCATION	<b>Ph.D. candidate in Computer Science</b>	2013 – present
	Interactive Audio Lab (Advisor: Bryan Pardo) Northwestern University, Evanston, IL, USA	
	<b>M.S. in Culture Technology</b>	2012
	Audio and Interactive Media Lab (Advisor: Woon Seung Yeo) Korea Advanced Institute of Science and Technology (KAIST), Korea	
	<b>M.S. in Industrial Engineering</b>	2009
RESEARCH INTEREST	Industrial Informatics Lab (Advisor: Kiejn Park) Ajou University, Suwon, Korea	
	<b>B.S. in Industrial and Information System Engineering</b>	2007
	Ajou University, Suwon, Korea	
	(Study Abroad, Lulea University of Technology, Lulea, Sweden)	Aug 2006 – Dec 2006
	<b>Machine Learning</b> - interactive machine learning, deep learning, active learning <b>Audio Signal Processing</b> - sound event detection, audio/music information retrieval <b>Human Computer Interaction</b> - a human-in-the-loop interface, digital musical instrument	
RESEARCH EXPERIENCE	<b>Research Assistant</b>   Northwestern University, IL, USA	Sep 2013 – present
	▪ 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	
	<b>Research Intern</b>   Bosch, CA, USA	Jun 2018 – Aug 2018
	▪ Weakly labeled audio event classification	
	<b>Research Intern</b>   Gracenote, CA, USA	Jun 2017 – Sep 2017
	▪ Audio compression identification	
	<b>Research Assistant</b>   KAIST, Korea	Sep 2010 – Aug 2012
TEACHING EXPERIENCE	▪ Mobile media as a musical instrument	
	<b>Teaching Assistant</b>	Spring, 2019
	CS-349 Machine Learning Northwestern University, IL, USA	
	<b>Teaching Assistant</b>	Winter, 2019
	CS-352 Machine Perception of Music and Audio Northwestern University, IL, USA	
	<b>Teaching Assistant</b>	Fall quarters, 2014-2017
	EECS-349 Machine Learning Northwestern University, IL, USA	
	<b>Teaching Assistant</b>	Fall, 2012
	GCT-633 Audio and Multimedia Programming KAIST, Korea	

## 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. (Accepted)
- **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 (Accepted).
- **Bongjun Kim** and Shabnam Ghaffarzadegan, “Self-supervised Attention Model for Weakly Labeled Audio Event Classification,” European Signal Processing Conference (EUSIPCO), 2019 (Accepted).
- **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, 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), USA, 2010.
- Minkoo Kang, Kiejn 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 Kiejn 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, Kiejn 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.

	<ul style="list-style-type: none"> <li>▪ <b>Bongjun Kim</b> and Kiejn 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.</li> <li>▪ Minkoo Kang, Kiejn Park, and <b>Bongjun Kim</b>, “PDO Packing Mechanism for Minimizing CANopen Network Utilization,” The 34th Annual Conference of the IEEE Industrial Electronics Society, pp.1516-1519, Nov. 2008.</li> <li>▪ Minkoo Kang, Kiejn Park, and <b>Bongjun Kim</b>, “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.</li> </ul>																								
<b>PATENTS</b>	<ul style="list-style-type: none"> <li>▪ Zafar Rafii, Markus Cremer, and <b>Bongjun Kim</b>, “Methods and Apparatus to Perform Windowed Sliding Transforms,” US 20190122678, April 2019.</li> <li>▪ Zafar Rafii, Markus Cremer, and <b>Bongjun Kim</b>, “Methods, Apparatus and Articles of Manufacture to Identify Sources of Network Streaming Services,” US 20190122673, April 2019.</li> </ul>																								
<b>CHALLENGES</b>	<p><b>Detection and Classification of Acoustic Scenes and Events (DCASE), 2019</b>  placed 3<sup>rd</sup> out of 22 systems competing (Task5: Urban Sound Tagging).  ▪ Technical paper: Convolutional Neural Networks with Transfer Learning for Urban Sound Tagging</p> <p><b>Making Sense of Sounds Data Challenge, 2018</b>  Placed 3<sup>rd</sup> 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>																								
<b>ACADEMIC AWARDS</b>	<table> <tr> <td><b>The SIGCHI Student Travel Grant</b></td><td>2019</td></tr> <tr> <td>ACM International Conference on Intelligent User Interfaces (IUI) 2019</td><td></td></tr> <tr> <td><b>The NSF Travel Grant</b></td><td>2018</td></tr> <tr> <td>ACM International Conference on Intelligent User Interfaces (IUI) 2018</td><td></td></tr> <tr> <td><b>The NSF Travel Grant</b></td><td>2017</td></tr> <tr> <td>ACM International Conference on Intelligent User Interfaces (IUI) 2017</td><td></td></tr> <tr> <td><b>Segal Design Cluster Fellowship</b></td><td>2015 – 2016</td></tr> <tr> <td>Northwestern University, IL, USA</td><td></td></tr> <tr> <td><b>Outstanding Teaching Assistant Award</b></td><td>2012</td></tr> <tr> <td>GCT633 Audio and Multimedia Programming Korea Advanced Institute of Science and Technology (KAIST), Korea</td><td></td></tr> <tr> <td><b>Best Presentation and Paper Award</b></td><td>2008</td></tr> <tr> <td>IEEE International Conference on Industrial Informatics</td><td></td></tr> </table>	<b>The SIGCHI Student Travel Grant</b>	2019	ACM International Conference on Intelligent User Interfaces (IUI) 2019		<b>The NSF Travel Grant</b>	2018	ACM International Conference on Intelligent User Interfaces (IUI) 2018		<b>The NSF Travel Grant</b>	2017	ACM International Conference on Intelligent User Interfaces (IUI) 2017		<b>Segal Design Cluster Fellowship</b>	2015 – 2016	Northwestern University, IL, USA		<b>Outstanding Teaching Assistant Award</b>	2012	GCT633 Audio and Multimedia Programming Korea Advanced Institute of Science and Technology (KAIST), Korea		<b>Best Presentation and Paper Award</b>	2008	IEEE International Conference on Industrial Informatics	
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	“Interactive Intelligent user interfaces for Music and Audio” Ewha Arts & Science Institute, Ewha Womans University, Korea.	Mar 2018
	“A Human-in-the-loop System for Sound Event Detection and Annotation” Haii:Human-AI-Interaction, inc., Yonsei University, Korea	Mar 2018
	“I-SED: an Interactive Sound Event Detector” Midwest Music and Audio Day, Evanston, IL, USA	Jun 2017
	“I-SED: an Interactive Sound Event Detector” Simons Institute Workshop on Interactive Learning, Berkeley, CA, USA	Feb 2017
	“I-SED: an Interactive Sound Event Detector” Gracenote, Emeryville, CA, USA	Feb 2017
<b>PROFESSIONAL EXPERIENCE</b>	<b>Research Engineer</b> Research process innovation and product lifecycle management Doosan Infracore Co. Ltd, Korea	Jul 2009 – Jul 2010
<b>EXTERNAL SERVICES</b>	<b>Journal Reviewer</b> IEEE Signal Processing Magazine	2018
	<b>Conference Reviewer</b> 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
	<b>Student Volunteer for Conferences</b> ACM International Conference on Intelligent User Interfaces (IUI), Cyprus	2017
	International Conference on Design Computing and Cognition, USA	2016
	<b>Conference Staff: Administration</b> International Conference on New Interfaces for Musical Expression (NIME), Korea	2013
<b>PERFORMANCE AND EXHIBITION</b>	<b>Mobile music performance: Where Are You Standing?</b> International Conference on New Interfaces for Musical Expression (NIME), Ann Arbor, USA	May 2012
	<b>Interactive sound art installation: Turning Into Sound</b> Daejoen Children Art Gallery, Daejeon, Korea	Jan 2012
	<b>Mobile music performance: ADC Project- Don’t Imagine</b> Arco Art Theater, Seoul, Korea	Aug 2011
	<b>Mobile music performance: Where Are You Standing?</b> Hyundai Card / Capital Inc., Seoul, Korea	Jun 2011
<b>PROGRAMMING AND SOFTWARE SKILLS</b>	<ul style="list-style-type: none"> <li>▪ Machine learning / Signal processing: Python, PyTorch, scikit-learn, Matlab</li> <li>▪ Web development: Javascript</li> <li>▪ Creative coding: Processing, Max/MSP</li> </ul>	