

Minje Kim

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1. POSITIONS HELD

Indiana University, Bloomington, IN

- Assistant Professor and Director of Graduate Studies Aug. 2016 — present
 - + Department of Intelligent Systems Engineering,
Luddy School of Informatics, Computing and Engineering
- Core faculty
 - + Data Science Program
 - + Cognitive Science Program
 - + Center for Algorithms and Machine Learning (CAML)
- Adjunct faculty
 - + Department of Statistics
- Research group lead
 - + Signals and AI Group in Engineering (SAIGE)

Adobe Research, San Francisco, CA

- Research Intern Summers in 2012 — 2015
 - + Creative Technologies Lab

University of Illinois at Urbana-Champaign

- Research Assistant Fall 2011 — Spring 2015
(except for Fall 2014)
 - + Department of Computer Science
- Teaching Assistant Fall 2014, Fall 2015, Spring 2016
 - + Department of Computer Science

ETRI (A National Lab in Korea), Daejeon, Korea

- Researcher Feb. 2006 — Jun 2011
 - + Audio Research Team

POSTECH, Pohang, Korea

- Research Assistant Spring 2004 — Fall 2005
(except for Fall 2004)
 - + Department of Computer Science and Engineering
- Teaching Assistant Fall 2004
 - + Department of Computer Science and Engineering

2. EDUCATION

Ph.D. in Computer Science

May. 2016

- University of Illinois at Urbana-Champaign
- Committee: Paris Smaragdis (Advisor), Rob A. Rutenbar, Mark Hasegawa-Johnson, Gautham Mysore
- Dissertation: “Audio Computing in the Wild: Frameworks for Big Data and Small Computers”

M.S. in Computer Science and Engineering, *Summa Cum Laude*

Feb. 2006

- POSTECH, Pohang, Korea
- Advisor: Seungjin Choi
- Thesis: “Monaural Music Source Separation: Nonnegativity, Sparseness, and Shift-Invariance”

B.E. in Information and Computer Engineering, *Honor*

Feb. 2004

- Ajou University, Suwon, Korea

3. RESEARCH FUNDING

- National Science Foundation (\$499,808)** Oct. 2019 — Sep. 2022
- Title: "FET: Small: A Portable and Intelligent Testing System for Power-efficient and Accurate Foodborne Pathogen Detection"
 - Co-Principal Investigator
- Korean Ministry of Science, ICT and Future Planning (\$1.75M in total; my portion is \$405,000)** Jan. 2017 — Dec. 2021
- Title: "Research on Audio Signal Analysis/Synthesis Technology Based on Machine Learning"
 - Principal Investigator
 - In collaboration with ETRI
- Adobe Systems Inc. (\$5,000)** May. 2019 (unrestricted gift)
- Title: "Inference-time user-controls for speech denoising"
 - Principal Investigator
- Synaptics Inc. (\$150,000)** Aug. 2017 — Jul. 2019
- Title: "To Tackle Heterogeneity in Real-World Audio Processing Tasks by Using Collaborative Machine Learning Models"
 - Principal Investigator
- Intel Corporation (\$180,000)** Jan. 2017 — Dec. 2018
- Title: "Bitwise Deep Recurrent Neural Networks for Efficient Context-Aware Pervasive Systems"
 - Principal Investigator

4. HONORS, AWARDS & FELLOWSHIPS

- Outstanding Teaching Assistant** Fall 2015
- Dept. of Computer Science, UIUC, for the class "Machine Learning for Signal Processing (CS598PS)"
- Finalist for the Best Student Papers on Audio Signal Processing** Jul. 2015
- For the paper published in LVA/ICA 2015 [C023]
- Qualcomm Innovation Fellowship 2015 Finalist** Dec. 2014
- 35 finalists out of 146 submitted proposals from 18 participating universities
- Starkey Signal Processing Research Student Grant** Apr. 2014
- For the paper published in ICASSP 2014 [C017]
- Intel PhD Fellowship Finalist** Feb. 2014
- One of six nominees to represent the University of Illinois in the national competition
- Microsoft Research PhD Fellowship Nominee** Oct. 2013
- Selected as one of three applicants to represent the Dept. of Computer Science in the University of Illinois
- Google ICASSP Student Travel Grant and AASP Best Student Paper** Jun. 2013
- For the paper published in ICASSP 2013 [C012]
- Richard T. Cheng Endowed Fellowship** Aug. 2011 — Jul. 2012
- As an exceptional incoming student, Dept. of Computer Science, UIUC (\$9,999)
- Summa Cum Laude** Feb. 2006
- POSTECH
- Graduate with Honor** Feb. 2004
- Ajou University
- Full Scholarship for the four years of the undergraduate study** Mar. 2000 — Feb. 2004
- As the departmental top-scored student in the university entrance exam

5. TEACHING

Teaching Courses

- "Machine Learning for Signal Processing" (ENGR-E 511, ISE IU), Spring 2020
- "Deep Learning Systems" (ENGR-E 533, ISE IU), Fall 2019
- "Deep Learning Systems" (ENGR-E 533, ISE IU), Spring 2019
- "Machine Learning for Signal Processing" (ENGR-E 511, ISE IU), Fall 2018
- "Deep Learning Systems" (ENGR-E 533, ISE IU), Spring 2018
- "Machine Learning for Signal Processing" (ENGR-E 599, ISE IU), Fall 2017
- "Machine Learning for Signal Processing" (ENGR-E 599, ISE IU), Spring 2017

Teaching Assistant

- "Probability in Computer Science (CS361)," Dept. of Computer Science, UIUC, Spring 2016
- "Machine Learning for Signal Processing (CS598PS, CS598PSO)," Dept. of Computer Science, UIUC, Fall 2015 [**Outstanding Teaching Assistant Award**]
- "Machine Learning for Signal Processing (CS598PS)," Dept. of Computer Science, UIUC, Fall 2014
- "Automata and Formal Languages," POSTECH, Fall 2004

6. ADVISING

PhD Advisees

PhD Candidates

- Sanna Wager (Informatics at IU)
- Kai Zhen (Computer Science and Cognitive Science at IU)

PhD Students

- Sun Woo Kim (ISE at IU)
- Aswin Sivaraman (ISE at IU)
- R. David Badger (ISE at IU)
- Haici Yang (ISE at IU)

PhD Dissertation Committee Member

Past

- Supun Kamburugamuve (Computer Science at IU, now at IU as a software engineer)
- Liang Chen (Informatics at IU, now at Google)
- Jerome Mitchell (Computer Science at IU, now at Intel)
- Lei Le (Computer Science at IU, now at Amazon)

Current

- Yucong Jiang (Computer Science at IU)
- Matthew Setzler (Cognitive Science at IU)
- Pulasthi Supun Wickramasinghe (Computer Science at IU)
- AJ Piergiovanni (Computer Science at IU)
- Elise Jing (Informatics at IU)
- Shrikant Venkataramani (ECE in University of Illinois at Urbana-Champaign)
- Xuan Dong (Computer Science at IU)

PhD Advisory Committee Member (for the Qualifying Exam)

Past

- Pulasthi Supun Wickramasinghe (Computer Science at IU)
- Xuan Dong (Computer Science at IU)
- AJ Piergiovanni (Computer Science at IU)

Current

- Aditya Tandon (Informatics at IU)
- Tyler Balson (ISE at IU)
- Vibhatha Abeykoon (ISE at IU)
- Qian Lou (ISE at IU)
- Donghyeon Yun (Speech and Hearing Science at IU)
- Yingnan Ju (ISE at IU)
- Khandokar Md. Nayem (Computer Science at IU)

Independent Study

- Shivani Firodiya (Computer Science at IU), "Controllable speech enhancement," Fall 2019
- Haici Yang (ISE at IU), "Modular networks for audio processing," Fall 2019
- R. David Badger (ISE at IU), "CNN for RF signal processing," Fall 2019
- Sunwoo Kim (ISE at IU), "Boosted locality sensitive hashing," Fall 2019
- Kai Zhen (Computer Science at IU): "Deep learning for end-to-end speech coding," Spring 2019
- R. David Badger (ISE at IU): "Radio frequency machine learning," Spring 2019
- Sun Woo Kim (ISE at IU): "Bitwise machine learning," Spring 2019
- Fanbo Sun (ISE at IU): "Genetic algorithm for deep learning," Spring 2019
- Kai Zhen (Computer Science at IU): "Deep learning for end-to-end speech coding," Fall 2018
- R. David Badger (ISE at IU): "Radio frequency machine learning," Fall 2018
- Lijiang Guo (ISE at IU): "Variational autoencoders and linear dynamical systems," Fall 2018
- Lijiang Guo (ISE at IU): "Voice activity detection using multimodal models," Spring 2018
- Sun Woo Kim (Computer Science at IU): "Capsule networks," Spring 2018
- Kai Zhen (Computer Science at IU): "Audio coding," Spring 2018
- Aswin Sivaraman (ISE at IU): "Psychoacoustic Models and Neural Networks," Fall 2017
- Lijiang Guo (ISE at IU): "Bitwise Source Separation," Fall 2017
- Sun Woo Kim (Computer Science at IU): "End-to-end models," Fall 2017
- Mrinmoy Maity (Computer Science at IU): "Efficient Hashing," Fall 2017
- Kai Zhen (Computer Science at IU): "Psychoacoustic Models and Neural Networks," Fall 2017
- Brahmendra Sravan Kumar Patibandla (Data Science at IU): "LSTM autoencoders," Summer 2017
- Vibhatha Abeykoon (ISE at IU): "Denoising autoencoders," Spring 2017
- Sanna Wager (Informatics at IU): "Dereverberation in the multi-channel environment," Spring 2017
- Sanna Wager (Informatics at IU): "Concatenative Sound Synthesis," Fall 2016
- Mrinmoy Maity (Computer Science at IU): "Bitwise Recurrent Neural Networks," Fall 2016, Spring 2017
- Lijiang Guo (ISE at IU): "Hashing-based fully bitwise source separation," Spring 2017
- Lijiang Guo (ISE at IU): "Deep Learning and Parallel Computing," Fall 2016
- Zhaozhi Zhang (ISE at IU): Coursework advisor, Fall 2016

Mentoring Undergraduate Thesis Research at UIUC

- Aswin Sivaraman: "Quantization Error Tolerance in Hashed Audio Spectra," Fall 2014 – Spring 2015
- Vinay Maddali: "Multichannel Audio Source Separation Using Probabilistic Latent Component Sharing," Fall 2012 – Spring 2013
- Igor Fedorov: "Timbre Exchange Among Speakers Using Source-Filter Model," Fall 2011 – Spring 2012

7. PROFESSIONAL ACTIVITIES

IEEE

- IEEE Audio and Acoustic Signal Processing Technical Committee (2018-2020), *Member*
- IEEE, *Senior Member*
- IEEE Signal Processing Society, *Member*

Conference Chair

- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2020, "Audio and Speech Source Separation," *Area Sub-chair*
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2019, "AASP-L3: Source Separation and Speech Enhancement I," *Session Chair*
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2019, "Audio and Speech Source Separation," *Area Sub-chair*
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2018, "AASP-L1: Deep Learning-based Speech Separation," *Session Chair*
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2017, "AASP-L3: Deep Learning for Source Separation and Enhancement I," *Session Chair*

Journal Editor

- European Association for Signal Processing (EURASIP) Journal on Audio, Speech, and Music Processing, *Associate Editor*

Journal Reviewer

- IEEE/ACM Transactions on Audio, Speech, and Language Processing
- IEEE Signal Processing Magazine
- The Journal of the Acoustical Society of America (JASA)
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Signal Processing
- IEEE Signal Processing Letters
- Elsevier Neurocomputing
- Elsevier Signal Processing
- Elsevier Speech Communication

Conference Reviewer and Program Committee Member

- Neural Information Processing Systems (NIPS)
- International Conference on Machine Learning (ICML)
- International Conference on Learning Representations (ICLR)
- International Joint Conference on Artificial Intelligence (IJCAI)
- Association for Advances in Artificial Intelligence (AAAI) Conferences on Artificial Intelligence
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
- IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)
- Asian Conference on Machine Learning (ACML)
- The International Society for Music Information Retrieval Conference (ISMIR)
- European Signal Processing Conference (EUSIPCO)
- IEEE International Workshop on Multimedia Signal Processing (MMSP)
- International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA)
- Digital Audio Effects (DAFx)
- Joint Conference of Workshops on Statistical and Perceptual Audition and Speech Communication with Adaptive Learning (SAPA-SCALE)
- IEEE Global Conference on Signal and Information Processing (GlobalSIP)

Organizing Committee

- Midwest Music and Audio Day, Bloomington, IN, Jun. 27, 2019
- INTEL® Nervana™ AI Academy for Students, Bloomington, IN, Oct. 20, 2017

Internal Services at IU

- Director of Graduate Studies (ISE), 2018-Present
- Data Science Curriculum Committee (Data Science), 2017-present
- Data Science Admission Committee (Data Science), 2017-2018

- Structure Committee (SICE at IU), 2016-2017
- Graduate Curriculum Committee (ISE), 2017-present
- IT Committee (SICE), 2017-present

8. PUBLICATION

International Journal Articles

- [J005] Hongwei Wang, Yunlong Gao, Shaohan Hu, Shiguang Wang, Renato Mancuso, **Minje Kim**, Poliang Wu, Lu Su, Lui Sha, and Tarek Abdelzaher, "On Exploiting Structured Human Interactions to Enhance Sensing Accuracy in Cyber-physical Systems," *ACM Transactions on Cyber-Physical Systems*, vol. 1, no. 3, article 16, pp. 16:1-16:19, Jul. 2017.
- [J004] Po-Sen Huang, **Minje Kim**, Mark Hasegawa-Johnson, and Paris Smaragdis, "Joint Optimization of Masks and Deep Recurrent Neural Networks for Monaural Source Separation," *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 23, no. 12, pp. 2136-2147, Dec. 2015.
- [J003] **Minje Kim** and Paris Smaragdis, "Mixtures of Local Dictionaries for Unsupervised Speech Enhancement," *IEEE Signal Processing Letters*, vol. 22, no. 3, pp. 288-292, Mar. 2015
(Also presented in ICASSP 2015).
- [J002] **Minje Kim**, Jiho Yoo, Kyeongok Kang and Seungjin Choi, "Nonnegative Matrix Partial Co-Factorization for Spectral and Temporal Drum Source Separation," *IEEE Journal of Selected Topics in Signal Processing*, vol. 5, no. 6, pp. 1192-1204, Oct. 2011.
- [J001] Seungkwon Beack, Taejin Lee, **Minje Kim**, and Kyeongok Kang, "An Efficient Time-Frequency Representation for Parametric-Based Audio Object Coding," *ETRI Journal*, vol. 33, no. 6, pp. 945-948, Dec. 2011.

Refereed International Conference Proceedings

- [C039] Qian Lou, Feng Guo, **Minje Kim**, Lantao Liu, and Lei Jiang, "AutoQ: Automated Kernel-Wise Neural Network Quantization", *International Conference on Learning Representations (ICLR)*, Addis Ababa, Ethiopia, 2020.
- [C038] Kai Zhen, Jongmo Sung, Mi Suk Lee, Seungkwon Beack, and **Minje Kim**, "Cascaded Cross-Module Residual Learning towards Lightweight End-to-End Speech Coding," In Proc. *Annual Conference of the International Speech Communication Association (Interspeech)*, Graz, Austria, September 15-19, 2019.
- [C037] Kai Zhen, Jongmo Sung, Mi Suk Lee, Seungkwon Beack, and **Minje Kim**, "Cascaded Cross-Module Residual Learning towards Lightweight End-to-End Speech Coding," In Proc. *Annual Conference of the International Speech Communication Association (Interspeech)*, Graz, Austria, September 15-19, 2019.
- [C036] Geoffrey Fox, James A. Glazier, JCS Kadupitiya, Vikram Jadhao, **Minje Kim**, Judy Qiu, James P. Sluka, Endre Somogyi, Madhav Marathe, Abhijin Adiga, Jiangzhuo Chen, Oliver Beckstein, Shantenu Jha, "Learning Everywhere: Pervasive Machine Learning for Effective High-Performance Computation," in Proc. *IEEE International Workshop on High-Performance Big Data, Deep Learning, and Cloud Computing (HPBDC)*, Rio de Janeiro, Brazil, May 20, 2019.
- [C035] Vibhatha Abeykoon, Geoffrey Fox, and **Minje Kim**, "Performance Optimization on Model Synchronization in Parallel Stochastic Gradient Descent Based SVM," in Proc. *High Performance Machine Learning Workshop (HPML)*, Cyprus, May 14, 2019.
- [C034] Sunwoo Kim, Mrinmoy Maity, and **Minje Kim**, "Incremental Binarization On Recurrent Neural Networks For Single-Channel Source Separation," in Proc. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Brighton, UK, May 12-17, 2019.
- [C033] Sanna Wager, George Tzanetakis, Stefan Sullivan, Cheng-i Wang, John Shimmin, **Minje Kim**, and Perry Cook, "Intonation: A Dataset of Quality Vocal Performances Refined by Spectral Clustering on Pitch Congruence," in Proc. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Brighton, UK, May 12-17, 2019.

- [C032] Michael Bechtel, Elise McEllhiney, *Minje Kim*, and Heechul Yun (2018), "DeepPicar: A Low-cost Deep Neural Network-based Autonomous Car," in Proc. of the 24th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), Hakodate, Japan, Aug. 28-31, 2018.
- [C031] Sanna Wager and *Minje Kim* (2018), "Collaborative speech dereverberation: regularized tensor factorization for crowdsourced multi-channel recordings," in Proc. of the 26th European Signal Processing Conference (EUSIPCO), Rome, Italy, Sep. 3-7, 2018.
- [C030] Matt Setzler, Tyler Marghetis, and *Minje Kim* (2018), "Creative leaps in musical ecosystems: early warning signals of critical transitions in professional jazz," in Proc. of the 40th Annual Conference of the Cognitive Science Society (CogSci), Madison, WI, July 25-28, 2018.
- [C029] Lijiang Guo and *Minje Kim*, "Bitwise Source Separation on Hashed Spectra: An Efficient Posterior Estimation Scheme Using Partial Rank Order Metrics," in Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Calgary, Canada, April 15-20, 2018.
- [C028] *Minje Kim* and Paris Smaragdis, "Bitwise Neural Networks for Efficient Single-Channel Source Separation," in Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Calgary, Canada, April 15-20, 2018.
- [C027] Lei Jiang, *Minje Kim*, Wujie Wen and Danghui Wang, "XNOR-POP: A Processing-in-Memory Architecture for Binary Convolutional Neural Networks in Wide-IO2 DRAMs," In Proc. IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED), Taipei, Taiwan, July 24-26, 2017.
- [C026] *Minje Kim*, "Collaborative Deep Learning for Speech Enhancement: A Run-Time Model Selection Method Using Autoencoders," In Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), New Orleans, LA, March 5-9, 2017.
- [C025] Sanna Wager, Liang Chen, *Minje Kim*, and Christopher Raphael, "Towards Expressive Instrument Synthesis Through Smooth Frame-By-Frame Reconstruction: From String To Woodwind," in Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), New Orleans, LA, March 5-9, 2017.
- [C024] *Minje Kim* and Paris Smaragdis, "Efficient Neighborhood-Based Topic Modeling for Collaborative Audio Enhancement on Massive Crowdsourced Recordings," In Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Shanghai, China, March 20-25, 2016.
- [C023] *Minje Kim* and Paris Smaragdis, "Adaptive Denoising Autoencoders: A Fine-tuning Scheme to Learn from Test Mixtures," In Proc. International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA), Liberec, Czech Republic, August 25-28, 2015.
[Nominated for the Best Student Paper on Audio Signal Processing]
- [C022] *Minje Kim*, Paris Smaragdis, and Gautham J. Mysore, "Efficient Manifold Preserving Audio Source Separation Using Locality Sensitive Hashing," In Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, Australia, April 19-24, 2015.
- [C021] Yunlong Gao, Shaohan Hu, Renato Mancuso, Hongwei Wang, *Minje Kim*, Poliang Wu, Lu Su, Lui Sha, and Tarek Abdelzaher, "Exploiting Structured Human Interactions to Enhance Estimation Accuracy in Cyber-physical Systems," In Proc. International Conference on Cyber-Physical Systems (ICCPS), Seattle, WA, April 14-16, 2015.
- [C020] *Minje Kim* and Paris Smaragdis, "Efficient Model Selection for Speech Enhancement Using a Deflation Method for Nonnegative Matrix Factorization," In Proc. IEEE Global Conference on Signal and Information Processing (Global SIP), Atlanta, GA, December 3-5, 2014.
- [C019] Po-Sen Huang, *Minje Kim*, Mark Hasegawa-Johnson, and Paris Smaragdis, "Singing-Voice Separation From Monaural Recordings Using Deep Recurrent Neural Networks," In Proc. International Society for Music Information Retrieval Conference (ISMIR), Taipei, Taiwan, Oct. 27-31, 2014.
- [C018] Ding Liu, Paris Smaragdis, and *Minje Kim*, "Experiments on Deep Learning for Speech Denoising," In Proc. Annual Conference of the International Speech Communication Association (Interspeech), Singapore, September 14-18, 2014.

- [C017] Po-Sen Huang, **Minje Kim**, Mark Hasegawa-Johnson, and Paris Smaragdis, "Deep Learning for Monaural Speech Separation," In Proc. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Florence, Italy, MAY 4-9, 2014.
[Winner of the Starkey Signal Processing Research Student Grant]
- [C016] Johannes Traa, **Minje Kim**, Paris Smaragdis, "Phase and Level Difference Fusion for Robust Multichannel Source Separation," In Proc. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Florence, Italy, MAY 4-9, 2014.
- [C015] Paris Smaragdis and **Minje Kim**, "Non-Negative Matrix Factorization for Irregularly-Spaced Transforms," In Proc. *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, New Paltz, NY, Oct. 20 – 23, 2013.
- [C014] **Minje Kim** and Paris Smaragdis, "Single Channel Source Separation Using Smooth Nonnegative Matrix Factorization with Markov Random Fields," In Proc. *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, Southampton, UK, Sep. 22 – 25, 2013.
- [C013] **Minje Kim** and Paris Smaragdis, "Manifold Preserving Hierarchical Topic Models for Quantization and Approximation," In Proc. *International Conference on Machine Learning (ICML)*, Atlanta, Georgia, Jun. 16 – 21, 2013.
- [C012] **Minje Kim** and Paris Smaragdis, "Collaborative Audio Enhancement Using Probabilistic Latent Component Sharing," In Proc. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Vancouver, Canada, May 26 – 31, 2013.
[Winner of the Google ICASSP Student Travel Grant]
[Best Student Paper Award in the Audio and Acoustic Signal Processing (AASP) area]
- [C011] C. Zhang, G.G. Ko, J.W. Choi, S.-N. Tsai, **Minje Kim**, A.G. Rivera, R. Rutenbar, P. Smaragdis, M.S. Park, V. Narayanan, H. Xin, O. Mutlu, B. Li, L. Zhao, M. Chen, and R. Iyer, "EMERALD: Characterization of Emerging Applications and Algorithms for Low-power Devices," In Proc. *IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)*, Austin, TX, Apr. 21 – 23, 2013.
- [C010] **Minje Kim**, Paris Smaragdis, Glenn G. Ko, and Rob A. Rutenbar, "Stereophonic Spectrogram Segmentation Using Markov Random Fields," In Proc. *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, Santander, Spain, Sep. 23 – 26, 2012.
- [C009] **Minje Kim**, Seungkwon Beack, Keunwoo Choi and Kyeongok Kang, "Gaussian Mixture Model for Singing Voice Separation from Stereophonic Music," In Proc. *Audio Engineering Society 43th Conference (AES Conference)*, Pohang, Korea, Sep. 29 – Oct. 1, 2011.
- [C008] **Minje Kim**, Jiho Yoo, Kyeongok Kang and Seungjin Choi, "Blind Rhythmic Source Separation: Nonnegativity and Repeatability," In Proc. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Dallas, TX, Mar. 14 – 19, 2010.
- [C007] Jiho Yoo, **Minje Kim**, Kyeongok Kang and Seungjin Choi, "Nonnegative Matrix Partial Co-Factorization for Drum Source Separation," In Proc. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Dallas, TX, Mar. 14 – 19, 2010.
- [C006] **Minje Kim**, Seungkwon Beack, Taejin Lee, Daeyoung Jang and Kyeongok Kang, "Segmented Dimensionality Reduction Coding on Frequency Domain Signal," In Proc. *Audio Engineering Society 34th Conference (AES Conference)*, Jeju Island, Korea, Aug. 28 – 30, 2008.
- [C005] **Minje Kim**, Minsik Park, Seung-jun Yang, Ji Hoon Choi and Han-kyu Lee, "System Aspects of TV-Anytime Metadata Codec in a Uni-directional Broadcasting Environment," In Proc. *IEEE International Symposium on Consumer Electronics (ISCE)*, Dallas, TX, Jun. 20 – 23, 2007.
- [C004] Seung-jun Yang, Jung Won Kang, Dong-San Jun, **Minje Kim**, and Han-kyu Lee, "TV-Anytime Metadata Authoring Tool for Personalized Broadcasting Services," In Proc. *IEEE International Symposium on Consumer Electronics (ISCE)*, Dallas, TX, Jun. 20-23, 2007.
- [C003] **Minje Kim** and Seungjin Choi, "ICA-based Clustering for Resolving Permutation Ambiguity in Frequency-Domain Convolutional Source Separation," In Proc. *IEEE International Conference on Pattern Recognition (ICPR)*, Hong Kong, Aug. 20 – 24, 2006.

- [C002] *Minje Kim* and Seungjin Choi, "Monoaural Music Source Separation: Sparseness, Nonnegativity and Shift-invariance," In Proc. *International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA)*, pp. 617-624, Charleston, SC, Mar. 5 – 8, 2006. (LNCS 3889).
- [C001] *Minje Kim* and Seungjin Choi, "On Spectral Basis Selection for Single Channel Polyphonic Music Separation," In Proc. *International Conference on Artificial Neural Networks (ICANN)*, Warsaw, Poland, Sep. 11 – 15, 2005. (LNCS 3697).

Book Chapters

- [B001] *Minje Kim* and Paris Smaragdis, "Efficient Source Separation Using Bitwise Neural Networks," Audio Source Separation, Springer International Publishing, 2018.
DOI: 10.1007/978-3-319-73031-8, ISBN: 978-3-319-73031-8 (E-book), 978-3-319-73030-1 (Hard-cover)
[Amazon][Springer Website]

The Other Papers

- [M002] *Minje Kim* and Paris Smaragdis, "Bitwise Neural Networks," *International Conference on Machine Learning (ICML) Workshop on Resource Efficient Machine Learning*, Lille, France, Jul. 6-11, 2015
- [M001] *Minje Kim* and Paris Smaragdis, "Collaborative Audio Enhancement: Crowdsourced Audio Recording," *Neural Information Processing Systems (NIPS) Workshop on Crowdsourcing and Machine Learning*, Montreal, Canada, Dec. 8-13, 2014

9. SELECTED TALKS & POSTERS

- [Invited Talk] Dept. of Electrical and Computer Engineering, University of Rochester, Rochester, NY, Dec. 11, 2019
- [Invited Talk] Amazon Lab126, Sunnyvale, CA, Dec. 6, 2019
- [Talk/Workshop] Midwest Music and Audio Day, Bloomington, IN, Jun. 27, 2019
- [Poster/workshop] "Bitwise Source Separation on Hashed Spectra: An Efficient Posterior Estimation Scheme Using Partial Rank Order Metrics," Speech and Audio in the Northeast (SANE) 2018, Oct. 18, 2018
- [Talk/Workshop] Seventh Annual Midwest Cognitive Science Conference, Bloomington, IN, May 12, 2018
- [Poster/workshop] U.S. Air Force Science and Technology 2030, Bloomington, IN, May 10, 2018
- [Invited Talk] Data Science Online Immersion Weekend, Indiana University, Bloomington, IN, Mar. 3, 2018
- [Invited Talk] Intelligent & Interactive Systems Talk Series, School of Informatics and Computing, Indiana University, Bloomington, IN, Feb. 5, 2018
- [Poster/workshop] "Bitwise Source Separation on Hashed Spectra: An Efficient Posterior Estimation Scheme Using Partial Rank Order Metrics," NIPS 2017 workshop on Machine Learning for Audio, Dec. 8, 2017
- [Poster/workshop] "Bitwise Neural Networks for Efficient SingleChannel Source Separation," NIPS 2017 workshop on Machine Learning for Audio, Dec. 8, 2017
- [Poster/workshop] IEEE EnCON, Indiana University, Bloomington, IN, Nov. 10-11, 2017
- [Invited Talk] Int'l Conf. on Parallel Architectures and Compilation Techniques (PACT) Workshop on Computational Intelligence and Soft Computing (CISC 2017), Sep. 10, 2017
- [Invited Talk] Intel Labs., Hillsboro, OR, Aug. 16, 2017
- [Talk/project] CRC Human Computer Interaction Committee Academic Project Review, Intel Corp., Hillsboro, OR, Aug. 16, 2017
- [Talk/workshop] Midwest Music and Audio Day, Northwestern University, Evanston, IL, Jun. 23, 2017
- [Talk/workshop] Applied Research Institute Sensor Fusion Workshop, Indiana University, Bloomington, IN, Jun. 2, 2017
- [Talk/workshop] Indiana University Bloomington/Bielefeld University Cognitive Interaction Technology Workshop, Indiana University, Bloomington, IN, May 17, 2017
- [Talk/workshop] IBM CIO's visit to IU, May 3, 2017
- [Talk/seminar] Department of Statistics Colloquium Series, Indiana University, Bloomington, IN, Oct. 31, 2016

- [Talk/seminar] Intelligent & Interactive Systems Talk Series, School of Informatics and Computing, Indiana University, Bloomington, IN, Oct. 31, 2016
- [Invited Talk] Graduate School of Culture Technology, KAIST, Daejeon, Korea, Oct. 7, 2016
- [Invited Talk] Graduate School of Convergence Science and Technology, Seoul National University, Suwon, Korea, Oct. 6, 2016
- [Invited Talk] Qualcomm Korea, Seoul, Korea, Oct. 6, 2016
- [Talk] Worldwide Youth in Science and Engineering (WYSE) Summer Camp: Discover Engineering, Urbana, IL, Jun. 27, 2016
- [Invited Talk] Hanyang University, Seoul, Korea, Apr. 6, 2016
- [Invited Talk] ETRI, Daejeon, Korea, Mar. 29, 2016
- [Invited Talk] Naver Labs, Seongnam, Korea, Mar. 29, 2016
- [Talk] Google, Mountain View, CA, Mar. 9, 2016
- [Talk] School of Informatics and Computing, Indiana University, Bloomington, IN, Feb. 29, 2016
- [Talk] Lyric Labs, Analog Devices, Cambridge, MA, Feb. 23, 2016
- [Talk/workshop] Coordinated Science Laboratory Student Conference, Urbana, Feb. 18-19, 2016
- [Talk] Adobe Research, San Francisco, CA, Feb. 10, 2016
- [Talk] IBM T. J. Watson Research Center, Yorktown Heights, NY, Jan. 7, 2016
- [Poster/workshop] Speech and Audio in the Northeast (SANE) Workshop, New York, NY, Oct. 22, 2015
- [Talk/seminar] Beckman Graduate Seminar, Urbana, IL, Oct. 14, 2015
- [Poster/workshop] Speech and Audio in the Northeast (SANE) Workshop, New York, NY, Oct. 24, 2013
- [Talk] Lyric Labs, Analog Devices, Cambridge, MA, Jun. 12, 2012
- [Talk/project] Department of Electrical and Computer Engineering, UIUC (with visitors from Sony, Japan), May 10, 2012
- [Poster/project] Intel Science and Technology Center – Embedded Computing (ISTC-EC) Workday, Apr. 4-5, 2012
- [Invited Talk] Sejong University, Seoul, Korea, Jun. 10, 2011

10. SELECTED PATENTS

Named in more than 50 (20 US) patent applications, 17 of which are US patents issued.

- Minje Kim et al, "Irregularity detection in music," US Patent No. 9,734,844, 2017
- Minje Kim et al, "Automatic detection of dense ornamentation in music," US Patent No. 9,514,722, 2016
- Minje Kim et al, "Pattern Matching of Sound Data Using Hashing," US Patent No. 9,449,085, 2016
- Minje Kim et al, "Irregular Pattern Identification Using Landmark Based Convolution," US Patent Application (pending), 2013
- Minje Kim et al, "Multichannel Sound Source Identification and Localization," US Patent No. 9,351,093, 2016
- Minje Kim et al, "Sound Data Identification," US Patent No. 9,215,539, 2015.
- Minje Kim et al, "Method and System for Separating Music Sound Source Using Time and Frequency Characteristics," US Patent No. 8,563,842, 2013
- Minje Kim et al, "Method and System for Separating Music Sound Source," US Patent No. 8,340,943, 2012
- Minje Kim et al, "Method and system for separating musical sound source without using sound source database," US Patent No. 8,080,724, 2011
- Minje Kim et al, "Method and System for Unified Source Separation," Korea Patent No. 1013754320000, 2014, US Patent Application (Pending), 2011
- Minje Kim et al, "Apparatus and method for separating sound source," Korea Patent No. 1015274410000, 2015