

# Sang Won Lee

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Medium: <https://sangwlee.medium.com/>

## Areas of specialization

Human Computer Interaction (HCI), Computer Supported Cooperative Work and Social Computing (CSCW), Computer Music, Human Computation and Crowdsourcing

## Education

- 2018 PHD in Computer Science, University of Michigan, Ann Arbor, MI  
Thesis : Improving User Involvement Through Live, Collaborative Creation  
(Dissertation Committee:Walter Lasecki(Chair), Georg Essl(Co-chair), Mark Ackerman, Steve Oney)
- 2014 MASTER in Computer Science, University of Michigan, Ann Arbor, MI
- 2012 MASTER in Music Technology, Georgia Tech, Atlanta, GA  
(Thesis Committee : Jason Freeman (Chair), Gil Weinberg, & Ellen Yi-Luen Do)
- 2010 MASTER in Management Science and Engineering, Stanford University, Stanford, CA
- 2007 BACHELOR in Industrial Engineering, Seoul National University, Seoul, South Korea


## Honors & awards

- Sep. 2020 Received **Best Short Paper**, at VL/HCC 2020 for paper “EdCode: Towards Personalized Support at Scale for Remote Assistance in CS Education” .
- Feb. 2017 Received **Rackham Pre-doctoral Fellowship**, University of Michigan. Fellowships include a stipend of \$32,640, candidacy tuition and registration fees for twelve months.
- Dec. 2016 Selected as a finalist of Adobe Research Fellowship (2017).
- Nov. 2016 Selected as a finalist of Annual CSE Graduate Honors Competition, Computer Science and Engineering, University of Michigan, Ann Arbor, MI.

- Sep. 2016 *Live Writing: Gloomy Streets* Received **ICMA Music Award** (student) at the International Computer Music Conference (over 600 submissions)
- Feb. 2015 *Aural Cavity* selected as a semi-finalist in Guthman Musical Instrument Competition 2015.
- May 2013 *Improvisation on a live-coded mobile musical instrument using urMus* Received the 3rd prize in Live Programming Demo Contest in International Conference on Software Engineering (**ICSE**) 2013
- Sep. 2012 Received **CSE Fellowship**, University of Michigan. Fellowships include monthly stipend, tuition and registration fees for twelve months. (\$71,854)
- Nov. 2011 *LOLC* performance awarded **Best Artwork** in ACM Creativity and Cognition Conference 2011
- Nov. 2011 *Crossole* chosen as a finalist in Georgia Tech Research and Innovation Conference (GTRIC).

## Conference Publications

*Note about conference papers: in Human-Computer Interaction and Computer Music, conference proceedings are the preferred publication venues. Top tier conferences such CHI, UIST, CSCW, and NIME are very selective (typically less than 25% acceptance ratio for oral presentation).*

- [P.35] Bhuiyan, Md M., Horning, M., **Lee, S. W.**, Mitra T. “Designing Transparency Cues in Online News Platforms to Promote Trust: Journalists’ & Consumers’ Perspectives”, In Proceedings of the International ACM Conference on Computer Supported Cooperative Work and Social Computing (**CSCW**). virtual, 2021.
- [P.34] Media Through Nudges Bhuiyan, Md M., Whitley, H., Horning, M., **Lee, S. W.**, Mitra T., “Nudge-Cred: Supporting News Credibility Assessment on Social Media Through Nudges”, In Proceedings of the International ACM Conference on Computer Supported Cooperative Work and Social Computing (**CSCW**). virtual, 2021.
- [P.33] Movassagh, M. R., Roofigari-Esfahan, N., **Lee, S. W.**, Evia, C., Hicks, D., Jeon, M., “Human Factors Considerations for Teaming between Construction Workers and Voice-based Intelligent Virtual Agent (VIVA)” the International Annual Meeting of the Human Factors and Ergonomics Society (**HFES**), Baltimore, MD, 2021.
- [P.32] Hickman, M., Pasad, V., Sanghavi, H., Thebault-Spieker, J., **Lee, S. W.** “Understanding Wikipedia practices through Hindi, Urdu, and English Takes on an Evolving Regional Conflict”, In Proceedings of the International ACM Conference on Computer Supported Cooperative Work and Social Computing (**CSCW**). virtual, 2021.
- [P.31] Park, S. Y., **Lee, S. W.** “Lost in Co-curation: Uncomfortable Interactions and the Role of Communication in Collaborative Music Playlists”, In Proceedings of the International ACM Conference on Computer Supported Cooperative Work and Social Computing (**CSCW**). virtual, 2021.
- [P.30] Chen, Y., **Lee, S. W.**, Oney, S. “CoCapture: Effectively Communicating UI Behaviors on Existing Websites by Demonstrating and Remixing”, In Proceedings of the ACM Conference on Human Factors in Computing Systems (**CHI**) virtual, 2021.
- [P.29] Grudinschi, M., Norland, K., **Lee, S. W.**, Lim, S. “Task Analysis on Yoga Poses Toward a Wearable Sensor-based Learning System for Users with Visual Impairment” the International Annual Meeting of the Human Factors and Ergonomics Society (**HFES**), Chicago, IL, 2020.
- [P.28]  Chen, Y., Herskovitz, J., Matute, G., Wang, A., **Lee, S. W.**, Lasecki, W. S., Oney, S. “EdCode: Towards Personalized Support at Scale for Remote Assistance in CS Education”, IEEE Symposium on

Visual Languages and Human-centric Computing (VL/HCC), Dunedin, New Zealand. 2020.

- [P.27] Hu, D., **Lee, S. W.**, “ScreenTrack: Using a Visual History of a Computer Screen to Retrieve Documents and Web Pages”, In Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI) Honolulu, HI 2020. [24.3% Acceptance Rate]
- [P.26] **Lee, S. W.**, Willette, A., Koutra, D., Lasecki, W.S. “The Effect of Social Interaction on Facilitating Audience Participation in a Live Music Performance”, In Proceedings of the ACM Conference on Creativity & Cognition (C&C), San Diego, CA, 2019. [29.7% Acceptance Rate]
- [P.25] **Lee, S. W.**, “Show Them My Screen: Mirroring a Laptop Screen as an Expressive and Communicative Means in Computer Music”, In Proceedings of the International Conference on New interface for Musical Expression (NIME), Porto Alegre, Brazil, 2019.
- [P.24] **Lee, S. W.**, Krosnick, Park, S. Y., R., Keelean, B., Vaidya, S., O’Keefe, S. D., Lasecki, W.S. “Exploring Real-time Collaboration in Crowd-Powered Systems Through a UI Design Tool”, In Proceedings of the International ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW). New York, NY. 2018 [25.6% Acceptance Rate]
- [P.23] Krosnik, R., **Lee, S. W.**, Lasecki, W., Oney, S. “Expresso: Building Responsive Interfaces with Keyframes”, IEEE Symposium on Visual Languages and Human-centric Computing (VL/HCC), Lisbon, Portugal. 2018. [29% Acceptance Rate]
- [P.22] **Lee, S. W.**, Zhang, Y., Wong, I., Yang Y., O’Keefe, S., Lasecki, W.S. “SketchExpress: Remixing Animations For More Effective Crowd-Powered Prototyping Of Interactive Interfaces”, In Proceedings of the ACM Symposium on User Interface Science and Technology (UIST). Quebec City, Canada. 2017. [22.5% Acceptance Rate]
- [P.21] Essl, G., **Lee, S. W.**, “Mobile Devices as Musical Instruments - State of the Art and Future Prospects”, In Proceedings of the International Symposium on Computer Music Multidisciplinary Research (CMMR), Matosinhos, Porto, Portugal, 2017.
- [P.20] **Lee, S. W.**, Bang, J., Essl, G., “Live Coding YouTube: Organizing Streaming Media for an Audiovisual Performance”, In Proceedings of the International Conference on New interface for Musical Expression (NIME), Copenhagen, Denmark, 2017. [24% Acceptance Rate]
- [P.19] Chen, Y., **Lee, S. W.**, Xie, Y., Yang, Y., Lasecki, W., Oney, S. “Codeon: On-Demand Software Development Assistance” In Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI) Denver, CO, 2017. [25% Acceptance Rate]
- [P.18] **Lee, S. W.**, Scott, J. “Word Level Lyrics-Audio Synchronization Using Separated Vocals”, International Conference on Acoustics, Speech and Signal Processing (ICASSP). New Orleans, 2017.
- [P.17] **Lee, S. W.**, Essl, G. “Live Coding the Audience Participation” In Proceedings of the International Conference on Live Coding (ICLC), Hamilton, Canada, 2016.
- [P.16] Blackwell, A. F., Cox, G., **Lee, S. W.** “Live Writing the Live Coding Book” In Proceedings of the International Conference on Live Coding (ICLC), Hamilton, Canada, 2016.
- [P.15] **Lee, S. W.**, Essl, G., Martinez, M., “Live Writing: Writing as a Real-time Audiovisual Performance” In Proceedings of the International Conference on New interface for Musical Expression (NIME), Brisbane, Australia, 2016.
- [P.14] Carvalho, A. D., **Lee, S. W.**, Essl, G. “Understanding Cloud Service in the Audience Participation Music Performance of Crowd in C[loud]” In Proceedings of the International Conference on New interface for Musical Expression (NIME), Brisbane, Australia, 2016.
- [P.13] **Lee, S. W.**, Carvalho, A. D., Essl, G. “Crowd in C[loud] : Audience Participation Music with On-line Dating Metaphor using Cloud Service” In Proceedings of the Web Audio Conference (WAC), Atlanta, Georgia, 2016.

- [P.12] **Lee, S. W.**, Essl, G. “Live Writing: Asynchronous Playback of Live Coding and Writing” In Proceedings of the International Conference on Live Coding (**ICLC**), Leeds, United Kingdom, 2015.
- [P.11] Carvalho, A. D., **Lee, S. W.**, Essl, G. “SuperCopair: Collaborative Live Coding on Supercollider through the cloud” In Proceedings of the International Conference on Live Coding (**ICLC**), Leeds, United Kingdom, 2015.
- [P.10] **Lee, S. W.**, Essl, G. “Web-Based Temporal Typography for Musical Expression and Performance” In Proceedings of the New Instruments for Musical Expression (**NIME**), Baton Rouge, United States, 2015.
- [P.9] **Lee, S. W.**, Essl, G. “Models and Opportunities for Networked Live Coding” In Proceedings of The Live Coding and Collaboration symposium 2014, Birmingham, United Kingdom, 2014.
- [P.8] **Lee, S. W.**, Essl, G. “Communication, Control, and State Sharing in Networked Collaborative Live Coding” In Proceedings of the New Instruments for Musical Expression (**NIME**), London, United Kingdom, 2014. [25% Acceptance Rate]
- [P.7] **Lee, S. W.**, Essl, G., Mao, Z. M. “Distributing Mobile Music Applications for Audience Participation Using Mobile Ad-hoc Network (MANET)” In Proceedings of the New Instruments for Musical Expression (**NIME**), London, United Kingdom, 2014.
- [P.6] **Lee, S. W.**, Essl, G. “Live Coding The Mobile Music Instrument” In Proceedings of the International Conference on New Instruments for Musical Expression (**NIME**), Daejon-Seoul, South Korea, 2013.
- [P.5] **Lee, S. W.**, Freeman, J. “echobo : a Mobile Music Instrument Designed for Audience To Play” In Proceedings of the International Conference on New Instruments for Musical Expression (**NIME**), Daejon-Seoul, South Korea, 2013.
- [P.4] **Lee, S. W.**, Freeman, J., Collela, A. “Real-Time Music Notation, Collaborative Improvisation, and Laptop Ensembles” In Proceedings of the International Conference on New Instruments for Musical Expression (**NIME**), Ann Arbor, MI. 2012.
- [P.3] **Lee, S. W.**, Srinivasamurthy, A., Tronel, G., Shen, W., Freeman, J. “Tok! : A Collaborative Acoustic Instrument using Mobile Phones”, In Proceedings of the International Conference on New Instruments for Musical Expression (**NIME**), Ann Arbor, MI. 2012.
- [P.2] Şentürk, S., **Lee, S. W.**, Sastry, A., Daruwalla, A., Weinberg, G. “Crossole: a Gestural Interface for Composition, Improvisation and Performance using Kinect”, In Proceedings of the International Conference on New Instruments for Musical Expression (**NIME**), Ann Arbor, MI. 2012.
- [P.1] **Lee, S. W.**, Freeman, J., Collela, A., Troyer, A. and Yao, S. “Evaluating Collaborative Laptop Improvisation with LOLC” In Proceedings of the Symposium on Laptop Ensembles and Orchestras(**SLEO**) 2012, Louisiana State University, LA, 2012.

## Book Chapters

- [B.1] **Lee, S. W.**, Taylor, B., Essl G., “Interactive Music with Web Audio”, Foundation in Sound Design for Interactive Media, Routledge, 2019.

## Journal Articles

- [J.6] Li, Y., Hu, D., Wang, B., Bowman, D. A., **Lee, S. W.**, “The Effects of Incorrect Occlusion Cues on the Understanding of Barehanded Referencing in Collaborative Augmented Reality”, Journal of Frontiers in Virtual Reality | Augmented Reality, 2021

- [J.5] Essl, G., **Lee, S. W.**, “Mobile Devices as Musical Instruments - State of the Art and Future Prospects”, Lecture Notes in Computer Science Springer Berlin / Heidelberg, 2018.
- [J.4] Essl, G., **Lee, S. W.** “The Design of urMus as a Meta-environment for Mobile Music” Journal of Creative Music Systems (**JCMS**), Vol. 1. Issue 2 , 2017.
- [J.3] **Lee, S. W.**, Freeman, J. “Real-time Music Notation in Mixed Laptop-Acoustic Ensembles” Computer Music Journal (**CMJ**) 37:4, Winter, MIT Press, 2013.
- [J.2] Kim, Y., **Lee, S. W.**, Lee, D. H., Kim, J., Lee, M. W. “Sound Detection as an Aid to Increase Detectability of CCTV in Surveillance System” Lecture Notes in Computer Science Volume 4560/2007 Springer Berlin / Heidelberg, 2007.
- [J.1] Park, W., Kim, D., Kim, K., **Lee, S. W.**, Lee, M.W., “A method for forecasting demand of High Touch product using matrix analysis of target populations and product functions” Journal of the ESK (Ergonomics Society of Korea) Vol. 26, No. 1. ESK., 2007.

## Theses

- [T.2] **Lee, S. W.** “Improving User Involvement through Live Collaborative Creation.” Ph.D. Dissertation, University of Michigan. 2018.
- [T.1] **Lee, S. W.** “Audience Participation Using Mobile Phones as Musical Instruments.” Master’s Thesis, Georgia Tech. Available at <http://hdl.handle.net/1853/44749>, 2012.

## Lightly Reviewed Papers - Posters, Notes, and Workshop Papers

- [S.27] Tausif M. T., Khanna, S., Ryu, D. S., Bennett, S. R., Moon, H. S., **Lee, S. W.**, Jeon, M., “Evaluating 6DOF monoscopic tablet devices for an inclusive, immersive, and social virtual environment” In the ACM CHI 2021 Workshop on Design and Creation of Inclusive User Interactions Through Immersive Media, 2021
- [S.26] Isaza, C. A. B., **Lee, S. W.**, “Understanding the needs of socio-technical interventions for rural communities in areas affected by anti personnel mines” In the ACM CHI 2021 Workshop: Decolonizing HCI across borders, 2021
- [S.25] Aftab, A., Hu, R., **Lee, S. W.**, “Remo: Generating Interactive Tutorials through Demonstration by Remote Peers to Assist Older Adults” In the ACM CHI 2021 Workshop on Designing Interactions for the Ageing Populations - Addressing Global Challenges, 2021
- [S.24] Li, Y., Hicks, D., Lages, W.S., **Lee, S. W.**, Sharma, A., Bowman, B. A., “ARcritique: Supporting Remote Design Critique of Physical Artifacts through Collaborative Augmented Reality” In 2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW). IEEE., 2021
- [S.23] Grudinschi, M., Norland, K., **Lee, S. W.**, Lim, S., “The Effectiveness of Wearable Sensor-Based Vibrotactile Feedback in Yoga Training for Users with Visual Impairment” Abstract, The 12th International Conference on Applied Human Factors and Ergonomics (**AHFE**), New York, 2021.
- [S.23] Tausif, T. M., Weaver, R., **Lee, S. W.**, “Towards enabling eye contact and perspective control in video conference” Poster, In The ACM Symposium on User Interface Software and Technology (**UIST**), Virtual, 2020.

- [S.22] Aftab, A., Hu, R., **Lee, S. W.**, “Remo: Generating Interactive Tutorials by Demonstration for On-line Tasks” Poster, In The ACM Symposium on User Interface Software and Technology (**UIST**), Virtual, 2020.
- [S.21] Hu, D., **Lee, S. W.**, “Scrapbook: Screenshot-based Bookmark for Effective Curation of Digital Resources” Poster, In The ACM Symposium on User Interface Software and Technology (**UIST**), Virtual, 2020.
- [S.20] Pasad, V., Wang, B., **Lee, S. W.**, “Understanding the Challenges of Online Group Chat for Productive Discourse at Scale” Poster, In the International ACM Conference on Computer Supported Cooperative Work and Social Computing (**CSCW**), Virtual, 2020.
- [S.19] Hickman, M., Pasad, V., Sanghavi, H., Thebault-Spieker, J., **Lee, S. W.**, “Wiki HUES: Understanding Wikipedia practices through Hindi, Urdu, and English takes on evolving regional conflict” Note, International Conference on Information and Communication Technologies and Development (**ICTD**), Guayaquil, Ecuador, 2020.
- [S.18] Sun, S., **Lee, S. W.**, Jeon, M., “VR Viewfinder - the Effects of Enabling Third-person Perspectives for Bystanders on VR-based Interactive Arts” Workshop paper, In The ACM CHI Social Virtual Reality(VR) Workshop (**CHI**), Honolulu, HI, 2020.
- [S.17] Sun, S., **Lee, S. W.**, Jeon, M., “VR Viewfinder - the Effects of Enabling Third-person Perspectives for Bystanders on VR-based Interactive Arts” Poster, In The ACM Capital Region Celebration of Women in Computing (**CAPWIC**), Newport News, Virginia, 2020.
- [S.16] Hu, D., **Lee, S. W.**, “ScreenTrack: Using Visual History for Self-tracking Computer Activities and Retrieving Working Context” Poster, In The ACM Symposium on User Interface Software and Technology (**UIST 2019**), New Orleans, Louisiana, 2019.
- [S.15] **Lee, S. W.**, “Computer-mediated Empathy”, Algorithms That Make You Think, the Fourth Annual Virginia Tech Workshop on the Future of Human-Computer Interaction 2019. Blacksburg, VA.
- [S.14] **Lee, S. W.**, “Liveness in Interactive Systems”, the CSCW 2018 workshop on Hybrid Events (**CSCW**) 2018. Jersey City, NJ.
- [S.13] Herskovitz, J., Chinnam, J., Wong, I., Liu, M., Mo, J., **Lee, S. W.**, Lasecki, W. S., “Crowdsourcing for Effortless Creation of Collaborative AR Spaces”, the CHI 2018 workshop on Novel Interaction for Collaboration in VR (**CHI**) 2018. Montreal, QC.
- [S.12] **Lee, S. W.**, Chen, Y., Lasecki, W.S., “The Need for Real-Time Crowd Generation of Task Lists from Speech”, In AAAI Conference on Human Computation and Crowdsourcing (**HCOMP**), Quebec City, Canada, 2017.
- [S.11] **Lee, S. W.**, “Hybrid Use of Asynchronous and Synchronous Interaction for Collaborative Creation” Doctoral Symposium, In The ACM Symposium on User Interface Software and Technology (**UIST**), Quebec City, Canada, 2017.
- [S.10] **Lee, S. W.**, “Integrating Asynchronous Interaction into Real-time Collaboration for Crowdsourced Creation” Boaster-Poster, In Human Computer Interaction Consortium (**HCIC 2017**), Watsonville, CA, 2017.
- [S.9] **Lee, S. W.**, Chen, Y., Klugman, N., Gouravajhala, S. R., Chen, A., Lasecki, W.S., “Exploring Coordination Models for Ad Hoc Programming Teams”, the ACM Conference on Human Factors in Computing Systems (**CHI**) 2017. Denver, CO, 2017.
- [S.8] **Lee, S. W.**, Carvalho, A. D., Essl, G. “Crowd in C[loud] : Audience Participation Music with Online Dating Metaphor using Cloud Service”, Invited as an Encore Track Paper at the AAAI Conference on Human Computation and Crowdsourcing (**HCOMP**), Austin, TX, 2016.
- [S.7] **Lee, S. W.**, Yang Y., Yan, S., Zhang, Y., Wong, I., Tan, Z., McGruder, M., Homan, C., Lasecki, W.S.

“Creating Interactive Behaviors in Early Sketch by Recording and Remixing Crowd Demonstrations”, In AAAI Conference on Human Computation and Crowdsourcing (**HCOMP**), Austin, TX, 2016.

[S.6] **Lee, S. W.** “Integrating Asynchronous Interaction into Real-time Collaboration for Crowdsourced Creation” Doctoral Consortium, In AAAI Conference on Human Computation and Crowdsourcing (**HCOMP**), Austin, TX, 2016.

[S.5] **Lee, S. W.**, Essl, G., “Hooking up Web Audio to WebGL Typography”, Demo presented in Web Audio Conference (**WAC**). Atlanta, GA, 2016.

[S.4] **Lee, S. W.**, Hejazi, C., Yoshioka, B., “Improvisation on a live-coded mobile musical instrument using urMus”, Demo Presented. In the First International Workshop on Live Programming in conjunction with ICSE, San Francisco, CA , 2013.

[S.3] Freeman, J., **Lee, S. W.**, Yao, S., Albin, A. “LOLC for Laptop Music Ensemble” Panel Discussion in “Creativity and Improvisation” session at ACM Creativity & Cognition(**CC**), Atlanta, GA, 2011.

[S.2] **Lee, S. W.**, Freeman, J., Collela, A. , Yao, S., Troyer, A. “Collaborative Musical Improvisation in a Laptop Ensemble with LOLC”, In Proceedings of the ACM Creativity & Cognition (**CC**), Atlanta, GA, 2011.

[S.1] Albin, A., **Lee, S. W.**, Chordia, P. “Visual Anticipation Aids in Synchronization Tasks”, the Society for Music Perception and Cognition 2011 University of Rochester, NY, 2011.

## Grants

2021 **Socially-Connected and Ability-Aware Online Physical Training for Older Adults**  
Sol Lim (PI), Sang Won Lee (Co-PI), Samantha Harden (Co-PI), Sunwook Kim (Co-PI), Maury Nussbaum (Co-PI)  
Total Award Value \$10,000  
ICTAS EFO-O Seed Investment Grant

2021 **RETTL: Facilitating socially constructed learning through a shared, mobile-based virtual reality platform in informal learning settings**  
Sang Won Lee (PI), Myounghoon Jeon (Co-PI), Jeffrey Ogle (Co-PI), Phyllis Newbill (Co-PI), Chelsea Lyles (Co-PI)  
Total Award Value \$849,999  
National Science Foundation, RETTL program, Grant No-2119011

2021 **Collaborative Research: Improving Students’ Computational Thinking Skills in Construction Engineering and Management**  
Abiola Akanmu (PI), Sang Won Lee (Co-PI), Homero Murzi (Co-PI)  
Total Award Value \$477,340  
National Science Foundation, IUSE program, Grant No-2111003

2020 **Supporting Remote Design Critique of Physical Objects through Collaborative Augmented Reality**  
Douglas Bowman (PI), David Hicks (Co-PI), Wallace Santos Lages(Co-PI), Sang Won Lee(Co-PI), Akshay Sharma(Co-PI)  
Total Award Value \$10,000  
ICAT Rapid Response Grant

- 2020 **VRViewfinder: Engaging Bystanders in VR-based Interactive Media Using Auxiliary Viewing Devices**  
Sang Won Lee(PI), Myounghoon Jeon(Co-PI), Zach Duer(Co-PI)  
Total Award Value \$25,000  
ICAT major SEAD Grant
- 2019 **Enhancing connectedness through remote social touch with particle jamming**  
Sang Won Lee(PI), Shahabedin Sagheb(Co-PI)  
Total Award Value \$3,000  
ICAT mini SEAD Grant
- 2018 **Understanding and Mining Patterns of Audience Engagement and Creative Collaboration in Largescale Crowdsourced Music Performances**  
Sang Won Lee(Research Associate), Danai Koutra(PI), Walter Lasecki(Co-PI)  
Total Award Value \$75,000  
Michigan Institute for Data Science (MIDAS)

## Music Performances, Artwork, & Composition

- Mar. 2020 Performed *Live Writing: Gloomy Street* in NYU IAPS concert. New York, NY.
- Dec. 2019 Performed *Live Writing: Gloomy Street* in DISIS Faculty Concert. Blacksburg, VA.
- Sep. 2019 Performed *Crowd in C[loud]* in the Information, Expression, and Immersion Symposium 2019, Blacksburg, VA.
- June. 2019 Performed *Crowd in C[loud]* in ACM Creativity and Cognition Conference(C&C) 2019, San Diego, CA.
- Dec. 2018 Performed *Crowd in C[loud]* in DISIS Faculty Concert. Blacksburg, VA.
- Aug. 2018 Presented: *Live Coding YouTube* in International Conference on Computer Music(ICMC) 2018. Daegu, South Korea
- July. 2018 Performed: *Live Coding YouTube* accepted at New York City Electroacoustic Music Festival (NYCEMF) 2018. New York
- Apr. 2018 Performed: *Live Coding YouTube* accepted at CHI Art Program, the ACM Conference on Human Factors in Computing Systems (CHI) 2018. Montreal, Canada. 2018
- Dec. 2017 Presented Performance: *Jimmy raps with Live Writing*, collaborated with D. Andrew STEWART, accepted at the International Conference on Live Coding (ICLC) 2017. Morelia, Mexico. 2017
- Aug. 2017 Performed *Live Writing: Gloomy Streets* accepted at the Toronto International Electroacoustic Symposium (TIES) 2017. Toronto, ON, Canada. 2017
- May. 2017 Performed: *Live Coding YouTube* accepted at in International Conference on New Interface for Musical Expression(NIME) 2017. Copenhagen, Denmark. 2017
- May. 2017 Presented *DISAPPEARING : Live Writing*, collaborated with D. Andrew STEWART, accepted at in International Conference on New Interface for Musical Expression(NIME) 2017. Copenhagen, Denmark. 2017
- May. 2017 Performed Performance: *Live Writing: Gloomy Streets* accepted at CHI Art Program, the ACM Conference on Human Factors in Computing Systems (CHI) 2017. Denver, CO. 2017
- Mar. 2017 Performed *Live Coding YouTube* in Performing Arts Technology Showcase 2017. McIntosh Theatre,



University of Michigan.

- Oct. 2016 Performed *Crowd in C[loud]* in International Conference on Live Coding(**ICLC**) 2016. Hamilton, Canada.
- Sep. 2016 Performed *Live Writing: Gloomy Streets* in International Conference on Computer Music(**ICMC**) 2016. Utrecht, Netherlands. - **Won ICMA 2016 Music Award (Student)**
- July. 2016 Performed *Live Writing: Gloomy Streets* in the International Conference on New Interface for Musical Expression(**NIME**) 2016. Brisbane, Australia.
- Apr. 2016 Performed *Crowd in C[loud]* in Web Audio Conference (**WAC**) 2016. Atlanta, Georgia.
- Apr. 2016 Composed and Presented *Live Writing: Shatter*, Written and Performed by HoneyLess in Web Audio Conference (**WAC**) 2016. Atlanta, Georgia.
- Aug. 2015 Performed *Aural Cavity* in International Conference on Computer Music(**ICMC**) 2015. Denton, Texas.
- Apr. 2015 Composed and Presented *Live Writing: Reflection*, Performed by HoneyLess in Michigan Mobile Phone Ensemble: Final Class Concert 2015, Stamps Auditorium
- Apr. 2015 Performed *Crowd in C[loud]* in Michigan Mobile Phone Ensemble: Final Class Concert 2015, Stamps Auditorium
- Mar. 2015 Performed *Live Writing: Gloomy Streets* in Performing Arts Technology Showcase 2015. Britton Recital Hall, University of Michigan.
- Feb. 2015 Performed *Aural Cavity* in Guthman Musical Instrument Competition, Georgia Tech.
- Mar. 2014 Performed *Aural Cavity* in Performing Arts Technology Showcase 2014. Britton Recital hall, University of Michigan.
- Mar. 2014 Performed *Aural Cavity* in Final Concert of Interactive Media Design. Design Lab 1, University of Michigan.
- Apr. 2013 Performed *Improvisation on a live-coded mobile music instrument* in Michigan Mobile Phone Ensemble: Final Class Concert 2013, Stamps Auditorium
- Apr. 2013 Performed *T'ai Chi Theremin* in Michigan Mobile Phone Ensemble: Final Class Concert 2013, Stamps Auditorium
- May 2012 Performed *Where Are You Standing?* by Bongjun Kim, Woon Seung Yeo in the International Conference on New Interface for Musical Expression (**NIME**) 2012 at University of Michigan
- Apr. 2012 Performed *Music Slave (Mobile Choir)* in Listening Machines 2012, Georgia Tech., Atlanta, GA.
- Apr. 2012 Performed *echobo* in Listening Machines 2012, Georgia Tech., Atlanta, GA.
- Feb. 2012 Performed *SGLC* by Jason Freeman in Sonic Generator Concert (Video), Woodruff Art Center, Atlanta, GA
- Nov. 2011 Performed *LOLC* in ACM Creativity and Cognition Conference (**C&C**) 2011, Atlanta. - **Won Best Artwork Award**
- May 2011 Performed *LOLC* in the International Conference on New Interface for Musical Expression (**NIME**) 2011 at University of Oslo, Norway.
- Apr. 2011 Performed *Crossole* in Listening Machines 2011 at Stubbins Gallery, Georgia Tech., Atlanta, GA.
- Mar. 2011 Exhibited *Stickies Music* in Sonic Generator Concert at Woodruff Art Center, Atlanta, GA.
- Oct. 2010 Performed *LOLC* in FutureMedia Fest 2010 at Georgia Tech, Atlanta, GA.
- Oct. 2010 Performed *BeatScape* in FutureMedia Fest 2010 at Georgia Tech, Atlanta, GA.

## Teaching Experiences

- 2018–Present Assistant Professor, Computer Science Department, Virginia Tech
- Introduction to GUI Programming and Graphics, Spring 2020.
  - Social Computing and Computer-supported Cooperative Work, Fall 2019.
  - Collaboration, Creativity, and Computing, Spring 2021, Spring 2019.
  - Creative Computing Studio, Fall 2020, Fall 2018.
- 2012–2018 Graduate Research Assistant, University of Michigan, Ann Arbor
- 2013–2016 Graduate Student Instructor, University of Michigan, Ann Arbor
- User Interface Development, Fall 2016, Fall 2015, Winter 2014
  - Intelligent Interactive Systems, Winter 2016
  - Interactive Computer Graphics, Fall 2014
- 2013–Present Grader, University of Michigan, Ann Arbor
- Acoustics and Psychoacoustics, 2013–2018
- 2009 Tutor, Office of Accessible Education, Stanford University
- 2005–2007 Undergraduate Teaching Assistant, Human Factors Lab., Seoul National University

## Outreach, Exhibition, & Misc.

- Nov. 2017  
-Apr. 2018 Mentored high school students from underrepresented minority groups in “Wolverine Pathways Program”, Ann Arbor, MI, United States.
- June 2017 Led “POSSE Workshop: Making Music in Programming using EarSketch.” (Workshop) @ POSSE Foundation, 2017, Ann Arbor, MI, United States.
- May 2017 Led Workshop “Setting up and running a Mobile Phone Orchestra” @ the International Conference on New interface for Musical Expression (**NIME**) 2017, Copenhagen, Denmark
- July 2016 Led “POSSE Workshop: Making Music in Programming using EarSketch.” (Workshop) @ POSSE Foundation, 2016, Ann Arbor, MI, United States.
- Sep. 2011 Exhibited *Crossole* in Atlanta Maker Faire.
- June 2011 Led *LOLC* workshop with local gifted high school students in Hands On Tech (H.O.T.) Camp. Georgia Tech., Atlanta, MI, United States
- May 2011 Exhibited *Stickies Music* in GT Salon Exhibition at Hinman Building, Georgia Tech.

## Career Development Workshops and Symposia

- 2019 Early Career Symposium, ACM CHI, Glasgow, United Kingdom
- 2019 Professional Development Institute (PDI) Program, Virginia Tech, Blacksburg, VA
- 2018 New Computing Faculty Workshops in Summer 2018 (CRA, NSF-supported) San Diego, CA

- 2018 Preparing Future Faculty Workshop, Rackham-CRLT, University of Michigan, Ann Arbor, MI
- 2017 **UIST** 2017 Doctoral Symposium (The ACM Symposium on User Interface Software and Technology), Quebec City, Canada
- 2017 Selected as a HCIC-Funded Student in University of Michigan to participate in Human Computer Interaction Consortium(**HCIC**) 2017 “Designing Future”.
- 2016 **HCOMP** 2016 Doctoral Consortium participant (International Conference on Human Computation and Crowd-sourcing), Austin, Texas

## Industry Experiences

- 2015 Research Intern, Media Technology Lab., Gracenote Inc.
  - Developed a lyric-audio alignment system using voice synthesis and vocal separation. [**P.20**]
- 2014 Web Programmer/Designer, Massachusetts General Hospital
  - Developed an interactive website that enables researchers to manage contents. (<http://cfsib.com>)
- 2010-2011 Web Programmer/Designer, Stanford University
  - Developed an interactive website that enable researchers to retrieve genome-wide expression data of patients. (<http://gluegrant1.stanford.edu/DIC>)
- 2010 Database Engineer, TrimTabs Investment Research.
  - Developed of a system and database for crawling, storing, and reporting on data of insider transactions.
- 2009-2010 Independent Contractor, DamnTheRadio Inc.
  - Implemented a web crawler to collect live performance data from an online ticketing site.
- 2009-2010 Tech. Desk Consultant, Stanford University
  - Provided technical support for students in multimedia studio of Meyer library.
- 2009 Financial Technology Intern, TrimTabs Investment Research
  - Created and tested scripts for automating Exchange Traded Fund (ETF) report production.

## Invited Talks

- Feb. 2021 *Towards Understanding Computer-Mediated Empathy*, Invited Talk, IST Research Seminar, the Department of Information Sciences and Technology, George Mason University
- Jan. 2021 *Embracing liveness and ubiquity in interactive music performances* , Guest Lecture, New Interfaces for Social Distant Collaboration (MUS4014H), The School of Performing Arts, Virginia Tech
- Nov. 2020 *Towards Understanding Computer-Mediated Empathy*, Invited Talk, Social Informatics Group, CHCI, Virginia Tech.
- Oct. 2020 *Improving user involvement through live collaborative creation*, Invited Talk, Culture Technology, KAIST, Korea.
- Oct. 2020 *Beyond Zoom: Towards effective remote collaboration in the COVID-19 pandemic*, Invited Talk, Graduate Seminar, Virginia Tech.
- Nov. 2019 *Improving user involvement through live collaborative creation*, Invited Talk, Computer Science, Texas A&M University.
- Mar. 2019 *Improving user involvement through live collaborative creation*, Invited Talk, School of Information, University of Arizona.

- Oct. 2018 *Improving user involvement through live collaborative creation*, Invited Talk, Galileo Seminar, Virginia Tech.
- Oct. 2018 *Exploring Real-Time Collaboration in Crowd-powered Systems*, Invited Talk, CHCI ICAT Playdate Seminar, Virginia Tech.
- Oct. 2018 *Improving user involvement through live collaborative creation*, Invited Talk, Engineering Research Seminar, Virginia Tech.
- Sep. 2018 *Improving user involvement through live collaborative creation*, Invited Talk, Graduate Seminar, Virginia Tech.
- Apr. 2018 *Improving user involvement through live collaborative creation*, Invited Talk, Design Science Seminar, University of Michigan.
- Mar. 2018 *Improving user involvement through live collaborative creation*, Invited Talk, Computer Science, University of Rochester.
- Mar. 2018 *Improving user involvement through live collaborative creation*, Invited Talk, Computer Science, Virginia Tech.
- Mar. 2018 *Improving user involvement through live collaborative creation*, MISC Talks Series, University of Michigan.
- Feb. 2017 *Improving user involvement through live collaborative creation*, Invited Talk, Informatics Department, New Jersey Institute of Technology.
- Oct. 2017 *SketchExpress: Remixing Animations for More Effective Crowd-Powered Prototyping of Interactive Interfaces*, MISC Talks Series, University of Michigan.
- Aug. 2015 *Networked Collaboration and Communication in Live Coding*. Department of Computer Science, University of São Paulo - Brazil
- Apr. 2015 *Networked Collaboration and Communication in Live Coding*. Graduate School of Convergence Science and Technology, Seoul National University
- Apr. 2015 *Networked Collaboration and Communication in Live Coding*. Graduate School of Culture Technology, KAIST
- Apr. 2015 *Networked Collaboration and Communication in Live Coding*. Department of Industrial Engineering, Seoul National University
- Jan. 2015 *Performance Systems - Mobile Phones as Musical Instruments*. EECS 498: Mobile Phone Ensemble class, University of Michigan
- June 2012 *Audience Participation Using Mobile Phones as Musical Instruments*, Graduate School of Culture Technology, KAIST
- June 2012 *Music, Engineering and Music Technology*, School of Design and Human Engineering, UNIST
- June 2012 *Music, Engineering and Music Technology*, Department of Industrial Engineering, Hongik University

## Service to the profession

2012-Present Paper Reviewer

**ACM UIST** (2016-Present), **ACM CHI**(2016-Present), **ACM CSCW**(2017, 2020-Present), **ACM C&C**(2017-Present), **NIME** (2015-Present), **WWW** (2020-Present), **ISEA** (2019), **ICLC**(2015-2018),

**ISMIR(2016-2018), WAC(2016-2018)**  
 2021 Technology Co-chairs - **HCOMP**, 2021  
 2021 Program Committee - **ACM C&C**, 2021  
 2021 Associate Chair - **ACM CSCW**, 2021  
 2021 Online Experience Chair -**ISMAR** 2021, Virtual  
 2021 Technical Chair -**ICAD** 2021, Virtual  
 2020 Program Committee -**ACM Collective Intelligence**  
 2019 Senior Program Committee - **The Web Conference (WWW)**  
 2019 Program Committee, Session Chair - **ACM C&C**  
 2018 Publication Chair - **NIME** 2018  
 2017-2018 Michigan Interactive and Social Computing Research Group (**MISC**) student coordinator.  
 2017-2018 Tool Curating Administrator in CROMALab  
 2018 Student Panel, 2018 Prospective Ph.D. Student Visit, University of Michigan  
 2018 Judge, 2018 Makeathon Competition, University of Michigan  
 2017 ICMA Award Committee (**ICMC** 2017)  
 2017 Student Volunteer (**ACM CHI** 2017)  
 2017 Run Research and Development tutorials in CROMALab  
 2016 Computer Science and Engineering Graduation Admission Reviewers  
 2016-2017 MTurk/Upwork/hiring-platform support in CROMALab  
 2016 Program Committee member of Works-in-progress & Demonstration Papers, AAAI Conference on Human Computation and Crowdsourcing - **HCOMP** 2016  
 2013 Music Jury, International Conference on Computer Music - **ICMC**, Perth, Australia

## Advisees

### Virginia Tech

Amber Aftab (Ph.D., Computer Science) [**S.25**], [**S.22**]  
 Carlos Augusto Bautista Isaza (Ph.D., Computer Science) [**S.26**]  
 Donghan Hu (Master, Ph.D., Computer Science) [**J. 6**], [**P.29**], [**S.21**], [**S.16**]  
 Md Momen Bhuiyan(Ph.D., Computer Science, co-advisor: Dr. Tanu Mitra)  
 Md Taushif Tashin(Ph.D., Computer Science) [**S.23**], [**S.27**]

Dash Elhauge (M.F.A, Creative Writing)  
 Molly Hickman (Master, Computer Science) [**P.32**], [**S.19**]  
 Nathaniel Llorens (Master, Computer Science)  
 Tam Phan (Master, Computer Science)  
 Viral Pasad (Master, Computer Science) [**P.32**], [**S.20**], [**S.19**]

Boyuan Wang (Undergraduate, Computer Science) [**J. 6**], [**S.23**], [**S.20**]  
 Justin Lee (Undergraduate, Computer Science)

Li Huang (Undergraduate, Computer Science),  
Noam Bendelac (Undergraduate, Computer Science)  
Ruipu Hu (Undergraduate, Computer Science) [S.25], [S.22]  
Robin Lu (Undergraduate, Computer Science)  
Li Huang (Undergraduate, Computer Science)  
Sarah Oh (Undergraduate, Computer Science)  
Soumya Khanna (Undergraduate, Computer Science)  
Weiqi Yuan (Undergraduate, Computer Science)

### **University of Michigan**

Jungho Bang (Master) [P.21]  
Jaylin Herskovitz (Undergraduate) [S.13, P.30]  
Rebecca Krosnick (Ph.D.) [P.25],[P.26]  
Mengyao Liu (Undergraduate) [S.13]  
Mari Martinez (Undergraduate) [P.16]  
Roshan Narayan (Undergraduate)  
Zhengxi Tan (Undergraduate) [S.7]  
Sach Vaidya (Undergraduate) [P.26]  
Aaron Willette (Undergraduate) [P.28]  
Isabelle Wong (Undergraduate)[P.23], [S.7], [S.13]  
Yin Xie (Master) [P.20]  
Yiwei Yang (Undergraduate) [P.23], [P.21], [S.7]  
Yujin Zhang (Undergraduate) [P.23]

### **Other Universities**

So Yeon Park (Ph.D., Mechanical Engineering, Stanford University) [P.31]

### **Thesis Committees**

Aakash Gautam (Ph.D., Computer Science, Virginia Tech)  
Nicolas Gutkowski (Master, Computer Science, Virginia Tech)  
Spencer Jenkins (Master, Computer Science, Virginia Tech) Graduated 2019  
Yuan Li (Ph.D., Computer Science, Virginia Tech) [J. 6]  
Shuai Liu (Master, Computer Science, Virginia Tech) Graduated 2020  
Feiyu Lu (Master, Computer Science, Virginia Tech)  
Daniel Linares (Ph.D., Environmental Design and Planning, Virginia Tech)  
Sushmethaa Muhundan (Master, Computer Science, Virginia Tech)  
Vikram Mohanty (Ph.D., Computer Science, Virginia Tech)  
Deepthi Peri (Master, Computer Science, Virginia Tech) Graduated 2020  
Michael Rhoades (Ph.D., iPh.D., Virginia Tech) Graduated 2020  
Sukrit Venkatagiri (Ph.D., Computer Science, Virginia Tech)  
Zijian Xu (Master, Computer Science, Virginia Tech) Graduated 2020  
Setor Zilevu (Ph.D., Computer Science, Virginia Tech)

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