

Yelin Kim

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EDUCATION **University of Michigan**, Ann Arbor, Michigan, USA 2013–2016
Ph.D. in Electrical and Computer Engineering
Thesis Advisor: Dr. Emily Mower Provost
Thesis Title: “Automatic Emotion Recognition: Quantifying Dynamics and Structure in Human Behavior”

University of Michigan, Ann Arbor, Michigan, USA 2011–2013
M.S.E. in Electrical and Computer Engineering

Seoul National University, Seoul, South Korea 2007–2011
B.S. in Electrical and Computer Engineering

RESEARCH INTERESTS My research is in the area of human-centered and affective computing, developing multimodal (audio and video) signal processing and machine learning frameworks for automatic emotion recognition systems.

RESEARCH EXPERIENCE **University at Albany, State University of New York** 2016–Present
Assistant Professor in the Department of Electrical and Computer Engineering
Director, Inspire (Interaction Sensing and Perception in Real Environment) Lab

University of Michigan, Ann Arbor, Michigan 2012–2016
Computational Human-Centered Analysis and Integration Lab
Graduate Student Research Assistant (Advisor: Dr. Emily Mower Provost)

- Computationally measured, represented, and analyzed audio-visual emotion expressions during dyadic (two-person) interactions
- **Multimodal feature learning methods:** proposed a suite of deep neural networks that learn complex interactions between audio and visual features
- **Temporal segmentation and analysis methods:** developed new variable-length segmentation and analysis techniques that increased system accuracy and tracking ability of automatic emotion recognition systems

GE Global Research Center, Niskayuna, New York Summer 2014
Computer Vision Lab, Software, Sciences & Analytics Laboratory
R&D Intern (Supervisors: Dr. Jixu Chen and Dr. Peter Tu)

- Developed a joint event segmentation and classification algorithm with the aim of automatically detecting salient human action events from videos
- Significantly improved the state-of-the-art performance by explicit modeling of event transition patterns
- Published a first-author paper at a top international conference and filed a patent during the internship

Infosys Technologies Ltd., Bangalore, India Summer 2010
Convergence Lab, Software Engineering and Technology Lab.
InStep Global Internship Program (Supervisor: Dr. Anutosh Maitra)

- Developed an assisted healthcare system using CLIPS, C++ and MySQL

REFEREED PUBLICATIONS **Yelin Kim** and Emily Mower Provost. “ISLA: Temporal Segmentation and Labeling for Audio-Visual Emotion Recognition.” *IEEE Transactions on Affective Computing (IEEE TAC)*, 2017.

Yelin Kim and Emily Mower Provost. “Emotion Spotting: Discovering Regions of Evidence in Audio-Visual Emotion Expressions.” *ACM International Conference on Multimodal Interaction (ACM ICMI)*, November, 2016.

John Gideon, Biqiao Zhang, Zakaria Aldeneh, **Yelin Kim**, Soheil Khorram, Duc Le, and Emily Mower Provost. “Wild Wild Emotion: A Multimodal Ensemble Approach.” *ACM International Conference on Multimodal Interaction (ACM ICMI)*, November, 2016.

Yelin Kim and Emily Mower Provost. “Emotion Recognition During Speech Using Dynamics of Multiple Regions of the Face.” *ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMM)*, Special Issue on Extended Best Papers from ACM Multimedia, October, 2015, pp.25:1–25:23. **Invited Journal**

Yelin Kim and Emily Mower Provost. “Leveraging Inter-rater Agreement for Audio-Visual Emotion Recognition.” *Proceedings of International Conference on Affective Computing and Intelligent Interaction (ACII)*, Xi’an, China, September, 2015, pp. 553–559.

Yelin Kim. “Exploring Sources of Variation in Human Behavioral Data: Towards Automatic Audio-Visual Emotion Recognition.” *Proceedings of International Conference on Affective Computing and Intelligent Interaction (ACII) Doctoral Consortium*, Xi’an, China, September, 2015, pp. 748–753.

Yelin Kim, Jixu Chen, Ming-Ching Chang, Emily Mower Provost, Xin Wang, and Siwei Lyu. “Modeling Transitional Patterns in-between Events for Temporal Human Action Segmentation and Classification.” *IEEE International Conference on Automatic Face and Gesture Recognition (FG 2015)*, Ljubljana, Slovenia, May, 2015, pp. 1–8. (**Acceptance rate: 12%**)

Yelin Kim and Emily Mower Provost. “Say Cheese vs. Smile: Reducing Speech-Related Variability for Facial Emotion Recognition.” *Proceedings of the ACM International Conference on Multimedia (ACM MM’14)*. Florida, USA, November, 2014, pp. 27–36. (**Acceptance rate: 19%**)

Best Student Paper Award

Yelin Kim, Emily Mower Provost. “Emotion Classification via Utterance-level Dynamics: a Pattern-based Approach to Characterize Affective Expressions.” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. Vancouver, British Columbia, Canada. May, 2013, pp. 3687–3691.

Yelin Kim, Honglak Lee, and Emily Mower Provost. “Deep Learning for Robust Feature Generation in Audio-visual Emotion Recognition.” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. Vancouver, British Columbia, Canada. May, 2013, pp.3677–3681.

PATENTS

Jixu Chen, Peter Tu, Ming-Ching Chang, **Yelin Kim**, and Siwei Lyu. “Systems and Methods For Analyzing Time Series Data Based on Event Transition.” *U.S. Serial No. 14/702,229, filed on May 1, 2015.*

SPONSORED PROJECTS

“**FRAP: Automatic Localization and Classification of Audio-Visual Emotion Expressions.**” SUNY-A Faculty Research Award, Y. Kim (PI), 2017–2019.

AWARDS & HONORS

PAPER AND POSTER AWARDS

Best Student Paper Award 2014
The 22nd ACM International Conference on Multimedia, ACM MM 2014
Selected among total 679 submissions

Best Technical Poster Award 2014
The 10th Korean-American Scientists and Engineers Association (KSEA) Young Generation Technical and Leadership Conference

Best Poster Award 2013
Engineering Graduate Symposium, University of Michigan

GRANTS AND FELLOWSHIPS

Conference Travel Grants from NSF (2015), CRA-W (2014, 2015), Rackham Graduate School at the University of Michigan (2013, 2014), and Computer Science and Engineering Department at the University of Michigan (2013)

Finalist, Richard and Eleanor Towner Prize for Outstanding Ph.D. Research, University of Michigan (2015)

Korean Government Scholarship for Study Abroad (2011–2013)

Qualcomm Scholarship (2011)

Korea National Science Scholarship (2007–2011)

Seoul National University Engineering Women Fellowship (2010)

Temasek Foundation-Singapore Management University Leadership Enrichment and Regional NetworkIng Scholarship (2010)

The National Academy of Engineering of Korea: Honor Society (2009)

TEACHING

Instructor, University at Albany, SUNY Spring 2017
CEN 370: Digital Signal Processing

Instructor, University at Albany, SUNY Fall 2016
CEN 140: Introduction to Engineering Design

Graduate Student Instructor, University of Michigan Winter 2015
EECS 301: Probabilistic Methods in Engineering
Excellent performance in teaching (Overall Student Evaluation: 4.8/5.0)

Graduate Student Instructor, University of Michigan Fall 2014
EECS 451: Digital Signal Processing

Guest Lecturer, University of Michigan February 2014
EECS 498: Special Topics on Intelligent Interactive Systems

Guest Lecturer, University of Michigan March 2013
EECS 498: Special Topics on Human-Centered Computing

**INVITED
TALKS**

“Audio-Visual Emotion Recognition: Quantifying Dynamics and Structure in Human Behavior.” Advanced Data Analytics Talk Series, University at Albany, SUNY, Feb 2017 ([Video Recording]).

“Automatic Emotion Recognition: Developing Machines That Identify Human Emotion.” Cognitive Science Community, University of Michigan, Oct 2015.

“Exploring Sources of Variation in Human Behavioral Data: Towards Automatic Audio-Visual Emotion Recognition.” International Conference on Affective Computing and Intelligent Interaction (ACII) Doctoral Consortium, China, Sep 2015.

“Audio-Visual Emotion Recognition: Quantification of Dynamics and Structure in Affective Behavior.” Ford Research and Innovation Center, Palo Alto, Aug 2015.

“Exploring Affective and Social Cues in Multimedia Content.” IEEE International Conference on Automatic Face and Gesture Recognition (FG) Doctoral Consortium, Ljubljana, Slovenia, May 2015.

“Say Cheese vs. Smile: Reducing Speech-Related Variability for Facial Emotion Recognition.” Signal Processing Systems Lab, Seoul National University, Jan 2015.

CONFERENCE PRESENTATION **“Emotion Spotting: Discovering Regions of Evidence in Audio-Visual Emotion Expressions.”** ACM International Conference on Multimodal Interaction (ACM ICMI). Tokyo, Japan, November, 2016.

“Leveraging Inter-rater Agreement for Audio-Visual Emotion Recognition.” International Conference on Affective Computing and Intelligent Interaction (ACII), Xian, China, Sep 2015.

“Modeling Transition Patterns Between Events for Temporal Human Action Segmentation and Classification.” IEEE International Conference on Automatic Face and Gesture Recognition (FG), Ljubljana, Slovenia, May 2015.

“Say Cheese vs. Smile: Reducing Speech-Related Variability for Facial Emotion Recognition.” The 22nd ACM International Conference on Multimedia (ACM MM), Orlando, Nov 2014. [Note: Best Student Paper Award]

“Deep Learning for Robust Feature Generation in Audio-Visual Emotion Recognition.” Engineering Graduate Symposium, University of Michigan, Nov 2013. [Note: Best Poster Presentation Award]

“Deep Learning for Robust Feature Generation in Audio-Visual Emotion Recognition.” IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP). Vancouver, British Columbia, Canada. May 2013.

“Emotion Classification via Utterance-Level Dynamics: A Pattern-Based Approach to Characterizing Affective Expressions.” The 10th Korean-American Scientists and Engineers Association (KSEA) Young Generation Technical and Leadership Conference, Houston, Texas, Jan 2014. [Note: Best Technical Poster Award]

“Emotion Classification via Utterance-Level Dynamics: A Pattern-Based Approach to Characterizing Affective Expressions.” IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP). Vancouver, British Columbia, Canada. May 2013.

“Emotion Classification via Utterance-Level Dynamics: A Pattern-Based Approach to Characterizing Affective Expressions.” Engineering Graduate Symposium, University of Michigan, Nov 2012.

CAMPUS TALKS

Lightning Talk, the Society of Women Engineers First Annual Leaders in Engineering Summit, University of Michigan, Mar 2014.

Panelist, College of Engineering New Graduate Student Welcome, University of Michigan, Aug 2013.

Panelist, EECS Faculty/Grad/Alum Panel Event, hosted by student groups IEEE/ACM and gEECS (Girls in EECS), University of Michigan, Mar 2013.

Panelist, CSE tour for Tech Day, University of Michigan, Sep 2012.

PROFESSIONAL ACTIVITIES

Publicity Chair
IEEE International Conference on Automatic Face and Gesture Recognition (FG), 2018

Doctoral Consortium Chair
IEEE Conference on Affective Computing and Intelligent Interaction (ACII), 2017

NSF Review Panel
Computer & Information Science & Engineering (CISE), 2017

Program Committee
Pervasive Technologies Related to Assistive Environments (PETRA) Conference, 2017

Reviewer for International Journal
IEEE Transactions on Affective Computing (TAC)
IEEE Transactions on Multimedia
Journal of Artificial Intelligence Research (JAIR)
Speech Communication - Elsevier
IEEE Robotics and Automation Letters (RA-L)

Reviewer for International Conference
ACM International Conference on Multimedia (MM)
ACM International Conference on Multimodal Interaction (ICMI)

Membership

Institute of Electrical and Electronics Engineer (IEEE)
Association for Computing Machinery (ACM)
International Speech Communication Association (ISCA)
Society for Affective Science (SAS)

SERVICE**Chair Search Committee**

College of Engineering and Applied Sciences, University at Albany, SUNY, 2017

ABET Accreditation and Steering Committee

Department of Electrical and Computer Engineering, University at Albany, SUNY,
2016–2017

Curriculum Development Committee

Department of Electrical and Computer Engineering, University at Albany, SUNY,
2016

Vice President

Korean Student Association Graduate, University of Michigan, 2013–2014

Advisory Committee

College of Engineering Graduate Student Advisory Committee, University of Michigan,
2013–2014

Outreach and Mentoring

Science and Technology Entry Program (STEP), University at Albany, SUNY
Beyond the Master's Mentoring Program, University of Michigan
Ensemble of Computer Science and Engineering Ladies, University of Michigan