

Gary Yeung

Address

Speech Processing and Auditory Perception Laboratory
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Education

Ph.D. Electrical Engineering, University of California, Los Angeles
Speech Processing and Auditory Perception Laboratory
Doctoral Advisor: Professor Abeer Alwan, Ph.D.
GPA: 4.00

M.S. Electrical Engineering, University of California, Los Angeles (2017)
Speech Processing and Auditory Perception Laboratory
Advisor: Professor Abeer Alwan, Ph.D.
GPA: 3.96

B.S. Electrical Engineering, University of California, Los Angeles (2015)
GPA: 3.99

Research Interests

Automatic speech and speaker recognition for children; feature normalization and back-end integration for child speech recognition.

Perceptual speech processing for speech and speaker recognition and speech synthesis.

Social robotics and socially impactful technologies

Journal Publications

G. Yeung, S.M. Lulich, J. Guo, M.S. Sommers, and A. Alwan. "Subglottal resonances of American English speaking children," *The Journal of the Acoustical Society of America*, 144(6), 2018.

<https://asa.scitation.org/doi/10.1121/1.5082289>

S.J. Park, G. Yeung, N. Vesselinova, J. Kreiman, P.A. Keating, and A. Alwan. "Towards understanding speaker discrimination abilities in humans and machines for text-independent short utterances of different speech styles," *The Journal of the Acoustical Society of America*, 144(1), 2018.

<https://asa.scitation.org/doi/10.1121/1.5045323>

Conference Publications

T. Tran, M. Tinkler, G. Yeung, A. Alwan, and M. Ostendorf. "Analysis of disfluency in children's speech," *Interspeech*, 2020.

http://www.seas.ucla.edu/spapl/paper/morgan_IS_2020.pdf

G. Yeung and A. Alwan. "A frequency normalization technique for kindergarten speech recognition inspired by the role of f_0 in vowel perception," *Interspeech*, 2019.

http://www.seas.ucla.edu/spapl/paper/gary_interspeech_19.pdf

G. Yeung, A.L. Bailey, A. Afshan, M. Tinkler, M.Q. Pérez, A. Martin, A.A. Pogossian, S. Spaulding, H.W. Park, M. Muco, A. Alwan, and C. Breazeal. "A robotic interface for the administration of language, literacy, and speech pathology assessments for children," *SLaTE*, 2019.

http://www.seas.ucla.edu/spapl/paper/gary_slate_19.pdf

G. Yeung, A.L. Bailey, A. Afshan, M.Q. Pérez, A. Martin, S. Spaulding, H.W. Park, A. Alwan, and C. Breazeal. "Towards the development of personalized learning companion robots for early speech and language assessment," *AERA*, 2019.

http://www.seas.ucla.edu/spapl/paper/aera19_Yeung.pdf

S.J. Park, A. Afshan, J. Kreiman, G. Yeung, and A. Alwan. "Target and non-target speaker discrimination by humans and machines," *ICASSP*, 2019.

http://www.seas.ucla.edu/spapl/paper/soo_icassp_19.pdf

G. Yeung and A. Alwan. "On the difficulties of automatic speech recognition for kindergarten-aged children," *Interspeech*, 2018, pp 1661-1665.

http://www.seas.ucla.edu/spapl/paper/Yeung_Interspeech2018.pdf

G. Yeung, A. Afshan, K.E. Ozgun, K. Kaewtip, S.M. Lulich, and A. Alwan. "Predicting clinical evaluations of children's speech with limited data using exemplar word template references," *SLaTE*, 2017, pp 169-174.

<http://www.seas.ucla.edu/spapl/paper/SlateGaryPaper.pdf>

S.J. Park, G. Yeung, J. Kreiman, P.A. Keating, and A. Alwan. "Using voice quality features to improve short-utterance, text-independent speaker verification systems," *Interspeech*, 2017, pp. 1522-1526.

<http://www.seas.ucla.edu/spapl/paper/SooInterspeech.pdf>

S.J. Park, C. Sigouin, J. Kreiman, P.A. Keating, J. Guo, G. Yeung, F.Y. Kuo, and A. Alwan. "Speaker identity and voice quality: modeling human responses and automatic speaker recognition," *Interspeech*, 2016, pp. 1044-1048.

http://www.seas.ucla.edu/spapl/paper/soo_interspeech_16.pdf

J. Guo, G. Yeung, D. Muralidharan, H. Arsikere, A. Afshan, and A. Alwan. "Speaker verification using short utterances with DNN-based estimation of subglottal acoustic features," *Interspeech*, 2016, pp. 2219-2222.

http://www.seas.ucla.edu/spapl/paper/jinxi_is16.pdf

J. Guo, R. Paturi, G. Yeung, S.M. Lulich, H. Arsikere, and A. Alwan. "Age-dependent height estimation and speaker normalization for children's speech using the first three subglottal resonances," *Interspeech*, 2015, pp. 1665-1669.

http://www.seas.ucla.edu/spapl/paper/Interspeech15_Jinxi.pdf

Poster Presentations

G. Yeung, S.M. Lulich, A. Toutios, A. Alwan, and A. Afshan. "Analysis of children's high front vowel area function using three-dimensional ultrasound imaging," *5th Joint Meeting of the Acoustical Society of America and Japan*, 2016.

<https://asa.scitation.org/doi/10.1121/1.4971136>

Academic Research and Work

Speech Processing and Auditory Perception Laboratory, UCLA (2014-present)

PI: Professor Abeer Alwan, Ph.D.

Researcher

- Development of child speech recognition technology
- Development of speaker recognition technology in large variability conditions

Department of Electrical and Computer Engineering, UCLA (Winter, 2018)

Teaching Assistant

- TA for EE214A: Digital Speech Processing
- Topics included spectrogram representations, linear predictive coding, and cepstral analysis
- Awarded the Henry Samueli Excellence in Teaching Award

ECE Fast Track to Success Undergraduate Program, UCLA (2015-2018)

Recruitment, Advertisement

- Lead recruitment and advertisement efforts at the start of the ECE Department's Fast Track to Success Undergraduate Program
- Fast Track to Success is currently one of the most prestigious undergraduate programs for electrical engineering undergraduates

Adaptive Systems Laboratory, UCLA (2014-2015)

PI: Professor Ali H. Sayed, Ph.D.

Research Intern

- Editing and proofreading of publications
- Writing of instructive examples for UCLA's EE113: Digital Signal Processing class

Microsensor Research Laboratory, UCLA (2014-2015)

PI: Professor Greg Pottie, Ph.D.

Software Designer

- Designing of user interfaces for analysis of human movement
- Machine learning technique development for impaired human movement classification

Industry Research and Work

Qualcomm (Summer, 2018)

PI: Daniel Sinder, Ph.D.

Research Intern

- Investigation of speech synthesis and coding paradigms using deep learning

Human Language Technology Center of Excellence, JHU (Summer, 2016 and 2017)

PI: Alan V. McCree, Ph.D.

Visiting Researcher

- Development of speaker recognition technology in large variability conditions

Sony Computer Entertainment America (Summer, 2015)

Software Engineering Intern

- Development of gameplay and simulation prototypes for the PlayStation 4 with PlayStation Virtual Reality

Graduate Coursework

ECE205A: Matrix Analysis

ECE210A: Adaptation and Learning

ECE214A: Digital Speech Processing

ECE214B: Advanced Topics in Speech Processing

ECE236A: Linear Programming

ECE236B: Convex Optimization

ECE236C: Optimization Methods for Large-Scale Systems

ECE241A: Stochastic Processes

ECE243A: Neural Signal Processing and Machine Learning

ECE247: Neural Networks and Deep Learning

STAT202A: Statistics Programming

STAT231: Pattern Recognition and Machine Learning

CS268: Machine Perception

Academic Honors and Affiliations

IBM Ph.D. Fellowship (2018-2020)

UCLA ECE Department TA Excellence in Teaching Award (2018)

Finalist in the Grad Slam graduate research presentation competition (2017)

Honorable Mention in the NSF Graduate Student Fellowship Program (2017)

UCLA EE Department Ph.D. Preliminary Examination Fellowship (2017)

Accepted to the EE Ph.D. program at UCLA with first-year graduate fellowship (2015)

Outstanding Undergraduate Award, UCLA EE Department (2015)

Harry M. Showman Prize, UCLA Henry Samueli School of Engineering (2015)

TBP-UCLA (2012-present)

HKN-UCLA (2012-present)

IEEE-UCLA (2011-present)

Computer Languages and Software

C++, C#, MATLAB, Python, Shell, PyTorch, TensorFlow

Other Skills

Violinist (2003-2011; 2017-present)

Pianist (1998-2010; 2017-present)

Singer (2005-2007)